KMCT
DENTAL COLLEGE

Accredited by NAAC with A+ Grade
Approved Research Centre of KUHS

DEPARTMENT OF PEDIATRIC AND PREVENTIVE DENTISTRY

RETEST AND ANSWER SHEETS - 2022-23

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KMCT DENTAL COLLEGE

FINAL YEAR BDS (PART II) SECOND INTERNAL EXAM- RETEST 2022

Pedodontics and Preventive Dentistry (2016 SCHEME)

- *Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers • Indicate the question number correctly for the answer in the margin space*
- *Answer all parts of a single question together • Leave sufficient space between answers*
- *Draw Diagrams wherever necessary.*

Long essay **2 X 10= 20**

1. Define and Classify Pulpotomy. Discuss in detail about Formocresol Pulpotomy.

2. Define and Classify Space maintainers. Discuss in detail about Distal shoe space maintainers.

Short essay **4X 5 = 20**

3. Describe the normal features of gingiva in children. Write in detail about Herpetic Gingivostomatitis.

4. Define Preventive Orthodontics. Discuss on Serial Extraction.

5. Write in detail about indications, contraindications and modifications of Stainless Steel Crowns.

6. Classify Dental Fluorosis. Explain in detail about the defluoridation techniques.

Short notes. **3 X 10 = 30**

7. Cavity preparation in primary teeth.

8. Apexification

9. Space regainers

10. Bite wing radiograph

11. Modifications of GIC

12. Bilateral space maintainers

13. Validation of ART

14. Obturating Materials

15. Indirect Pulp Capping

16. Frenectomy.

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Fatimathu Jishana

Roll no 18

35½ / 70

SECOND INTERNAL EXAMINATION

PEDODONTICS - RETEST

Q1) Pulpotomy

Definition: Amputation of affected or infected coronal portion of dental pulp by preserving vitality and function of radicular pulp.

Pulpotomy

Partial pulpotomy — Complete pulpotomy

Formocresol pulpotomy 4½

Classify

Explain on the basis of properly

Difference of formocresol & glutaraldehyde

local anaesthesia given

↓

Rubber dam is placed and Remove caries using high speed bur

↓

Remove dentinal roof using high ~~speed bur~~ diamond bur stone

↓

Derooting of pulpchamber

↓

ledges in the enamel are removed by slow speed bur

↓

Overhanging enamel is removed

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Spoon excavator is used to scoop out coronal pulp

↓

[illegible] the area with saline

↓

Press cotton for hemostasis

↓

Place a cotton pellet dipped in dil formocresol for 5min

↓

After this, check for fixation of formocresol

↓

Once it is fixed there will be brownish discoloration of cotton pellet and pulp stump

↓

Zinc oxide eugenol will be placed as temporary restoration

↓

After one week, do permanent restoration

↓

put stainless steel crown

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Space maintainer

A removable or fixed appliance that are used to preserve the space created by premature loss of deciduos teeth.

Classification

⇒ According to Hitchcock

- Removable, fixed, Semifixed
- with band or without band
- Active or passive
- functional or nonfunctional
- Combination of above

⇒ According to Raymond C Thurow

- Removable
- Complete arch - lingual arch
  - extraoral anchorage
- Individual

⇒ According to Hinrichsen

- Fixed
  - (1) Non functional
    - a) Class I - bar type, loop type
    - b) Class II - pontic type, lingual arch

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(2) Functional

(3) Cantilever type band and loop

- Removable

Acrylic partial denture

→ Distal shoe space maintainer

Distal shoe space maintainer can be given

- when ~~mesial~~ Distal surface of second deciduos molar is exfoliated . guide the path of eruption of first permanent molar

So when second deciduous molar is exfoliated there is a chance of ~~th~~ mesial drifting of erupting permanent molar

To prevent this distal shoe space maintainer can be given.

Design

Consist of an horizontal bar

It extends from distal aspect of first deciduous molar to mesial aspect of erupting permanent molar

This will guide the path of eruption

Vertical bar

Vertical bar should not be too short , because it may interrupt the eruption of permanent molar

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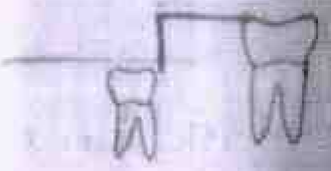
It should not be too long, because it may harm the erupting molar

Advantages
Disadvantages



(Q:3) Normal gingiva in children

Color : Coral pink

Gingiva : Smooth, thick and round

Free gingiva : Keratinised, have saddle areas

Interdental gingiva : Interdental clefts present

Alveolar mucosa : Vascular, red

9

Fibres : Immature

Periodontal ligament : narrow

Bony Trabeculae : Thick and large marrow spaces

Ground substance : Ground substance to collagen ratio less

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Herpetic gingivo Stomatitis

Caused by Herpes Simplex virus

usually seen less than 3 years

Clinical features

- Child will have bouts of fever like measles, malaise chickenpox

prodromal symptoms : fever, malaise, vomiting, irritability

Initially there will be :-

Small vesicle

↓

rupture to form yellowish painful ulceration

↓

which will be surrounded by erythematous margin.

There will be :-

- drooling of saliva
- child become uncooperative while brushing
- difficulty in swalling and chewing

⇒ Management

- Complete bed rest
- provide plenty of fluids
- Debridement of the area
- Maintain good oral hygiene
- Analgesics to control pain
- mild topical anaesthetics.

Q.4) Preventive orthodontics

Preventive orthodontics involve the identification of potential irregularities of dentofacial complex and preventing it

Serial extraction

It is an interceptive orthodontic procedure that deals with sequential extraction of certain deciduous tooth and some specific permanent tooth to guide the eruption of permanent successors without much irregularities. 2½

Methods

Tweed's method 6½

At 8 years

first deciduous molar, ~~is~~ extracted

↓

Deciduous canine is retained to retard the eruption of permanent canine.

pre molar

↓

After 4-10 months

↓

premolar is extracted

↓

Then deciduous canine is extracted to align permanent canine and incisors

Dewel's Method

At 8-9 years

↓

All Deciduous canine is extracted

↓

After 1year

↓

All first Deciduous molar is extracted followed by extraction of premolar

↓

permanent canine and incisors can be aligned properly.

Nance method

At 8 years

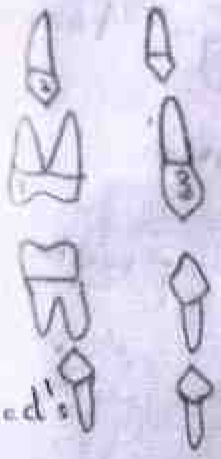
↓

Deciduous molar is extracted

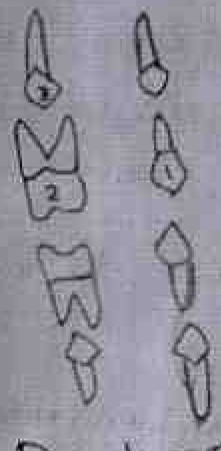
↓

~~Retto~~ After 1years

Deciduous
premolar is extracted
↓
Deciduous canine is extracted
↓
permanent canine and incisors are aligned



Tweed's



Dewels method

Q. 5) Ind Stainless Steel Crowns

Indication

1. Extensively decalcified tooth

   when a tooth is extensively decalcified

2. Rampant caries

   early child hood caries mostly
   ~~teeth~~ ~~arise~~ from nursing bottle caries

3. Reccurrent caries

   when a tooth is subjected to recurrent caries.

3½

4 Enamel defects

mostly amelogenesis imperfecta, hypoplasia

5 Fracture of anterior tooth

when anterior tooth is fractured it is replaced with crown is placed above it

6 Tooth with Bruxism

when the cuspal edges become flat due to bruxism.
Bruxism causes attrition.

7 As an abutment in prosthesis

- As a space maintainer
- multi surface caries

Contraindication

- when Tooth with extensive caries
- Tooth with extensive ~~[illegible]~~ mobility
- Tooth with root resorption
- patient with Nickel allergy
- Tooth with softissue trauma or blanching

Modification of Stainless Steel

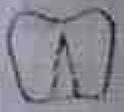
1. oversized /undersized crown

Oversized crown

Fit the crown, if it is oversized

↓

Remove and give a cut from gingival to occlusal area



↓

place on the tooth

↓

Join
pinch the cut surface and check for gingival margin

↓

reposition the joined area and solder

↓

polish soldered area

↓

Do contouring, crimping and polishing

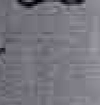
↓

fix with cement.

Undersized crown

[illegible] AR K.P

Give a v shaped cut bucally or lingually



↓

place crown on tooth

↓

The joint the cut area with orthodontic band

↓

Solder the area

↓

polish the soldered area

↓

do contouring, crimping and polishing

↓

fix with cement.

2 Adjacent Stainless Steel crown

- If ~~[illegible]~~ adjacent tooth require Stainless Steel crown, prepare one tooth and put crown at a time followed by the other.
- This if both tooth are done at a time there ~~with~~ will be encroachment of space.
- If one ~~tooth~~ require Stainless Steel crown and other require amalgam ~~or~~ Class II amalgam restoration, place Stainless steel crown first.

DR. [illegible] R.K.P

- Adjacent Stainless Steel crown with arch length loss

- When there is caries in interproximal surface adjacent teeth will move into the space and causes decrease in arch length.

So proximal reduction of non carious tooth is done first.

(Q.6) Fluorosis

Fluorosis

Acute

Dental fluorosis

Skeletal fluorosis

2½

Dean's fluorosis index ??

Defluoridation

- process of removal of naturally occuring fluoride from water for domestic purpose.

Nalgonda Technique

In two steps

- Raw It involve sequential adding of Alum, lime and bleaching powder followed by flocculation, sedimentation and filtration..

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1 Rapid Mix

when coagulant is added to water, it undergo rapid mixing for 30-60 sec at a speed of 10-20 rpm.

This helps in uniform dispersion of coagulant and form microflocs.

2. flocculation

- Here gentle stirring is done for 10-15 sec at 2-5 rpm.
- This helps in the settling of microflocs

3 Sedimentation

- This is the gravitational settling of suspended particles.

Sedimentation depends on:

Size, shape, density and nature of particles
- density of water
- Surface flow rate
- viscosity of water.

4 filtration

Then water is allowed to pass through porous medium.

- This will be available for domestic use water with less than 1ppm fluoride

[illegible]

- Water can be used for domestic purpose
- Less wastage of water
- No expensive equipment required
- Muscle power is required, No wastage of electricity
- Easy to maintain and operate ~~and~~

(Q.7) Cavity preparation in primary teeth

Class I cavity

- Since thickness of enamel is less, cavity have to be extended 0.5mm pulpal to enamelo dentino junction
- Occlusal convergence must be given
- In mandibular second molar, as the central pit is more prone to caries than mesial pit. Hence the outline must be confined to ~~so~~ central pit
- Cavity have to be laterally extended to accommodate amalgam condenser for ~~the~~ deciduous pulpal floor. teeth hence maintain the concavity ~~and~~ ~~extend upto a~~ too

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11 ORAL SCREEN

- Single sheet used for mouth breather and patient with thumb sucking habit. Initially holes are placed later gradually it is closed ~~infus~~

Indication

- Mouth breather
- Patient with thumb sucking habit

Contraindication

- Patient with nasal defects like nasal polyp, turbinate and deviated nasal septum

Modification

- Hotz modification - Along with oral ~~scree~~ screen placed a metal ring. Helpful in removal and placement appliance. Also for stabilizing the appliance.

2½

- Double oral screen.
- Vestibular screen - Extent upto vestibular region.

DENTAL HOME

13 It is a ongoing relation with the dentist ~~and~~, patient and the pediatrician which is continuous, accessible

Characteristics

- Accessible
- Continuous
- Easily available
- Competence

- Cavity depth should be 1.5 - 2mm

While doing lateral extension on buccal side hold the ~~bar~~ instrument ~~on~~ parallel to buccal surface and similarly on lingual side, hold parallel to lingual surface

Class II Cavity preparation

- occlusal surface preparation have to follow class I preparation
- For all first molar -

Cavity should be extended ½ of mesiodistal ~~long~~ ~~axis~~ length and give dove tail

- proximal box: Greater in width for the purpose of self cleansing
- Axiopulpal line angle must be rounded
- Cavosurface angle should be stress,
- Internal line and point angles must be rounded

Cavity preparation in permanent tooth

1. outline form and initial depth
2. Primary ~~convenience form~~
   primary resistance form

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Shape and form of conventional preparation that best enable the tooth to withstand without fracture on masticatory forces

3 Primary retention form

Shape and form of preparation the resist the dislodgement of restoration due to tipping or lifting forces

4 Convenience form

5 Removal of carious dentin and old restorations. This helps to prevent contamination of cavity.

6 pulp protection if indicated using calcium hydroxide

7 Final procedure - cleaning, inspecting, sealing

Q.9) Space regainer

Removable or fixed appliance used to regain the ~~spa~~ lost space

Removable appliance

1½

Hawley's ~~appliance with jackscrew~~

Hawley's appliance with finger spring.

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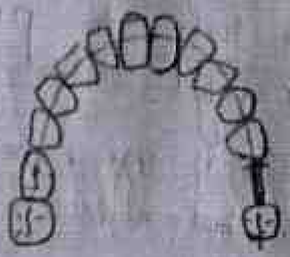
Fixed appliance

- Crozat's appliance
  King's appliance
  Lip bumper
  Hotz appliance
- ~~pend - Split acrylic appliance~~.

Crozat's appliance



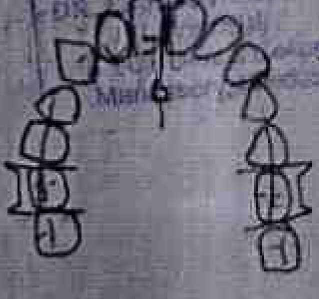
Consist of a spring with ~~and at the~~ that is kept at the edentulous area.

U loop can placed at ~~to~~ it's free end

Open coil spring

Can be used to open spaces between two teeth.

Hawley's appliance with finger spring



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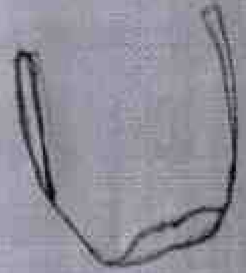
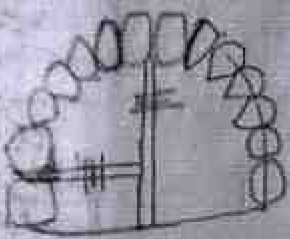
Lip bumper



- It's distal end is attached to the band present on the molar tooth

This will prevent the mesial migration of tooth

Split acrylic



- Consist of split acrylic acylic plate, labial bow and Jack screw

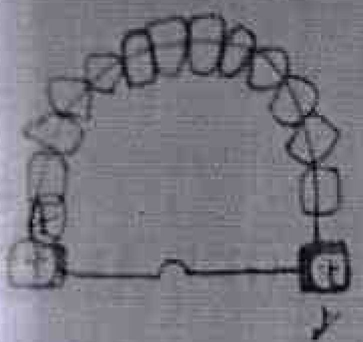
Q 11) Resin modified GIC

Metal modified GIC

1 Giomer

Q 12) Transpalatal and Nance palatal space maintainer

Transpalatal



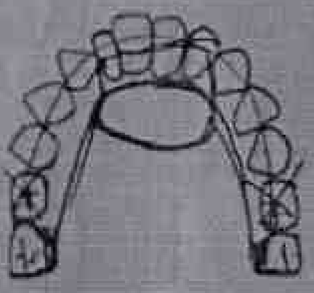
- Components A metal band is attached to the molar. To which wire is attached passing across the palate.

Uses

Bilateral loss of molars prophylactic

- Maintain arch length.
- ~~Can be given after erup~~

Nance palatal space maintainer



- Maintain arch length
- Cannot be given before eruption of incisors

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(Q.16) Frenectomy

Procedure for removing abberant frenum

put an incision at the base of the frenum

↓

Extend the incision to periosteum

↓

~~[illegible] the frenum~~ Raise the flap

↓

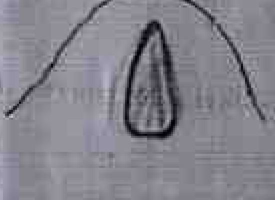
~~Incise the~~

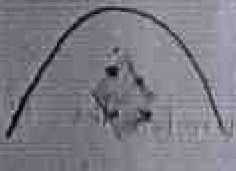
cut the frenum Correct the frenal attachment

↓

Keep back the mucosal flap and put suture.

A diamond shaped ~~flap~~ mucosa ~~is~~ will be seen.





Indication

- Thick frenum
- ~~[illegible]~~ Papillary penetrating frenal attachment

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Q17) Validation of ART

ART Atraumatic restorative treatment can be done in small cavities

- It can be done in a cavity without pulpal exposure
- In a cavity where hand instrumentation is possible
- When patient have no pain
- It can be done in fearful adults, children, mentally handicapped personnel
- It cannot be done if patient have pain, swelling or fistula.
- It is valid in public health programe.

Procedure

Isolate the area

↓

Clean the tooth surface

↓

Widen the entrance and remove unsupported enamel by hatchet

↓

Remove carious dentin with spoon escavator

↓

Apply calcium hydroxide if required

↓

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↓

Clean the surface

↓

Apply acid-etchant

↓

Mix the GIC ~~or any other ma~~

↓

Place it in the cavity

↓

Take vaseline over the gloved finger and press over the surface

↓

Check for high points by using articulating paper

↓

If present, remove excess using carves

↓

Again check occlusion

↓

Apply vaseline over the tooth surface and filling.

Q. 10) Bite wing radiograph

- It is an intraoral radiograph

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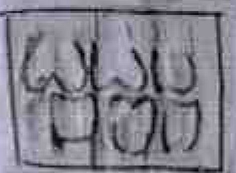
Indication

- proximal caries can be detected
- periodontal area evaluation can be done

Height of bone can be determined
X-ray of upper and lower arch can be taken in single radiograph

Mechanism

- Xray have to be passed through the ~~a~~ contact points between the tooth.



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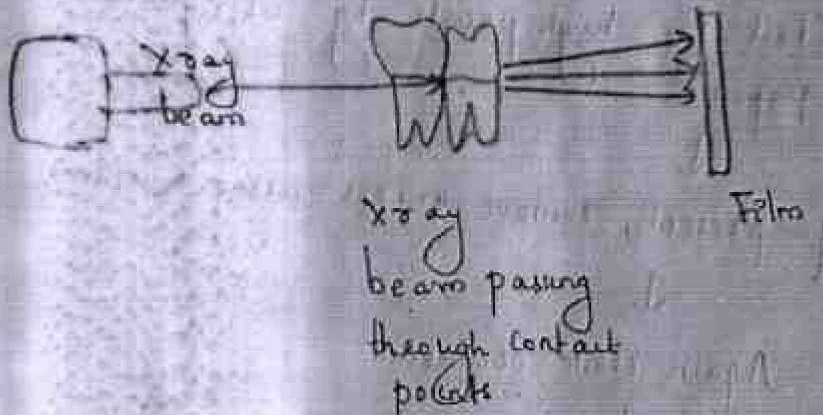

⇒ film can be holded using bitewing loop.

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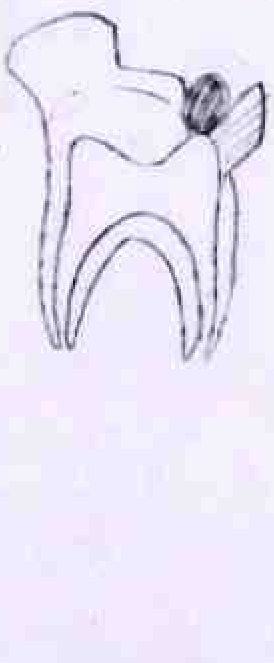
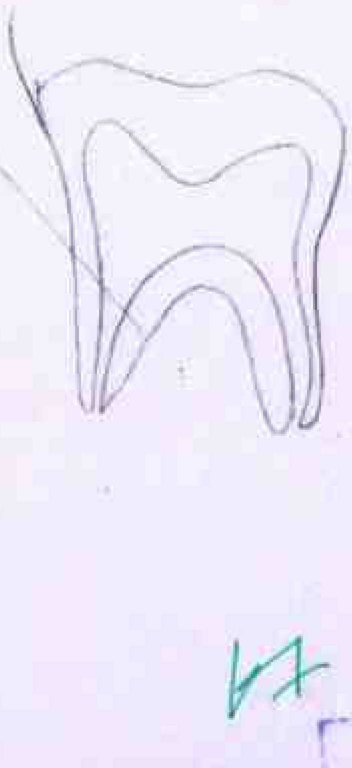
ele internal and external root resorption

* Contraindications

- Mobile teeth
- The tooth shows signs of exfoliation
- Medically compromised patients
- Childrens with congenital heart disease.
- Childrens under long term corticosteroid therapy
- Uncooperative patients

* Procedure





PULPOTOMY

- **Steps**

Administration of local anaesthesia

↓

Rubberdam isolation

↓

Removal of the carious tooth surface /dentin

↓

Deroofing of the pulp chamber with straight fissure bur

↓

Removal of the coronal pulp with excavator

↓

Ampute the pulp stumps with round bur

↓

Care should be taken to avoid perforation.

↓

Placement of wet cotton dipped in formocresol into the pulp chamber for 3 minutes

↓

Check for fixation

↓

Remove the cotton pellet

↓

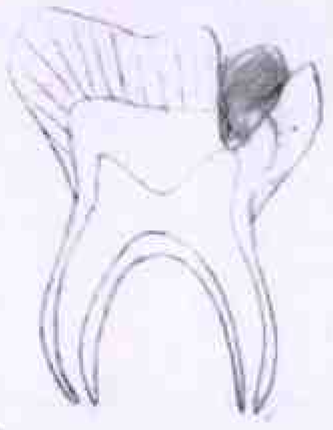
Place zinc oxide paste on the floor of pulp.

↓

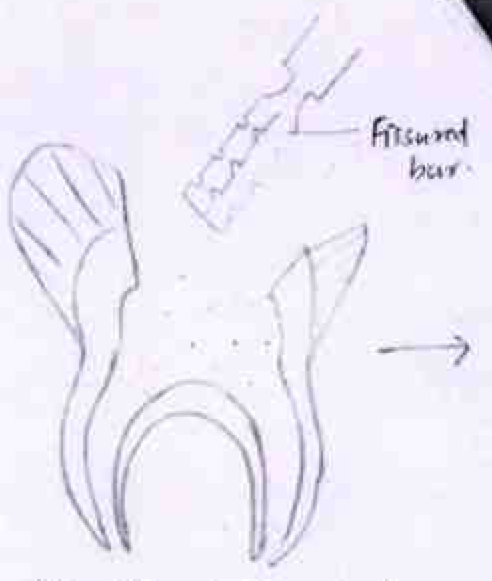
Placement of restoration

↓

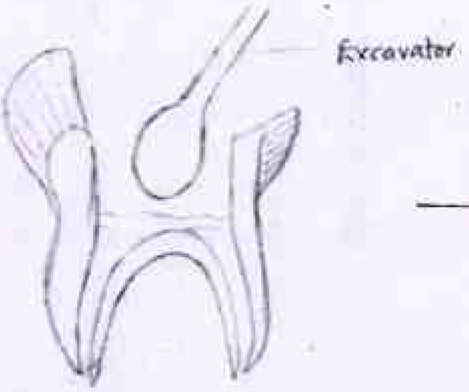
Stainless steel crown is adapted on the tooth surface.



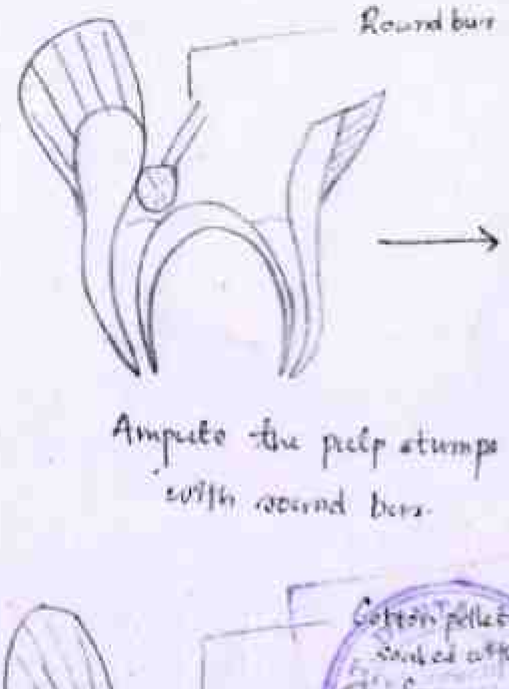
Carious tooth involved
with pulp



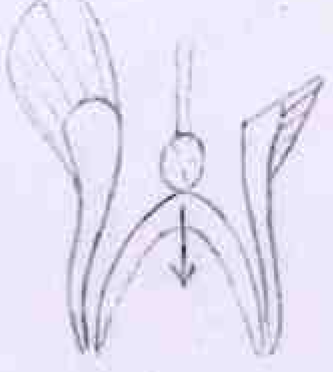
Deroofing of the pulp chamber
with fissured bur.



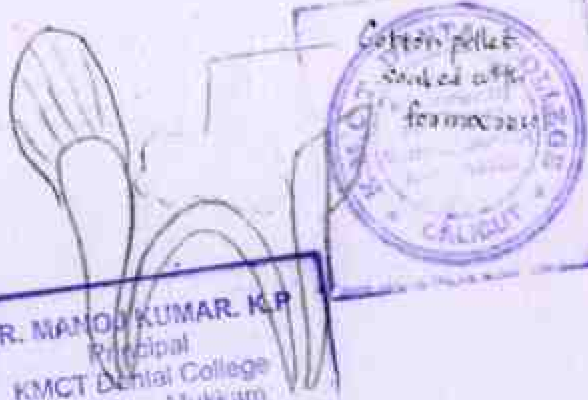
Removal of the coronal
pulp with excavator



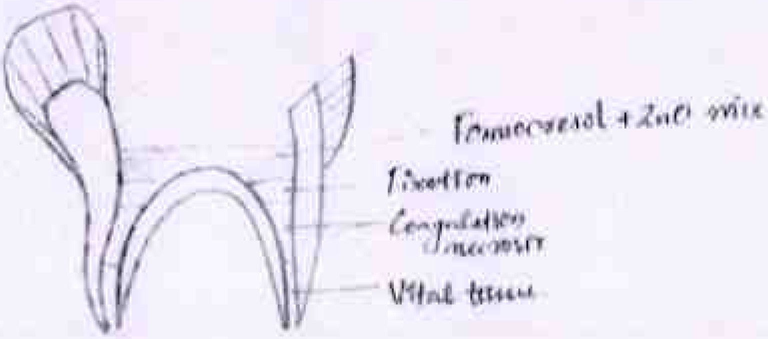
Ampute the pulp stumps
with round bur.



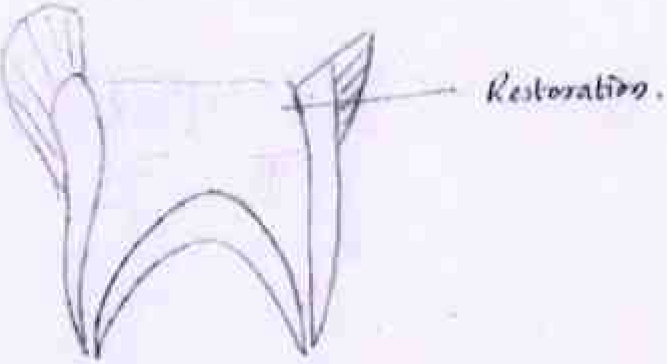
Avoid perforation.



Place formocresol wetted
cotton pellet for 5 minutes

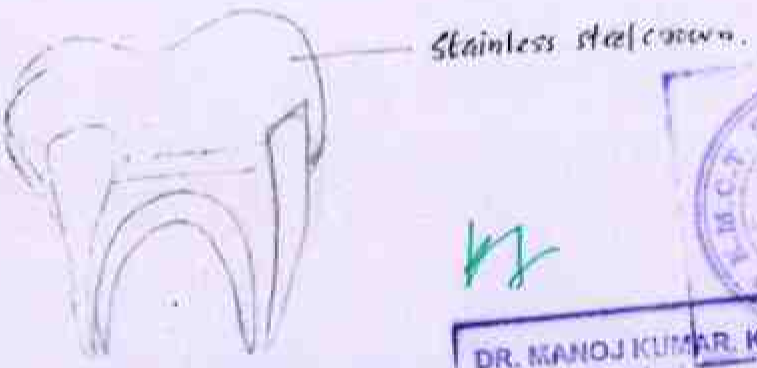

Formocresol + ZnO mix
Fixation
Coagulation necrosis
Vital tissue

↓


Restoration.

5

↓


Stainless steel crown.

TES

× Difference between formocresol and Glutaraldehyde Pulpotomy

- The material used in formocresol pulpotomy is
  - Formocresol
  - Glycerol
  - Glutaraldehyde
  - Water
- In glutaraldehyde pulpotomy, the material is glutaraldehyde.

d

2. # SPACE MAINTAINERS

* Definition ([illegible])

Space maintainers are removable or fixed appliances used to preserve the space created by the premature loss of deciduous tooth or group of teeth.

* Classification

I) According to Hitchcock
    a) Fixed, Removable, Semifixed spacemaintainers.
    b) Active or passive
    c) Banded or without bands.
    d) Functional or non-functional
    e) Combination of the above.

II) According to Raymond C Thurow
    a) Removable
    b) Complete arch
    c) Single tooth.

III According to Hinrichsen
    a) Removable space maintainers
        Class I
            Functional - Pontic type
            Non-functional - Band type, Loop type
        Class II
            Cantilever type - Distal shoe
    b) Fixed space maintainers

* Management of 4 year old child who require extraction of mandibular right 2nd deciduous molar → Distal shoe space maintainers

Distal Shoe space maintainer

- Also called Intraalveolar space maintainer

* Indication .

  - Space maintanance to children who have premature loss or extraction of second primary molar before the exuption of permanent first molar

* Contraindication

  - Congenitally missing permanent 1st molar
  - Mobile tooth
  - There is no abutment tooth for placement
  -

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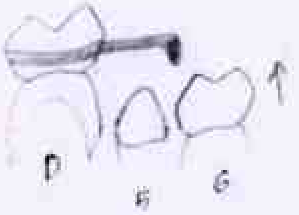
* Advantages

. It is the only appliance indicated in premature loss of second primary molar before the eruption of permanent 1st molar

* Disadvantages

- Cause tissue damage
- May alter the eruption pathway of permanent molars
- Require patient cooperation
-

* Fabrication



- Place the band on the first deciduous molar which is used as the abutment and check for adaption
- Stainless steel crown can also be used in abutment teeth
- Remove the band
- Take impression
- ~~Remove the Band~~
- Place the band or stainless steel crown on the impression and make cast
- Take a metallic piece having mesiodistal width of the space (from distal surface of ~~1st~~ deciduous 1st molar to mesial surface of erupting permanent 1st molar)

- Weld or solder the metallic piece to the band.
- The depth of the terminal end of the extension should be 1mm below the gingiva.
- If it is more than 1mm, it will interfere with eruption of permanent 1st molar
- If it is less than 1mm, the permanent 1st molar may erupt beneath the appliance.

3. Normal Gingiva of Children

- Color : The normal color of gingiva in children is pink.
- Thick and rounded contours
- Stippling is absent in infants but it will start to appear on above 3years
- Interdental gingiva shows interdental clefts.
- Free gingiva shows retrocuspid papilla.
- Retrocuspid papilla → It is a circumscribed tissue seen on lingual surface of ~~canin~~ deciduous canines
- Children shows large pulp chamber and high pulp horns.
- Collagen fibers in gingiva of children are immature they will become mature as age increases.
- Periodontal ligament space is more in children.

10DE1

PF - Vestibular depth of children → 1 - 1.2 cm

-

Gingival diseases in Children

- Acute herpetic gingivostomatitis
- ANUG (Acute Necrotizing Ulcerative Gingivitis)
- Gingivitis due to habits
- Plasma cell gingivitis
- Drug induced gingivitis.
- ~~B~~ Gingivitis due to puberty

⇒ Acute herpetic ~~necrotizing~~ gingivostomatitis

- Causative organism : Herpes Simplex Virus I
- Commonly seen in children.
- Prodromal symptoms : Irritation
  Fever
  Malaise
  Vomiting.
- Shows minute small lesion ~~[illegible]~~ which will leads to ~~yellowing~~ yellowish pustules and rupture
- Painful lesions
- ~~Also~~ Children shows difficulty for chewing and swallowing, drooling of saliva, reluctant to brush.
- Poor oral hygiene index, high caries activity

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CALICUT

- Management → Proper rest, diet, good oral hygiene practice

  Topical analgesics for pain ~~ret.~~ relief
  Topical anaesthetic gel.

→ ANUG

- Also called trench mouth.
- The lesions shows characteristic punched out appearance
- Affects initially on the interdental gengiva and then free gengiva.
- It ~~may~~ causes ulceration and necrosis of the soft tissues of oral cavity and may spread to the underlying facial bone.
- Painful lesions, spontaneous bleeding on slight touch.
- Management → Diet, oral hygiene practice.
  Application of mouthrinse

→ Plasma cell gingivitis

- No specific etiology.
- Characterized by abundant plasma cells on the affected area (histologically)
- Gingival bleeding

DF → Drug induced gingivitis

- Characterized by gingival enlargement
- Painless swelling
- No bleeding on probing
- Bulbous enlargement of interdental gingiva.
- Due to administration of phenytoin, anticonvulsants. calcium channel blocker etc
- Discontinuation of the particular drug will relieve the condition

4. SERIAL EXTRACTION

Preventive Orthodontics ?

* Definition

Serial extraction is the planned sequential extraction of some deciduous and permanent teeth.

* Methods

a) Tweeds method — DC4 D4C
b) Dewel method — CD4 ✓
c) Nance method — D4C ✓
d) Moyers method — DC14 ✓

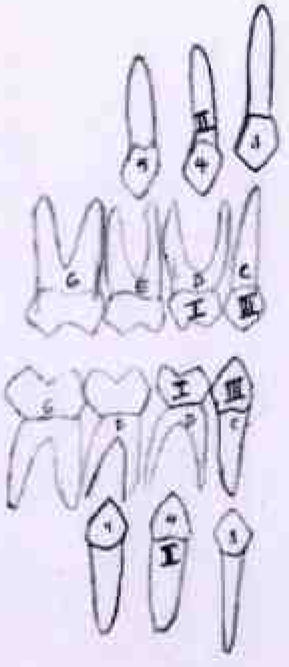
* Indications

- No physiological teeth spacing.
- Lingual eruption of lateral incisor.
- Canines are erupting on mesial aspect of lateral incisors
- Sign of crowding.
- Mild class I malocclusion
- Less tooth material discrepency

* Contra Indication

- Severe class II, class III malocclusion
- More spacing between teeth
- High caries activity.
- Caries on first permanent molars.

A) TWEED'S METHOD [D+C]



At the age of 8 years

↓

Extract deciduous first molars

↓

After 2 to months

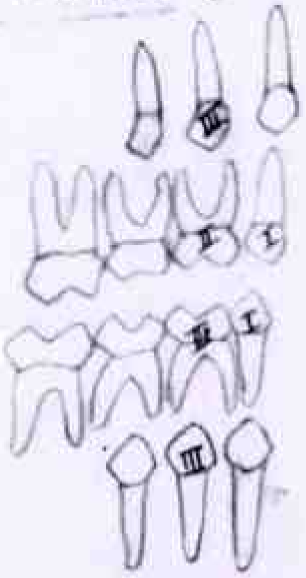
↓

Extract permanent first premolars

↓

Extract deciduous canines

B) DEWEL'S METHOD (CD4)



At the age of 8-9 years

↓

Extract deciduous canines

↓

Extract deciduous first molars

↓

Extract

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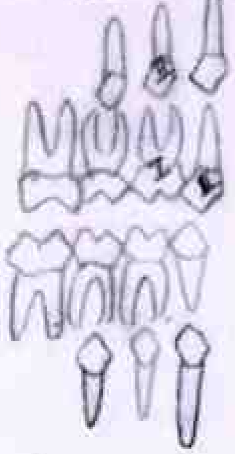
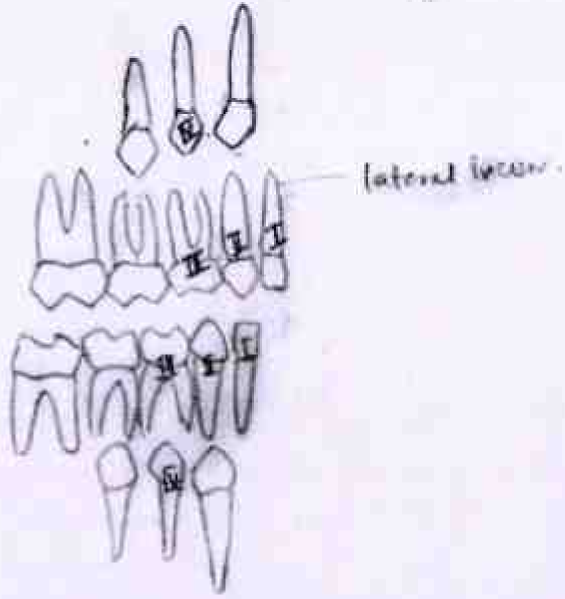
C) NANCE METHOD (P4C)

- Similar to Tweeds method



D) Moyer method (BED4)

- Indicated in anterior crowding



Extraction of deciduous lateral incisor

↓

Extraction of deciduous canines

↓

Extraction of deciduous 1st molars

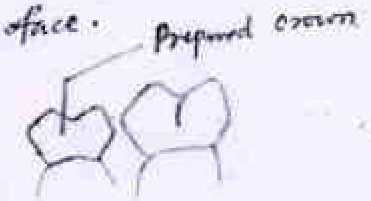
↓

Extraction of 1st premolars.

5. STAINLESS STEEL CROWN

* Definition

It is a pre-fabricated crowns used to preserve the anatomy, function of the tooth structure. and are cemented on the toothsurface.



* Indications

3

- Extensive caries
- Caries involving ~~more~~ than multiple tooth surfaces
- Rampant caries
- Severe bruxism
- ~~As~~ ~~an~~ On abutments in space maintainers
- As a part of orthodontic therapy
- Teeth which cannot be restored.

* Contraindication

- Mobile teeth
- Teeth which will exfoliate soon
- Teeth with minimum tooth structure
- Root resorption exceeds more than 1/3rd
- Uncooperative patient
- Patient who have nickel allergy.

* Modification

→ ~~Overcrown~~

→ Oversized crown or underprepared teeth

It can be adapted by festooning the cervical margin of the crown by using curved scissors.

→ Undersized crowns or overprepared teeth

- Place the crown on tooth surface after giving a vertical cut
- Adapt a metal piece where it is deficient
- Remove the crown and solder the metal piece with the crown.

→ Teeth with open contacts

- Use oversized crowns and cementation done

→ Crown with deep gingival extension

6. FLUOROSIS

- Fluorosis occurs as a result of increased level of fluoride in diet.

* Classification

A) Skeletal fluorosis

B) Dental fluorosis

Dental fluorosis

- Initially dental fluorosis appear as white lines on the incisal edges and cusps of posterior.
- Gradually it form white patches and spreads to the entire tooth surface.

Defluoridation Techniques

→ Nalgonda technique
→ Adsorption technique
→ Ion exchange method.

→ Nalgonda Technique

- It involves the use of bleaching powder, alum
- The process involves filtration, sedimentation, trituration.

→ Adsorption method

- Fluorides can be ~~reduced~~ lowered by adding these material who have the adsorptive capacity.
- Eg:- Charcoal
  Alum.

→ Ion exchange method

Cation exchange
Anion exchange.

7.

PRIMARY TEETH	PERMANENT TEETH
- Depth of cavity : 0.5mm to dentin	- 0.2mm to dentin
- Isthmus : Narrow	Isthmus wide
- Width of occlusal cavity Narrow	- Wide occlusal cavity
- Dovetail is contraindicated	- Dovetail is indicated
- Retention grooves are not present	- Retention grooves are present
- Sharp line angles	- Rounded line angles

8 APEXIFICATION

- It is a non vital pulp therapy involved in young permanent tooth.
- Defined as the placement of medicated or nonmedicated material on the pulpchamber to promote root apex closure by osteogenesis or osteoblastic activity.

* Indication

- Non vital tooth
- Tooth with incomplete root formation
- Open apex
- Severely necrosed pulp

* Contra indication

-

* Procedure

Tooth is anaesthetized and isolated

↓

Removal of carious dentin

↓

Access the pulp chamber

↓

Remove the radical·coronal pulp with excavator

↓

Remove the radicular pulp with broaches

↓

File the canals

↓

Irrigate with saline and remove debris

↓

Dry the canals

↓

Apply $Ca(OH)_2$ powder to the root apex

↓

Fill ~~Apply~~ $Ca(OH)_2$ and saline on the canals

↓

Apply thick mix of $Ca(OH)_2$ paste.

↓

Place temporary restoration and stainless steel crown.

↓

Check for apex closure (within

↓

Replace the restoration with permanent and root canal procedure is done

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9 SPACE REGAINER

- The lost space is regained by using space regainer
  eg- Jaffee space regainer

10 BITEWING RADIOGRAPH

- It is an intraoral radiograph in which the coronal portion of maxillary and mandibular teeth is recorded.
- A bitewing or loop is used to bite the device / apparatus by the patient itself while taking radiograph.
- Size 1 film is used for adult patients
- Size 0 film is used for pediatric patients.

2

* Indications
  - Detection of proximal caries
  - Detection of overhanging restorations
  - Evaluation of bone level
  - Evaluation of periodontal attachment.

* Advantages
  - Radiographic image of 4-6 teeth can be obtained
  - Less patient exposure
  - Can be disposed early

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* Disadvantages

- Dislodgement of the film while taking radiograph

* Procedure

Place the film on the bite wing and ask the patient to bite

↓

Xray beam of vertical angulation +10° and horizontal angulation 0° is passed between the contact areas

↓

Remove the film outside and process

13 ## ART (Atraumatic Restorative Treatment)

* Definition

It is defined as the non-invasive restorative procedure in which demineralized tooth substance is removed using hand instruments and restored with glass ionomer

* Indication

- Small carious lesions
- No history of pain
- No history of hemorrhage
- No [illegible]

* Contraindication

- Pulp exposure
- Deep caries
- History of pain
- History of hemorrhage

* Advantages

- Can be done in public health camps
- Less time consuming
- Ease of sterilization because of the use of hand-instruments
- Less tooth preparation (more conservative)
- Economical

* Disadvantages

- Hand fatigue
- There may be a misconception that tooth colored materials are temporary.
-

15.

INDIRECT PULP CAPPING

* **Definition**

Vital pulp therapy procedure in which a small amount of ~~de~~ demineralized dentin is retained above the pulp and a medicated material is placed on it.

* **Indications**

- No history of spontaneous pain.
- No swelling, cyst, abscess.
- No obvious pulp exposure.
- Pin point hemorrhage which can be arrested by applying mild pressure ~~on~~ with cotton.

* **Contra indications**

- History of spontaneous pain
- Uncontrolled hemorrhage
- Pulp exposure.
- Cyst, abscess.

* **Procedure**

Tooth is anaesthetized and isolated with rubber dam

↓

Remove the carious dentin, soft debris

↓

Stop the [illegible] a resistance is felt on the dentin

[illegible] KUMAR [illegible]
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↓

Remove the debris with saline

↓

Dry the cavity

↓

Place $Ca(OH)_2$ paste on the floor

↓

Fill ~~Apply~~ zinc oxide eugenol paste on the cavity

↓

Recall after 2 weeks

↓

Followup radiograph taken to check the formation of dentin bridge

↓

Replace the temporary restoration with permanent restoration.

FRENECTOMY

- It is a minor surgical procedure
- There are various types of frenal attachment

Gingival attachment
Mucosal attachment
Papillary attachment
Papilla- penetrating

- High attachment of frenum cause malocclusions like midline diastema.

- There are 2 types ~~frenectomy~~ of procedures

Frenectomy → Complete ~~and~~ excision/ cutting of frenum on labial and lingual surface

Frenotomy → Partial excision of frenum.

- There ~~is~~ are many controversies in the time of performing frenectomy [before orthodontic treatment, during or after treatment].
- Most preferred time for frenectomy is just before the space closure.

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11. Modifications of Glass ionomer Cements

→ Compomer

It exhibits properties of both composites and resin modified GIC

14. Obturating materials

- Ca(OH)$_2$
- Zinc oxide eugenol
- Iodoform
- Vitapex, Metapex

⇒ Zinc oxide eugenol

- It shows antibacterial property.
- Shows low resorption rate than ~~root~~ primary tooth.
- Obturation → initially thin watery mix of zinc oxide eugenol is applied on the canals and then thick mix is applied.

→ Iodoform

- It imparts yellow discoloration to the teeth
- Have anti microbial properties

→ Calcium hydroxide

- Commonly used obturating material
- Commercially available forms are vitapex and metapex
- Exhibit anti microbial property
- Applied as thin mix on the canals initially and then thick mix is placed.

12. TRANSPALATAL & NANCE PALATAL SPACE MAINTAINERS

- Used in when bilateral missing teeth.
- Used in maxillary arch.

KMCT DENTAL COLLEGE

FINAL YEAR BDS (PART II) MODEL EXAM- RETEST 2022

Pedodontics and Preventive Dentistry (2016 SCHEME)

- ***Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers • Indicate the question number correctly for the answer in the margin space***
- ***Answer all parts of a single question together • Leave sufficient space between answers***
- ***Draw Diagrams wherever necessary.***

Long essay **2 X 10= 20**

1. Classify Handicapped children. Discuss the clinical presentation and special consideration in the management of children with Cerebral Palsy.

2. Discuss the Ellis and Davey classification of dental trauma. Explain the management aspects of Ellis class III fracture of tooth 11 in a 10 years old child.

Short essay **4X 5 = 20**

3. Classify theories of child psychology. Explain in detail about Freud's theory.

4. Define and classify ECC. Write in detail about its stages and management.

5. Classify oral habits. Explain in detail about the Thumb sucking Habit.

6. Define pulp capping. Mention indication and describe briefly the medicaments.

Short notes. **3 X 10 = 30**

7.Gum Pads.

8. Diet counselling

9. Battered child syndrome

10. Apexification VS Apexogenesis

11. Rampant caries

12. Nitrous oxide inhalation sedation

13. Dental Home

14. Contingency management

15. Modifications of GIC

16. Oral Screen.

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Pedodontics - Retest

Sreenandana k
47

30½
15

Classification

I
- Convulsions - epileptic
- hematological disorders - leukemia

II
- Blind or partially blinded
- deaf or partially deaf
- mentally disabled child
- physically disabled child

Cerebral palsy

Clinical features

1) head reclined and wide mouth open
2) tongue finger shaped, protruded
3) Drooling of saliva
4) Anterior open bite
5) proclination of maxillary anteriors → Trauma results
6) overjet more
7) wave like movement of tongue

Dental management

1) Appointment schedule

→ schedule appointments in short period.

→ first dental visit

→ ~~Inform~~ meet the entire dental team and done family tour at dental office → to enhance good relationship with child

→ ~~Bring~~ Inform patient to bring electronic devices or playboard of child with them

→ Brings toys of child to reduce his/her anxiety

→ ~~Bring medical~~. Inform parents to bring medical records, [illegible] about child [illegible] underlying diseases

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(30)

→ start with simple procedures, later use complex procedure.

→ ~~If~~ wheel chair, dental treatment can start at wheel ch
or can be done in dental chair by a lift process

→ At seating dental chair, head supported with Assistant at midline, If upper part is going lateral, then use strap or If lower part is going to bend use ~~soft~~, and incline hip angle 120° in relation to trunk, and place soft foam rolls

→ ~~use to while taking radiogr~~ mouthprops can be used

→ while taking radiograph procedures, head tilted at obtuse angle and reverse bitewing radiograph taken

→ 38% SDF, Atraumatic ~~r~~ restorative techniques are used

→ Removable ~~de~~, fixed dental prosthesis are not done for cp patients

→ Extraction ~~done~~ ~~is~~ preferred over pulp therapy

→ ~~parents~~ To communicate with child, parents are used as assistants

Oral preventive care

→ Inform the patient to clean patients teeth with soft cloth

→ And also ~~to~~ fluoride application biannually done

→ use pin pointed fluoride paste to clean ~~teeth~~ tooth surface

→ Avoid frequent snacks b/w meals, can cause caries

→

Classification of Anterior teeth fractures

Ellis and Davey classification

Class I :- ~~an~~ fractures involving enamel
Class II :- fractures involving enamel, dentin
Class III :- fractures involving enamel, dentin, pulp
Class IV :- Traumatized nonvital & teeth become nonvital
Class V :- ~~Avl~~ Avulsion
Class VI :- Root fractures with or without crown fracture
Class VII :- Displacement of teeth neither crown nor root fracture
Class VIII :- fracture of crown en masse
Class IX :- Fracture of primary teeth
According to rabin :- fractured teeth
According to mathewson :- cystic dislocation of teeth

WHO classification

class I :- fracture of enamel
class II :- fracture of enamel, dentin
class III :- fracture of enamel, dentin, pulp
class IV :- Traumatized teeth
class V :- Avulsion

~~Ad~~ Andreasen classification

1) Hard tissue
→ complicated crown fracture
→ uncomplicated crown fracture
→ complicated crown root fracture
→ uncomplicated crown root fracture

2) soft tissue
⇒ laceration
→ contusion

Luxation and
Associated Structures

- -> Luxation
- Subluxation
- Lateral luxation
- Extrusion
- Intrusion

Class III fracture management

-> Involve enamel, dentin and also there is pulp involvement

Clinical feature → mobility

-> bleeding

-> tenderness, pain

→ pulp capping can done, pulpotomy

→ ~~pulp capping~~ After isolating the ~~s~~ tooth, clean with saline and hemostasis achieved

→ ~~@~~ pulp capping done with $Ca(OH)_2$ and TF is given, later cover [illegible]

→ If any laceration occur ~~near~~ of gingiva near the tooth, suture

→ Tetanus prophylaxis given to prevent infection

→ ~~in~~ pulpotomy done with removal of coronal portion of pulp and for regeneration of radicular pulp

Isolate and anesthetize
↓
Remove debris
↓
Remove coronal pulp, Irrigate pulp chamber
↓
hemostasis taken
↓
Placing and observe done
↓
Permanent restoration, TF

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Theories of child psychology

1) Freudian / psychoanalytical theory / psychosexual theory
2) psycho ~~sexe~~ social theory
3) cognitive theory
4) classical conditioning
5) operative conditioning

1) Freudian's or psychoanalytical or psychosexual theory

→ The Freudian says that human mind compared to iceberg which has upper visible compared to conscious mind and below unvisible compared to unconscious mind

→ 2 components of ~~mass~~ :- phi (sensitive of emotion) and
psi (storage of emotion)

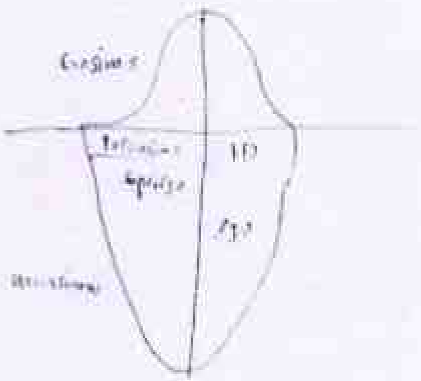
when emotion achieved at a level, a discharge occur. called archaic discharge

→ And there is preconscious ~~mi~~, which indicates available memory

→ Conscious mind indicates present thought, memories

→ Unconscious ~~mi~~ → a simple desires of stupidness, motives of artist and scientist

→ psychic triad
(1) Biologic drive → ID (pleasure principle)
(2) superego :- parents teaches the values and morals of society to child. and ~~f~~ they judge as correct or wrong
3) Ego :- It is between ID and ego and it makes pass a guilty feeling.



Stages:

(1) Oral stage

Age :- 1-1.5 years

~~Er~~ Erogenous zone :- mouth

Activities :- sucking, eating

→ milk is not about food but also motivation for infants

→ If forcefully or prolonged ~~breast~~ feeding can result in fixation to child

Fixation :- smoking, sarcasm, drinking

2) Anal stage

Age :- 1.5-3 yrs

Zone :- Anus

Activities :- Bowel movement

→ Toilet training → teach parents teach how to use toilets

2 Components

(a) Anti expulsion effect

→ If parents are fail to teach or train the children he will become ~~un~~ reckless, ~~[illegible]~~ sloppy, carelessness

(b) Anti retention effect

→ If parents are too ~~[illegible]~~ strict or pressuring child

• can result in clean, tidiness & others

3) **Urethral stage**
Age :- 3-4yrs
Zone :- urethral area
Attitude :- urination
⇒ children (boys) wonders n act like father while urinating

4) **Phallic stage**
Age :- 4-5yrs
Zone :- genitals
These 2 names are :- oedipus complex and electra complex
→ In case of boys They have attraction towards his mother and they ~~ba~~ behave like father called oedipus complex
⇒ But they have fear of father (castration fear)
⇒ In case girls, they have attraction towards father and they compete with mother, and she thinks that she has no genitals has father and ~~son~~ brothers and she have anger towards mother (penis envy)

Fixation
In boys :- Anxiety around fear towards sex
In boys :- envy and inferiority

5) **Latency**
Age :- 5-18
Zone :- genitals
⇒ They start to find same gender attraction, friendships, peer
⇒ Engage in sports

Pre
Pubertal stage
Age: 12 onwards
Sex: [illegible]
→ relationships, love, partnerships
→ depend on hormones, glands
Dental Applications

---

4) ECC → Early childhood caries

→ They are caries involving first maxillary incisors are following
It spreads after dentition

Classification

Type 1 :- mild to moderate
→ involve molars, incisors
→ due to sugar items, lack of hygiene
→ 2-3 years

Type 2 → moderate to severe
→ labiolingual surface of incisors
→ prolonged breastfeeding, lack of hygiene
→ birth

Type 3 → severe
→ lack of hygiene

stages

stage 1 → Initial reversible stage
→ 10-18 months
→ cervically, interproximally chalky white demineralisations
→ no pain

- Stage 2 :- Damaged carious stage
  - → 16-24 months
  - → maxillary incisors, particle lobation, yellow colour discoloration
  - → Pain on cold items

Stage 3 : Deep carious stage

- → 24-32 months
- → It can direct come into 20-24 months
- → molars are affected
- → Pulp involvement of maxillary incisors

Stage 4 : Traumatic stage

- → 32-48 months
- → pulp involvement of molars
- → ~~Traum~~ loss of incisors

Management

→ oral hygiene instructions :- Brushing techniques, method of cleaning

→ Diet counselling

- Inform parent to avoid sticky foods, use sugar substitutes
- Alter ~~night feeding~~ rate diet, frequency, duration
- Avoid in between snacks b/w meals can cause caries

→ Fluoride treatments

- → use pinpoint fluoride paste for children
- → Application of fluoride varnish to ~~[illegible]~~ and sealants
- Fluoride treated drinking water

Pedodontics [illegible]

Two orthodontic treatment :- early, [illegible] is good for [illegible] smile

→ 55% [illegible] with [illegible]

→ 97% preferred for children

5 Habits

→ It is an action or act, because by progressively repeated performance ; firstly, constant and automatic ([illegible])

I) Classification

1) compulsive and non compulsive
2) physiological and pathological
3) normal and Abnormal habit
4) meaningless and emptyful habit

II)

1) ~~pre~~ non pressure habit ⇒ mouth breathing
2) pressure habit ~~lip~~ sucking ⇒ lip, thumb
biting ⇒ nail, lip

Thumb sucking

→ Classification

Type I :- placement of pad of Thumb against palate, contacting maxillary and mandibular anterior teeth

Type II - placement of thumb in mouth against palate, contacting maxillary and mandibular teeth

Type III :- placement of thumb beyond first joint against palate contacting maxillary teeth not mandibular teeth

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Type IV - placement of tip of thumb applied in mouth

Theories

(1) Freudian theory: States oral and mouth is erogenous zone, so babies taken everything into mouth

(2) oral drive theory: Not only the prolonged breastfeeding but
Also
→ not only the weaning of feeding but also prolonged nursing can cause thumb sucking

(3) If anything touches babies cheeks, they have tendency to during sucking it

Etiological factors

- Socioeconomic status
  - → high socioeconomic status, more nutritious to mother, more milk
  - → low socioeconomic class, do not get proper nutrition, have less milk,
- Working mother
  - → babies are taken care by caretaker
- Order of birth
  - → Recent child get more milk
- No of siblings

Clinical features

In maxilla

- → Increased maxillary anterior protrusion
- → Increased maxillary arch length
- → Anterior placement of apical base of maxilla
- → high palatal arch
- → Increased ~~to~~ clinical crown length
- →

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- medicament [illegible]
- (d) Direct pulp capping [illegible]

→ Removal of all carious dentin and placement of medicament over exposed or unexposed pulp to help healing of pulp

Indications of indirect pulp capping

1) Teeth with no pain
2) no mobility
3) Clinical Examination :- carious exposure [illegible]

Radiographic Examination :- Normal radiographic appearance, normal PDL and lamina dura, no radiolucency into bone

Contraindications

→ teeth with spontaneous pain
→ mobility
→ radiograph showing periapical lesions

Procedure

Isolate, Anesthetize
↓
Remove all carious dentin with slow speed bur
↓
Irrigate with saline
↓
Ca(OH)2 placed or ZOE placed - [illegible]
↓
Recall after 6 weeks, if radiograph showing dentin bridge formation and remineralization

Di Control

Indication of Direct pulp capping

-> Small carious exposure with little bleeding

-> No pain

Isolate and Anesthize

↓

Remove all carious dentin with slow speed round bur

↓

Irrigate with saline, hemostasis achieved

↓

Z-E placed, TE gion

↓

Recall after 6 weeks, final restoration

pulp capping agents

1) Zinc oxide eugenol

2) ~~Ca~~ calcium hydroxide

-> It is at high alkalinity (pH-11) cause antibacterial effect and hard tissue formation

-> necrotic zone form adjacent to dentin bridge, later this zone resorbed and replaced by dentin bridge

-> It has 2 forms :- setting and non setting

-> white crystalline structure

-> Available as :- Dycal, pulpdent, hydrex

-> Antibacterial effect due to release of OH⁻ ions

3) MTA -> mineral trioxide Aggregate

-> It is tricalcium silicate, tricalcium phosphate, tetracalcium aluminate, ~~ba~~ Bismuth oxide, titanium oxide

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Principal
Ma[illegible], Mukkam

→ In mandible

→ Retrognathic mandible

→ Retroclined mandibular teeth

Others

→ hypotonic upper lip

→ hyperactive mentalis lip

→ long narrow face

→ callus formation of thumb

Management

→ 1) Tongue blade

1) Thumb guard

2) Dunlap's hypothesis :- Ask patient to deliberately suck in front of mirror
child
This will prevent child from thumb sucking

3) Three alarm system
1) Mitten :- wrap the finger with ~~guard~~ sheet, when child starts to place finger in mouth, and he gets alarmed due to sheet in mouth

4) chemicals rubbed on fingers :- Acetate

---

6) Pulp capping

1) Direct
2) Indirect

Indirect pulp capping

→ It is procedure involving removal of carious dentin and retain small amount of caries adjacent to pulp to avoid exposure of pulp and placement of

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→ Titanium oxide in MTA in contact with tissue fluid and form salt
→ Induce hard tissue and dentin bridge formation

4) Corticosteroids and antibiotics
→ hydrocortisone, penicillin

5) Isobutyl cyanoacrylate

6) Bone morphogenetic proteins

7) Collagen fibers

8) Denatured albumin

Short notes

Gum pads

→ Alveolar process of infants called gum pads
→ It is horse shoe shaped, firm, pink and covered by dense layer of periosteum
→ It is divided into labiobuccal and lingual by dental groove
→ lateral sulcus :- at canine and molars regions, It is formed by transverse groove. Each segment represents developing tooth sac.
This determines interarch relation
→ maxillary gum width pads is wider than mandibular gum pad
→ When 2 are approximated, there is contact in posterior region and open in Anterior region result in infantile open bite which helps in suckling

Diet counts

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Nitrous oxide conscious sedation

→ Indication :- Cooperative child with lengthy procedure
fear, apprehensive child
Anxiety child

Contraindication :- ~~child with minimal mouthbreathing~~
child who has cobalamine deficiency
child who has immunosuppression
upper respiratory tract infection
Asthma.

Objectives

- To eliminate avoidance behaviour
→ To eliminate fear and anxiety
⇒ To deliver quality dental treatment

Procedure

place mask over the nose
↓
Deliver 100% O_2 for 2-3 min through nose
↓
Ask patient to breathe through nose
↓
Deliver nitrous oxide
↓
note self sensations felt ie, gibbing, tingling of thumb or finger
↓
Adjust 30% nitrous oxide and 70% oxygen
↓
Deliver oxygen then through mask

Side effects

→ vomiting
→ nausea

modifications of GIC

1) Cermet :- powder :- sintered silver powder - glass powder - 5% titanium oxide
liquid :- glass ionomer liquid

2) ~~Silver~~ sintered silver alloy with glass powder → miracle mix

3) Resin modified GIC

Contigency management

a) Tell show do

→ First tell patient, what you are going to do and second Demonstrate how you are going to do and third do the procedure in demonstrated ways

→ Always speak with firm, soft, confident voice, while you are doing it, before you do it, after doing it

b) modelling

→ Audiovisual modelling

→ visual modelling

i) Distraction

ii) Hand over mouth

iii) use of [illegible] language

SILPA.P
Roll No: 45
Part II

26/5/2023

MODEL EXAMINATION - RETEST

PEDODONTICS & PREVENTIVE DENTISTRY

1. Classification of Special Healthcare Needs

1. Systemic disorders - Hemophilia
2. Mental disorders - Retardation
3. Physically handicapped - Polio
4. Osseous disorders
5. Nutritional disorders
6. Psychological disorders
7. Hypomotive patients.

33/70

Another classification

- Blind or partially blind
- Deaf or partially deaf
- Mute
- Mental retardation
- Physically handicapped
- Bone defects.

CEREBRAL PALSY

~~Re~~ Classification

- Epistatic
- Tremor
- Kinetic
-

→ Dental management

- Schedule the appointment in a non busy working day (non crowded atmosphere)
- Familiarize the dental clinic atmosphere to the family and child
- Make a good rapport between the receptionist, staffs of the clinic with the child, that will reduce the anxiety towards dental treatment
- If the child uses pictures or any electric devices to communicate. ~~day~~ then dentist should try to communicate in the same method.
- Give instructions to the child slowly and clearly
- Make the child familirize with the equipments.
- Some patients may exhibits gagging during dental radiographs
- Modifications of the regular radiographic technique should be carried out.

  45° angulation

- Fluoride therapy — by using silver sodium fluoride

→ Oral preventive care

→ Oral manifestations

- Occurrence of nursing bottle caries
- Rampant caries
- Poor oral hygiene
- Gingivitis, periodontitis
- Calculus deposition
- Gingival bleeding
- High caries index
- Halitosis
- Malocclusion
- Speech problems
- Lip biting
- Biting of buccal mucosa.

→ Oral preventive care

- Educate the parent about the maintenance of good oral hygiene
- Diet counselling
- Ask the parent to bring the child for routine dental checkup for every 6 months.
- Do non-invasive dental procedures
- Prescribe fluoridated toothpaste and customized tiny toothbrush according to the patient
- Educate the patient about toothbrushing technique.

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TO WHOM SO EVER IT MAY CONCERN

This is to certify that the information in the attached document is verified by me and is true to the best of my knowledge.

Principal

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Principal
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Manassery, Mukkam

2.5.4 THE INSTITUITION PROVIDES OPPURTUNITIES TO STUDENTS FOR MIDCOURSE IMPROVEMENT OF PERFORMANCE THROUGH SPECIFIC INTERVENTIONS

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Principal
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RETEST AND ANSWER SHEETS

Department of Periodontology

Final Year Part I [Regular] II Internal Exam
[Repeat]

May 2nd 2023 (Retest)

Attendance List

Name	Signature
1) Aadra Asok K	
2) Malavika	
3) Mohammed Anas V	
4) Neha Shezin M.T	
5) Zeba Nasar	
6) Ananthapadmanabhan R.S	
7) Sanida D.S	
8) Sabikha	

Final year BDS Part I Regular Batch

Second Internal Assessment Exam (retest) . MAY 2023

Date: 02/05/2023

Time : 3 Hrs **Max Marks : 70 / 100**

Draw diagrams wherever necessary

Essays **(2 X 10/14 = 20/28)**

NG 1. What is local drug delivery? Explain the concept. Enumerate the various local drug delivery systems and drugs. Describe the merits and demerits of local drug delivery

AV 2. Explain the study done by Loe and co-workers on periodontal disease progression, and give the rate of bone loss in various categories. How will you explain to a patient, bone loss of 9 mm around 16, 12 mm mesial to 37 and 7 mm distal to 45 in a rapid progression case ?

Short Notes **(4 X 5/8 = 20/32)**

AV
3. Role of splinting in periodontal therapy
4. Chemical plaque control

NG
5. Classify endo-perio lesions. Explain treatment for primary perio secondary endo lesions.
6. What is risk. Explain risk factors for periodontal disease.

Brief Notes **(10 X 3 /4 = 30/40)**

ATK
7. Classify desquamative lesions of gingiva
8. Models of progression of Chronic periodontitis
9. Microtopography of Periodontal pocket
10. Role of radiographs in diagnosis of periodontal disease.
11. DNA probe

SSD
12. SRP
13. Metronidazole
14. Classify prognosis
15. Mechanism of ultrasonic scalers
16. Periodontal tissue response to trauma from occlusion.

AARDRA ASOK
Roll No:01
Final Year Part One
(Reg)
02-05-2023
Second Internal (Retest)

PERIODONTICS

43/2

1. LOCAL DRUG DELIVERY.

Delivering the desired drug in a limited dosage form directly into the injured tissue or the area of interest is called Local Drug Delivery.

Local Drug delivery, LDD, is not an alternative to periodontal treatment, but rather, is an adjunct used in coordination with and after procedures like scaling and root planing.

Most common drugs employed in LDD are:
- Chlorhexidine
- Tetracycline
- Doxycycline
- Minocycline.

Local Drug Delivery works on the concept that sustained release of the desired drug at the site of application gives much enhanced effects and a faster healing time.

Steps :

Scaling and root planing

↓

Cleaning, Debridement, Prophylaxis

↓

Insertion of the Chip

↓

Patient is asked to not engage in thorough oral health care measures in case it dislodges the periochip.

↓

Patient asked to not floss for 7-10 days.

Mechanism of action :

The chip is biodegradable and disintegrates in about ~~1½~~ 1½ Weeks (7-10 days).

40% of drug is delivered in the first 24 hours and the rest continues to be released in 7-10 days.

PerioCol - CG

~~2.5%~~ (2.5 g Chlorhexidine Gluconate. in collagenous Matrix.

Method of action is same as PerioChip.

Local Drug Delivery Systems and Drugs:

Chlorhexidine → Periochip – chip form.
→ Periocol- CG

Tetracycline — thread form _ PerioProtect -AB

Doxycycline → Atridox – gel form

Minocycline → subgingival gel.

Periochip

Dimensions – 5×4 × (0.25-3.2) mm

It is a rectangular pack with one rounded side for application which is brown / dark brown in colour.

2.5 mg – Chlorhexidine Gluconate

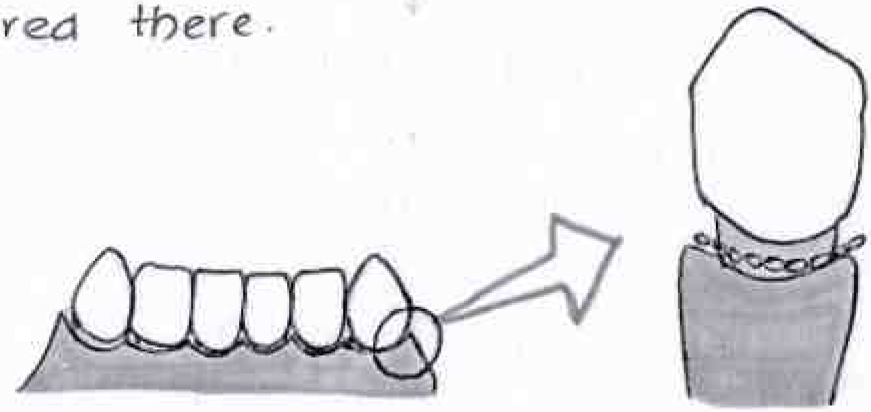
Total weight of the chip – 6.9 to 7.4 mg.

Matrix - collagen matrix

The pack is inserted into the pocket with the round end facing the pocket contents.

Tetracycline:

The method of delivery of tetracycline is quite remarkable as, threads impregnated with Tetracycline are used in this method.
The subgingival tetracycline infused threads are inserted into the gingival ~~crevi~~ sulcus and secured there.



Atridox – Doxycycline

2 Forms
- paste form
- tube form

50 mg Doxycycline
450 mg matrix.

2. Study of Loe et. al.

Loe and Co-workers conducted studies about the rate of periodontal disease progression and the rate of bone loss in various categories, in Sri-Lankan tea workers (1921).

The Sri-Lankan tea workers were from poor social and economic conditions, and their oral hygiene status and overall oral health maintenance was very poor.

From their studies, Loe and his co-workers found that the rate of progression and bone loss due to periodontitis differed greatly. From their studies, they came to the given conclusion:

- → Rapid progression and bone loss – 8% of the population.
- → Moderate progression – 81% of the population.
- → Slowly progressing disease – 11% of the population.

Rapid Progression Case:

8% of the total study subjects showed very rapid rates of bone loss.
In hindsight, Loe also found that even though the poor oral hygiene caused accumulation of a large amount of plaque and calculus, only 8% of the population had rapidly progressing periodontal disease.

81% of the study subjects, which constitutes a majority of the total population, exhibited moderate rates of periodontal disease progression, while 11% of them showed very slow rate of disease progression.

Amount of bone Loss:

- → Slow progression case – $\leq 0{\cdot}1$ mm boneloss per year
- → Moderate progression case – 0·1–0·5 or 0·1–9 mm bonelossper year.
- → Rapid progression case – >1·0 mm bone lossperyear

Given – a patient has bone loss of –

9 mm around 16
12 mm mesial to 37
7 mm distal to 45.

– in a rapid progression case.

Answer –

In a rapid progression case, almost 1mm bone loss occurs annually.
This can be explained to the patient by correlating the amount of bone loss and how many years it has been.

ie, 16 showed bone loss of 9 mm, so the patient must have had the disease 9 years ago.

37 shows 12 mm bone loss mesially, hence the bone loss and disease must have started 12 years ago.

45 shows 7mm bone loss distally, and so the disease must have started 7 years ago.

This can be explained to the patient using 3 IOPA radiographs if necessary.

3. Splinting in Periodontal Therapy :

Indications of splinting :

- splinting is done to make a mobile tooth non-mobile by placing splints around it taking support from the adjacent teeth.

Splinting becomes significant in periodontal therapy because it is the treatment method opted for trauma from occlusion, tooth mobility due to localized bone loss.

Classification of Splints :

Based on duration, given by RamjFord

- → Temporary
- → Provisional
- → Permanent.

Temporary – used for 1-2 months

Provisional – used for 3-8 months.

Permanent → Fixed – [redacted] ·

Permanent → Removable – Hawley's appliance.

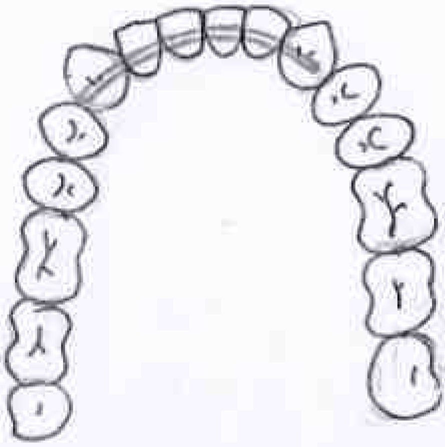
Based on material used:

- → Metallic
- → Non-metallic
  eg: composite.

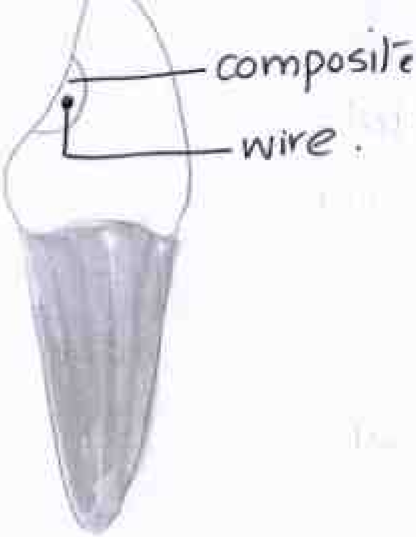
Based on relation to tooth surface:

- → Intracoronal
- → Extracoronal.

Extracoronal splints have been found to be more effective and much more stronger than intracoronal splints.



First a valley is created on the lingual aspect of the teeth to be splinted, then, a wire is inserted into it before sealing with composite after holding the mobile teeth in favourable position.



Splinting holds a periodontally compromised tooth in place, preventing further mobility and disease progression.

4. Chemical Plaque Control.

Plaque control

- Mechanical Plaque Control → Toothbrush, Interdental aids, Floss.
- Chemical Plaque control
  eg: Dentifrices
  - Toothpaste
  - Mouthrinse

a. Toothpaste :

Humectant – Glycerol
Sorbitol

Soap/Detergent - Sodium Lauryl Sulphate

Thickening agent – Carboxy methyl cellulose

Abrasives – $CaCO_3$, Calcium sulphate.

Additional Therapeutic agents – Fluorides

Flavouring agents – Spearmint oil
Peppermint oil

Sweetening agent – Saccharin

Binding agent – Silica, Alginin

A chemical plaque control agent should be containing

Antiplaque agent – to dissolve and dislodge plaque and to reduce caries.

Antibacterial agent – Bacteriostatic agent should be present / Bactericidal.

Anticalculus agents - prevent plaque maturation to calculus.

Anticaries agents - Fluoride to prevent caries formation.

b. Mouthwash

Most commonly used mouthwash in perio - CHLORHEXIDINE.

chlorhexidine
- → higher concentrations - bactericidal
- → lower concentrations - bacteriostatic.

(10 mL/rinse) 0.2% solution and (15 mL/rinse) 0.12% solution are in use.

Prolonged used can cause

- Staining of teeth - brown
- discoloration of composite restorations
- oral mucosal ulcerations
- allergic reactions.

Cannot be advised to:
- physically or mentally handicapped patients.
- children, young adults.

5. Endo-Perio lesions :

Was earliear known as 'pulpodontic-periodontic lesion'.

Classification:

Simon's classification.

- → primary endodontic lesions
- → primary endodontic lesion with secondary ~~endo~~periodontic lesion
- → primary periodontic lesion
- → primary periodontic lesion with secondary endodontic lesion
- → Concomitant lesions
- → True combined lesions.

Classifications based on treatment:

- → lesions requiring endodontic treatment only
- → lesions requiring periodontic treatment only.
- → lesions needing both endo & perio treatment

Weine's classification:

- class I - radiographically and clinically resembles endo lesion, but actually is a perio lesion.
- Class II - endodontic lesions.
- Class III - lesions of periodontium that require initial endodontic treatment.
- Class IV - radiographically and clinically mimics a periodontal lesion but is actually an endodontic lesion.

Primary Perio Secondary Endo Lesions :

Periodontal pathogens from an infected or inflamed periodontium enter the pulp to cause endodontic lesions.

Pathways of entry:

Developmental causes:

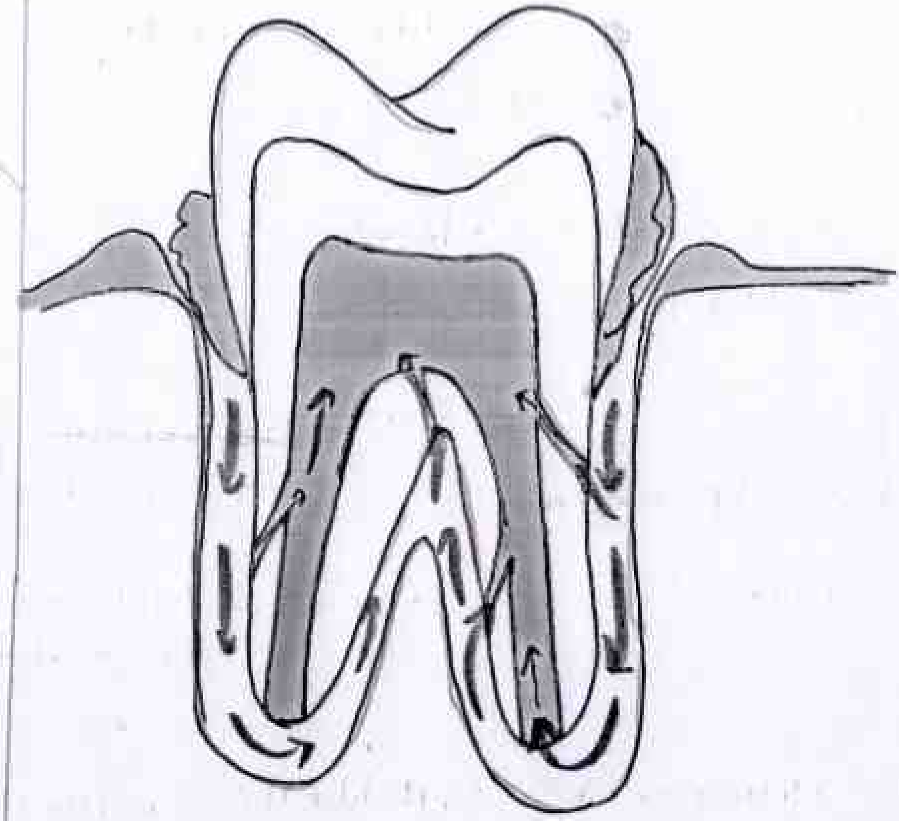
- apical foramen
- accessory canals
- lateral canals.

Pathological causes:

- Fractures.

Iatrogenic causes.

The infection enters the pulp cavity through the apical Foramen, lateral canals etc...



Treatment :

endodontic treatment done first followed by periodontic treatment measures.

The endodontic lesion has to be addressed first to ensure the success of the treatment.

Therefore, Root canal treatment should be done first which is followed by periodontal treatments.

Endodontic lesions	Periodontic lesions.
• Cause - caries	• Cause - plaque or calculus
• pain - stabbing, searing pain	• pain - dull, aching.
• swelling - generalized (periapical abscess)	• diffuse swelling.
• treatment - root canal therapy	• treatment - perio surgery periodontal therapy.
• TOP - positive on vertical percussion	• TOP - ~~neg slightly~~ positive on lateral percussion.
• Gingiva - normal	• Gingiva - Inflamed / edematous.
• Vitality test - unresponsive.	• vitality test - responsive

K.M.C.T.

6. RISK

Risk stands for increased chances or susceptibility to a disease, but it is not an unequivocal proof that a person will have a disease

Risk Factors for periodontal disease:

Age - periodontal disease increases with age in its frequency and intensity

Habits - smoking as a habit is a risk factor for periodontal disease.

Genetic Risk factors - Aggressive periodontitis follow a familial predisposition.

Tooth Loss - Early loss of more teeth

⇩

pathologic migration

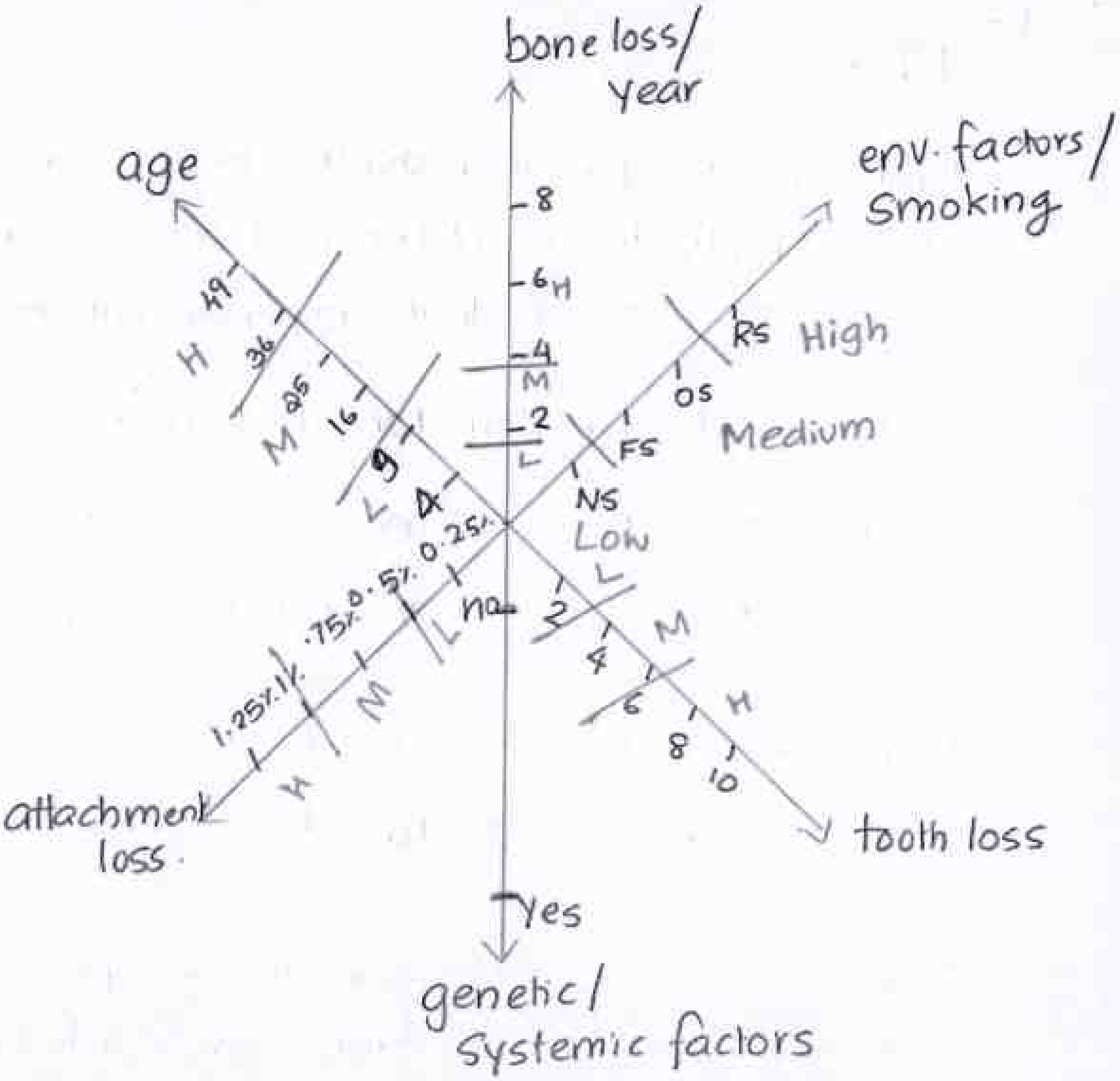
⇩

crowding

⇩

periodontitis

Lang and Tonelli Model for risk analysis .



age - scale - quadratic.

smoking - scale -

Non smoker

Former smoker

occasional smoker

Regular smoker .

Based on this - Low risk, Medium risk and High risk .

Generic/systemic factors are noted as present or absent. Bone loss per year and ~~smoking~~ tooth loss have a linear scale.

Risk Factor – Increases the chance of developing a disease, but does not cause it.

7. Desquamative Lesions of Gingiva.

It is not a single disease, but clinical feature of various diseases which cause:

- gingival erythema
- desquamations or ulcerations.

Classification:

Dermatomes:

- → Pemphigus vulgaris
- → Bullous Pemphigoid
- → Cicatricial pemphigoid
- → Oral Lichen Planus
- → Psoriasis
- → Linear IgA disease.

3

Necrotizing diseases
- → Necrotizing ulcerative Gingivitis
- → Necrotizing ulcerative periodontitis

Conditions which mimic Desquamative Gingivitis
- → Crohn's disease.

Clinical Features:
- Severe Pain
- Bleeding on Probing
- Erythematous and Edematous Gingiva
- Bluish red discoloration of Gingiva
- Rolled out Marginal gingiva.
- Nikolsky sky — in pemphigus

  When lateral pressure is applied to the bulla, it ruptures.

- Auspitz sign - In Psoriasis

  When a psoriasis patch is removed, red dot ~~[illegible]~~ is seen. showing aggregated erythrocytes.

Treatment:

most ~~comoly~~ Commonly — Steroids
- → Topical
- → systemic
- → intralesional.

8. Chronic Periodontitis:

Models of Progression of chronic periodontitis have been studied under three headings.

1. Linear Model

   Given by Socransky.

   States that chronic periodontitis progresses linearly throughout the life after acquiring the disease.

   ie, There is a continuous period of progression w/ no remission or breaks in between.

2. Random Burst Model.

   Given by Goodson et al.

   2 Random periods of exacerbation and remission without a fixed frequency.

3. Episodic burst model.

   Given by ~~Sok~~ Socransky.

   Evenly spaced periods of exacerbation and remission (Episodic bursts of periods of exacerbation and remission).

9. Microtopography of Periodontal Pocket

It is a deepening of the gingival sulcus.

1. Zone of relative quiescence
2. area of bacterial invasion
3. area of leukocyte-bacterial interaction (emergence of leukocyte)
4. area of inflammation intense epi desquamation
5. area of erosion
6. area of ulceration 1½
7. area of hemorrhage.

10. Radiographs in Periodontics.

Most commonly used → IOPA
Most commonly used → Bitewing.

In periodontal disease, radiographs show changes only after 30% of the bone and hard tissues have been compromised.

IOPA gives the crown to root ratio and the amount of bone loss.

aggressive periodontitis - radiographs shows vertical bone loss in an arc shaped defect.

Chronic Periodontitis - Radiograph shows horizontal bone loss.

It shows the progression of periodontal disease and success of treatment.

12. SRP

Scaling - scaling is the removal of supragingival and subgingival plaque and calculus from the crown.

1/2 ✓ root planing - Removal of any remaining subgingival calculus and cementum to obtain a hard, clean and smooth surface.

Instruments used:

sickle scaler
- anterior - straight neck
- posterior - contra angled neck

root planing instruments

advantages / indications

13. Metronidazole

It is a potent antibiotic from the Nitroimidazole group.

Active against both Gram +ve and Gram -ve bacteria and spirochetes.

14. Prognosis

Classification - McGuire and Nunn Classification

- Good
- Favourable
- Questionable
- Poor
- Hopeless.

- overall prognosis
- individual tooth prognosis.

Good – No Clinical attachment loss
Healthy Periodontium
Physiological tooth Mobility
No Furcation Involvement
No /Minimal bone loss.

Hopeless tooth prognosis – Suggests extraction.

15. Ultrasonic Scalers

mechanism of ultrasonic scalers

1. acoustic streaming
2. acoustic turbulence
3. cavitation.

Cavitation :

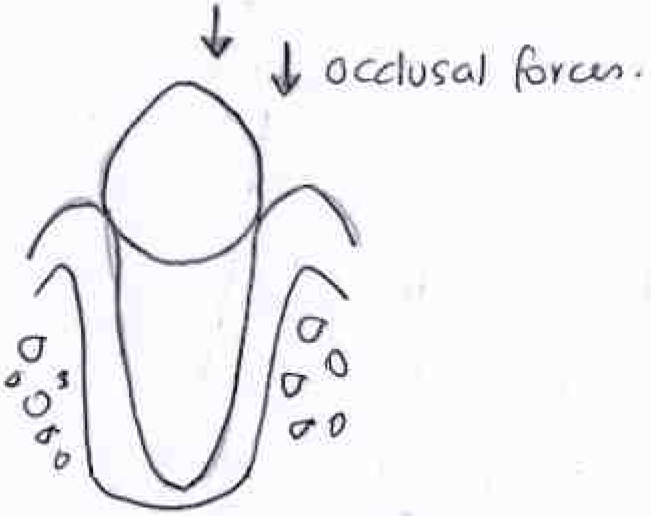
The sudden jet flow of water produce bubbles. The bubbles burst and cause removal of calculus from the tooth surface.

Ultrasonic Scalers
- mechanostrictive
- piezoelectric.

16. Trauma From occlusion

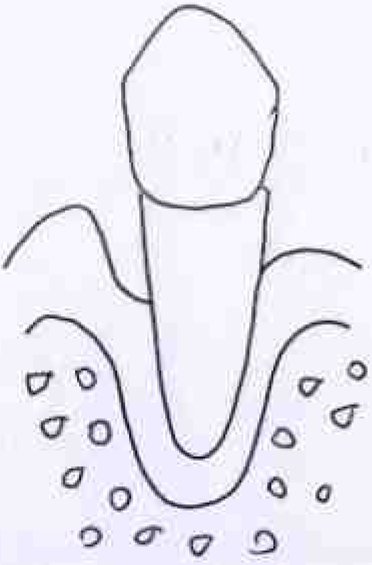
Primary trauma from occlusion

due to occlusal forces, in a teeth with healthy periodontium.



Secondary trauma from occlusion

In a tooth with compromised periodontium, even the smallest occlusal forces can cause Trauma From Occlusion.



Combined trauma From occlusion :

In a periodontally compromised tooth subjected to heavy occlusal forces.

Periodontal Tissue Response :

The involved tooth starts to become mobile.
Continued trauma cause damage to the periodontal fibers.

[redacted]

Clinical Features – Pain
Food lodgement
Periodontitis
Tooth loss

Treatment of trauma from occlusion – Splinting is the most widely used treatment for trauma from occlusion.

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Periodontics

Second Internal Assessment (Retest)

ans:1 **Local drug delivery**

It is the method of delivery of antimicrobial agents to the base of the pocket which may be either bactericidal or bacteriostatic in nature.

Concept:

A local drug delivery must be able to

- To kill the putative periodontal pathogen
- To reach the required site
- to remain for longer time
- Must be of adequate concentration
- Should not be toxic

6

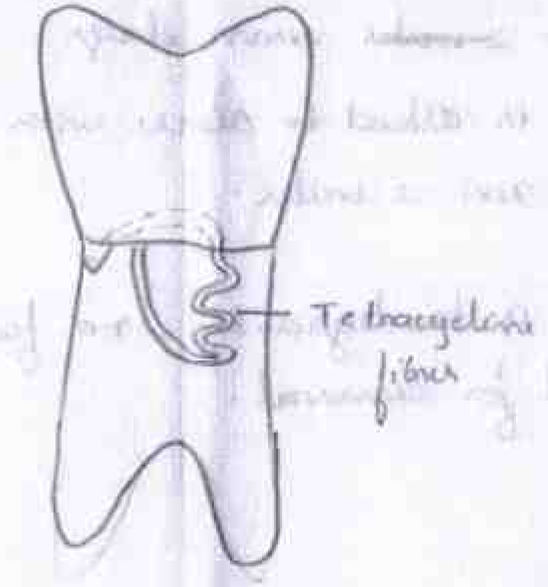
Various drug delivery systems and drugs are as follows

→ Actisite

→ Atridox

→ Atrigel

Actisite



Periochip

- It is biodigradable baby's thumbnail size of 4 mm × 5 mm × 0.35 mm orange colour chip composed of hydrolyzed gelatin matrix, cross-linked with gluteraldehyde, with glycerin and water and infused with 0.35 mg of ~~cx~~ CHX gluconate.
- It is placed in the periodontal pocket of 5 mm or 6 more.
- Its placement into small, tortuous pocket is difficult & not recommended.
- The CHX is release in 40,000 ppm in the first 24 hours and increase to 100- 50,000 ppm over the next 6 days.

Demerits

- The placement of the periochip into small, tortuous pocket is difficult & hence not recommended.
- Patient should be cooperation
- Personnel expertise required for the placement
- There may be delivery of drugs more than required to the specific site and hence leads to toxicity.

ans: 3. Splinting

Splint is an appliance that joins two or more teeth together.

Classification

I. Based on the type of material
  - A splints
  - Braided wire splints
  - Bonded composite resin splints

II Based on the location on tooth

Intracoronal

- Composite resin with wire

Rau, Weinfield & Wright Classification

1. Temporary stabilization
    - Fixed
    - Removable
2. Provisional stabilization
    - Metal bands
    - Acrylic splints & metal bands
3. Permanent / long term stabilization
    - Fixed
    - Removable
    - Combined

Permanent splint Classification

→ Removable / External
- Continuous clasp devices
- Swing lock devices
- Overdentures (Full / Partial)

→ Fixed - Internal
- Full coverage crowns, 3/4th coverage crowns
- Posts in canals.

~~Cst~~

→ Horizontal pin splints

→ Cast metal, fixed partial dentures

Welded bands

- Used in the temporary stabilization of posterior teeth
- To separate the teeth, a brass wire ligature is placed b/w the interdental spaces 24 hrs before splinting
- A stainless steel wire of thickness 0.003 inch - 0.005 inch is adapted on the tooth surface and welded to form bands.
- The next wire strap is ~~pt~~ adapted on the mesial surface of tooth & is welded to form bands.
- While placing the two pieces, the second strap is welded & form band.
- bands are formed for successive teeth.
- Alternatively, it can constructed on cast and placed on tooth.

Continuous clasp devices

- Made of gold, acrylic

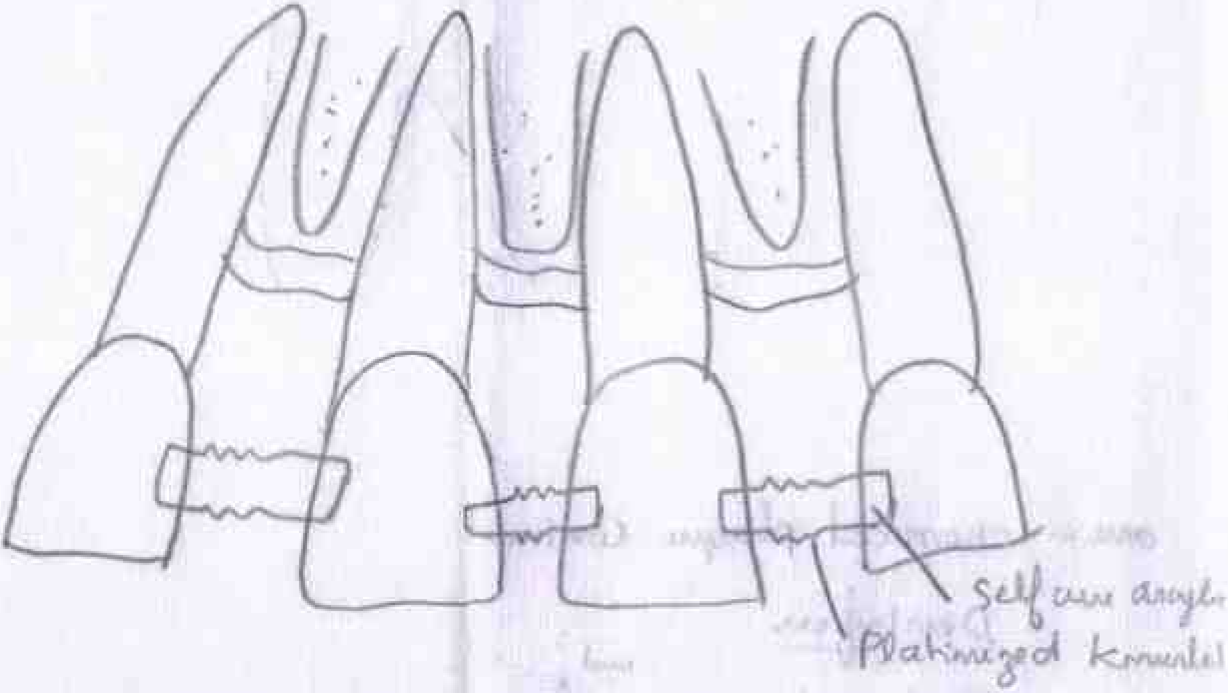
Acrylic bite guards

- Made of heat cure acrylic & covers the occlusal surface of teeth.
- It is usually worn only during night as it is unaesthetic, however in case of hypermobility it is worn during day time

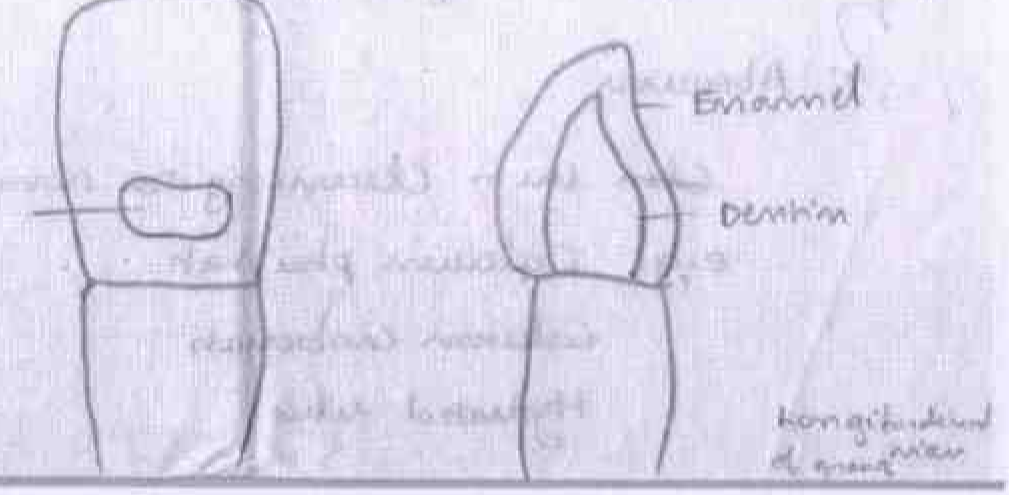
Intracoronal splints

- Facilitate tooth structure removal
- Inconspicuous splint

Acrylic A splint



Composite resin splint



11.13.

Hydrated Alumina

2. **Binder**

Hold the ingredients together

e.g: Carrageenan

3. **Detergent**

Use → Surfactant
Foaming agent

e.g: Sodium Lauryl sulfate

4. **Desensitizing agent**

Anticariogenic & controls caries

e.g: Strontium chloride
Calcium nitrate

5. **Tartar controlling agents**

Anticalculus

e.g: Triclosan
Disodium pyrophosphate
Tetrasodium pyrophosphate
Tetrapotassium pyrophosphate

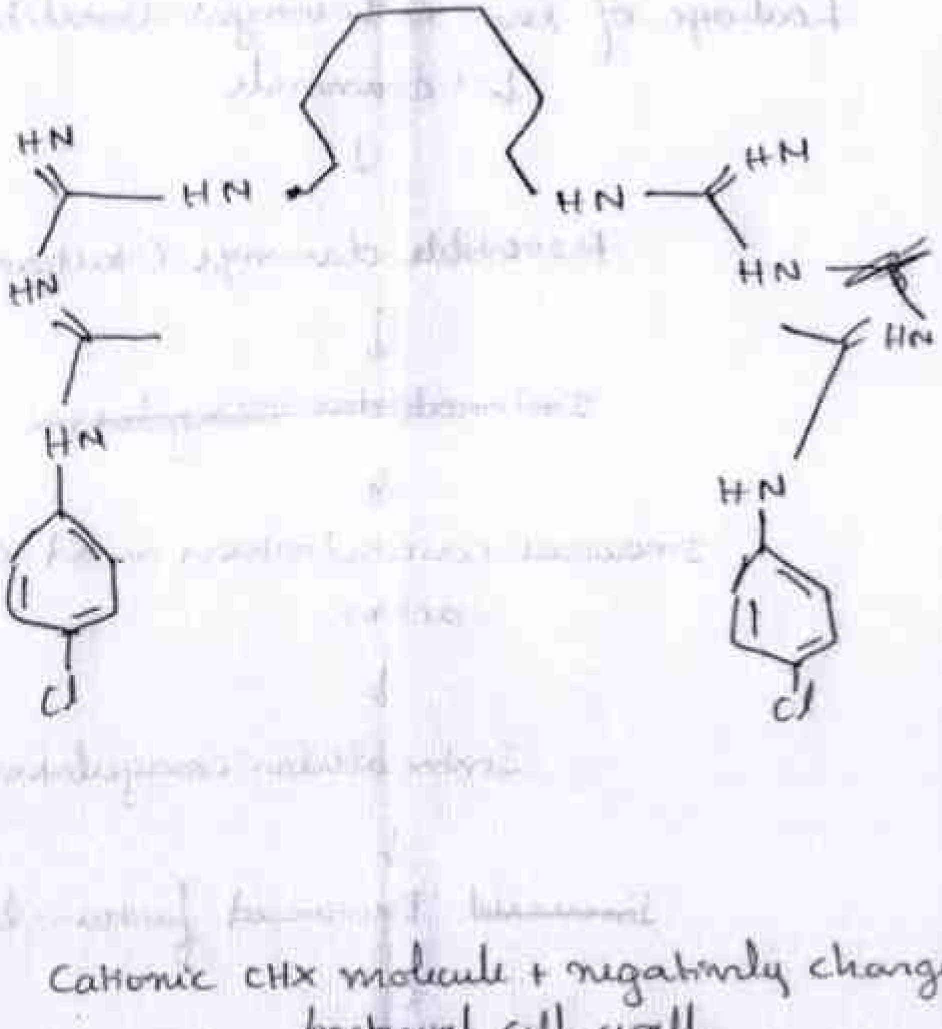
6. **Colorants**

e.g: Food colorants
Titanium oxide

Makes it transparent or opaque

Structure

- Symmetrical structure with
  2 4-chlorohexidine rings
  2 biguanide groups



MOA

Cationic CHX molecule + negatively charged bacterial cell wall

↓

Instant adsorption of CHX molecule to phosphate binding compounds

↓

Bacterial cell wall disruption

↓

Clinical uses

- Pre-surgical preparation for periodontal surgery
- Post-surgical use in case of scaling & root planing
- Patients with jaw fixations
- Patients with denture stomatitis
- Patients with orthodontic appliances.
- Immunocompromised patients
- Physically or mentally retarded patients.

Drawbacks

1. Staining – brownish discolouration of the tooth, restoration and dorsum of tongue.

   MOA of CHX staining are

   > Degradation of CHX liberates para chloro aniline
   > Precipitation of anionic protein amide
   > Denaturation of protein with metal sulfide format
   > Catalysis of maillard reaction.

2. Taste alteration

   → due to denaturation of surface proteins on taste buds

3. Oral mucosal ulceration

4. Increased calculus formation

II. Classification according to Simon, Glick & Frank - 1972

→ Most Accepted Classification

- Endo-perio lesions
  - Primary endodontic lesion
  - Primary periodontal lesion
  - Primary endodontic lesion with secondary periodontal involvement
  - Primary periodontal lesion with secondary endodontic involvement
  - True Combined lesion

III. Classification according to Torabinejad & Trope - 1996

Based on pathologic pocket origin

- Endo-perio-lesions
  - Endodontic origin
  - Periodontic origin
  - Combined perio-endo lesion
  - Seperate endodontic & periodontal lesion
  - Lesion with communication
  - Lesion with communication

IV. Classification according to World Workshop for classification of Periodontal d/s - 1999

- Periodontitis with associated endodontic lesion
  - Endodontic periodontal lesion
  - Periodontal endodontic lesion
  - Combined lesion

periodontitis.

2. Diabetes

~~Diabetes~~ Periodontitis is identified as the 6th complication of Diabetes. There is increased risk for periodontitis in patients with ~~poorly~~ poor glycemic control.

Chronic gram negative bacteria of periodontal infections worsen the glycemic control by increasing insulin tissue response.

- In well-controlled diabetic patients, the risk is similar to that of non-diabetic patients

3. Pathogenic Bacteria / Plaque Accumulation

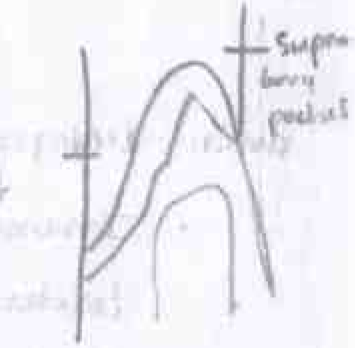
3½

- Cross-sectional studies & longitudinal studies showed that there is a close relation ~~w~~ between plaque accumulation & gingival inflammation.
- Diseased states showed the presence of A. actinomycetemcomitans, P. gingivalis, T. denticola etc than healthy state.
- Anatomic (enamel pearls, cervical enamel projection developmental groove etc) and restorative factors affects oral hygiene regimens & increase the risk for periodontal d/s.

However ~~x~~ the anatomic & ~~[illegible]~~ restorative factors cannot be clearly defined as risk factors for periodontal d/s.

These epithelial buds are infiltrated with leukocytes and edema.
~~They rupture to form ulcer~~ Vacuolar degeneration
Intraepithelial cleft & pocket progression.

- The api-coronal length of Junctional epithelium reduced to 50 μs.
- The connective tissue is edematous & infiltrated with 80% of PMNs, lymphocytes & plasma cells.
- There is aggregation of bacteria such as A. actinomycetemcomitans, P. gingivalis etc.



Pathogenesis

Inflammatory changes in the connective tissue.

↓

Collagenases & MMP's | Activate fibroblasts to phagocytize collagen

↓

Destruction of gingival collagen fibres

↓

Apical proliferation of cells of JE

↓ PMN's reached 60%.

Detachment of the coronal portion of JE

↓

Intraepithelial cleft & pocket progression.

ans:12. SRP

- Scaling and Root planing

Objectives

1. To restore the gingival health by complete removal of plaque and calculus and by converting the inflamed bleeding ~~ep~~, suppurant ~~Epith~~ gingiva into healthy gingival tissue.
2. To eleminimate periodontal microflora & replacing it by healthy microflora.
3. To cause shrinkage of the deepened pocket into shallow & healthy gingival sulcus.

Scaling

2 types

- Hand scaling
- Ultrasonic scaling

SRP is done in etiotropic phase of treatment planning.

ans:13. Metronidazole

- Effective against P. gingivalis & P. intermedius
- Used in RAA along with other antibiotics.
- Used in case of Chronic periodontitis.

→ Class II furcation involvement

→ Class III mobility with ~~m~~ tooth mobility in mesial, distal & vertical directions.

→ Poor crown-root ratio.

IV. Kwok et al 2007

Favourable prognosis - Periodontal condition be stabilized by comprehensive treatment planning & maintenance care. known to have favourable prognosis if these conditions are met.

Questionable prognosis - The ~~stat~~ periodontal status of the tooth depends on systemic & local factors which may or may not be controlled. ~~If~~ The periodontal condition is stabilized by extensive periodontal T/t & maintenance care if these factors are controlled otherwise likely have periodontal breakdown.

Unfavourable prognosis - The periodontal status of the tooth depends ~~of~~ on systemic & local factors which cannot be controlled. Periodontal breakdown is likely to occur even after extensive T/t plan & care.

Hopeless - Teeth is extracted

1. Auto-tuned units - 2 knobs
1.) Power
2.) Water

Frequency remains constant
The tip vibrates with predetermined frequency.

Pecular features

1.) Acoustic streaming -> Unidirectional flow of water ~~w~~ by ultrasound waves
2.) Acoustic turbulence -> continues until cavitation.

3.) Cavitation -> Both the vibration of tip & stream of water flow produces continuous tremendous pressure causing bursting of collapsing bubbles. Combination of vibrating tip against deposits, high frequency sound waves & bursting bubbles -> removal of calculus.

Combination acoustic streaming, turbulance & cavitation disrupt Microflora against acoustic energy.

ans:16. Tooth mobility occurs tissue response which can be corrected.

RE-TEST

Marks: 35

SECTION B – CONSERVATIVE DENTISTRY

Essay

1]Classify dental casting alloys. Explain noble metal alloys- Composition, action of ingredients, advantages and disadvantages.

(4+3+3=10)

Short Notes (5x2=10)

2] Classify inlay waxes. Explain the properties and applications.

3]Mercury toxicity and hygiene

Answer Briefly

4]Factors affecting the rate of cutting of dental burs [5x3=15]

5]Annealing

6] Electralloy

7]Delayed expansion

8] High Copper amalgam

1/

RE- TEST AH

Anjitha -O
Roll no: -3.

DEPARTMENT OF CONSERVATIVE DENTISTRY AND ENDODONTICS - PART - 2 (RE-TEST).

1) Matrixing is defined as the process of making an artificial wall opposing the axial wall which has been damaged during the process of tooth preparation.

There are stainless steel matrix

Metallic matrix Mechanical

Ivory no:1 & 8

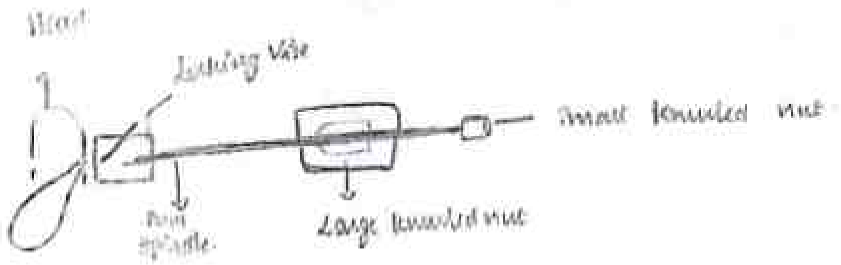
Tofflemire.

Transparent - celluloid
Nontransparent - stainlessteel.

[illegible] retained

Type -1 ⇒ double band tofflemire
Type -2 - Tofflemire, Ivory no 1 & 8
class 3 - Mylar strip
class iv - Aluminium foil
class V - Window strip
anatomic strip.

Parts of tofflemire matrix



Head

It is the portion where the matrix band Joins.
It is of V shaped.
Its open end should faces gingivally while placing the matrix

Locking vise

It has a diagonal slot
Used to place the matrix band
And able to adjust its size
small.

Spindle

Used to adjust the distance between the head and locking vise

It is like a long pin and large and small knurled nut attached to it.

Large knurled nut

It moves helps to adapt the matrix to tooth.

Tightens it.

Moving in counter clock wise direction

While moving large knurled nut place a hand for support of small knurled nut.

Small knurled nut

These are used to secure or tighten the band in tooth

Moves in clock wise direction.

While moving the small nut place hand on large nut for support.

Placement of matrix

Firstly loosen the ~~small~~ large knurled nut and make specific space between the head and locking vise

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- Now loosen the small knurled nut. For easy placement of matrix.
- The matrix is bend and make equal in length
- Insert in to the head.
- Firstly place it loosely, then according to the size of tooth we are reducing or increasing the size.
- Then place the retainer and band to the teeth. In one height always should be more than tooth surface. and push it to gingiva as possible.
- After placing the band, rotate the small knurled nut in clock wise direction and to tighten the matrix band.

6

- Large knurled nut in anticlock wise direction for securing the matrix
- While placing the matrix always of check for the 'U' open side.
- Its open end should face gingivally in both upper and lower arch.
- For securing the band tightly wedges can also be used.

8) Primary teeth having a bluish white colour while permanent teeth having greyish yellow, yellowish white in colour.

There are mainly 2 types of stains:-

- Intrinsic stain.
- Extrinsic stains

Intrinsic stains

i) Preeruptive

Disease

- Alkaptonuria
- Haematological disease
- Disease of enamel and dentin
- Liver disease.

Stains

- Tetracycline and fluorosis stain

ii) Post eruptive

- Trauma
- dentin hypercalcification
- Dental caries
- Aging
- Restoration

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Extrinsic stains

i) Daily acquired stains

Plaque
- Food and beverages
- Tobacco use
- Poor oral hygiene
- Swimmers calculus
- Gingival hemorrhage

ii) Chemicals
- Chlorhexidine
- Metallic stains

Bleaching Techniques

Bleaching is a process of lightening the colour of the tooth by adding chemical agents which oxides and to for give colour to tooth.

Main goal ~~to~~ is to provide colour that is natural to the teeth.

Indication

- White spot

DEPARTMENT OF CONSERVATIVE DENTISTRY & ENDODONTICS

PART 2 RE TEST

Final Year BDS (Part II) Degree Supplementary Examinations – 2016 SCHEME

Conservative Dentistry and Endodontics

Time: 3 hrs.
Answer all questions

Max.marks: 70
Draw diagrams wherever necessary

Essays: (2x10=20)

1. Enumerate different types of matrices? Describe parts of tofflemire matrix? Describe various steps involved in placement of the matrix to build proximal contact? (2+4+4)

2. What are the causes for discoloration of teeth? Classify bleaching techniques and describe in detail about walking bleach? (2+4+4)

Short Essays: (4x5=20)

3. Classify traumatic injuries of teeth? Explain in detail about management of crown fracture involving pulp in a central incisor of a child with 12 years of age? (2+3)

4. Define dentin hypersensitivity? Write in detail about theories of dentin hypersensitivity? (2+3)

5. Composition of glass ionomer? Write in detail about setting reaction? (2+3)

6.Enumerate various methods of deep caries management? Describe the role of calcium hydroxide in deep caries? (2+3)

Short notes: (10x3=30)

7.Pulp vitality test

8. Phoenix abscess.

9. Crack tooth syndrome

10. Internal root resorption features and management

11.Write endodontic mishaps during cleaning and shaping

12. Wedges and wedging techniques

13.Instrument formula

14.Double cord technique.

15.Delayed expansion

16.Enumerate different types of pin used in pin retained amalgam

RE- TEST

Anjitha -O
Roll no: -3.

DEPARTMENT OF CONSERVATIVE DENTISTRY AND ENDODONTICS - PART - 2 (RE-TEST).

---

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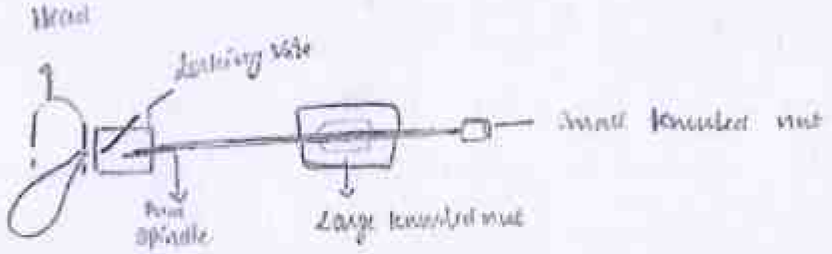

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Stains

- Tetracycline and fluoride stain

ii) Post eruptive

- Trauma
- Dentin hypercalcification
- Dental caries
- Aging
- Restoration

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- Metallic stains

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Main goal ~~to~~ is to provide colour that is natural to the teeth.

Indication

- White spot

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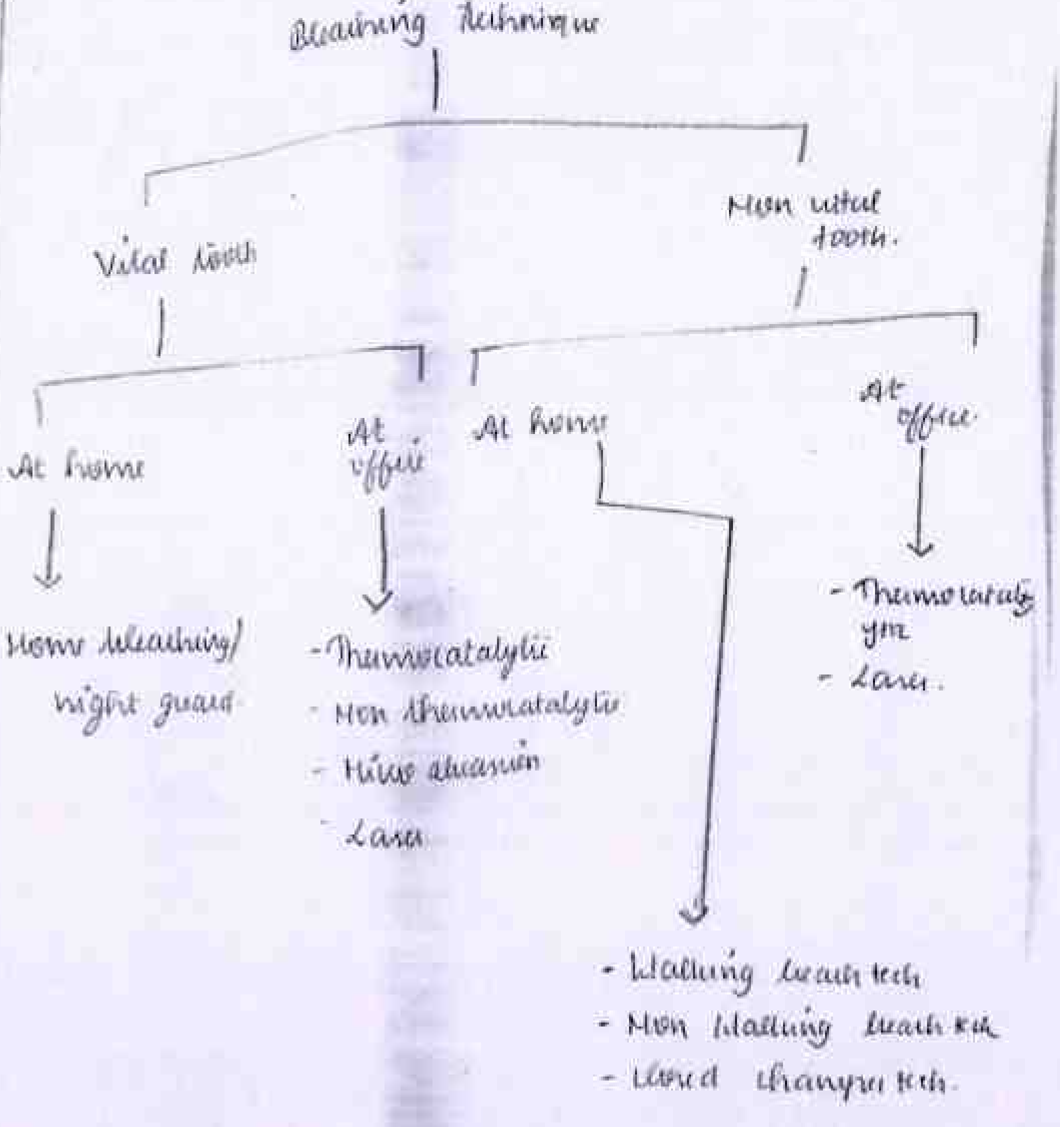
- Tetracycline staining
- Fluorosis staining

Contraindication

Excessive tooth loss.

Technique



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Walking bleach technique

- This is the method which use the endodontically prepared crown.

Chemical agent is added to endodontically prepared crown for bleaching

Indication

- Used for stains present on enamel & dentin.
- Hypomineralized stains remove.

Contraindication

- cannot used to remove stains in amelogenesis imperfecta, dentinogenesis imperfecta etc.

6½

- ~~Take~~ the radiograph of the tooth and look for obturation
- Assess the quality and extend of obturation.
- Compare the colour of the ~~#~~ material restored.
- Now clean the tooth, visible. and remove ~~the~~ If there is need for rubber dam place that.
- Now remove the coronal gutta percha completely from the crown.
- ~~Ap~~

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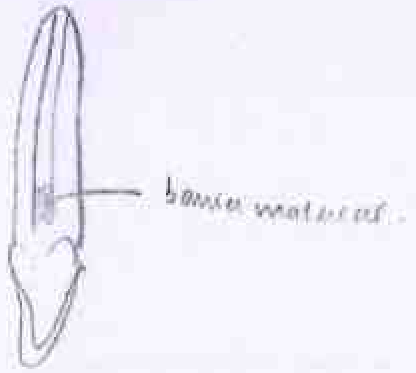
- Place a barrier ,, one like zinc oxide, GIC, composite & then condense it well.



- Now mix required quantity of sodium perborate with liquid and place in the coronal portion remove excess of it.
- Place temporary restoration and recall after 2 week look for it and the material not set then can give permanent.

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3) Ellis classification

Class I - Crown fracture involving enamel.
Class II - Crown fracture involving dentin not exposing pulp.
Class III - Crown fracture involving pulp.
Class IV - Fractured tooth involving - loss of with or without involvement of crown fracture.
Class V - Complete tooth loss (Avulsion)
Class VI - Root fracture with or without crown fracture.
Class VII - Injury of fracture of ~~roo~~ teeth
Class VIII - Fracture of crown en mass.
Class IX - Fracture of deciduous tooth

There can be:-

Concussion
Subluxation
Lateral luxation
Extrusive luxation
Intrusive luxation

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- RCT is the treatment done.
- Remove all the pulp and place the file enlarges the canal
- Then place material for etching done.
- Do root canal.

It is class III feature composite restoration can also be done.

Look for the vitality of the tooth if it is vital then RCT or composite to built

3mm involvement → pulpotomy.

RCT ⇒ 1) cleaning & shaping of root canal

22

1) access cavity opening
2) determination of working length.
3) obturation.

17

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4) Dentin hypersensitivity is defined as a sharp pain, arising from the exposed area of dentin surface. when it is exposed to thermal, chemical, evaporating stimulus.

The tooth will be extremely more sensitive to any stimulus because of the exposed dentin

There are three theories :-

- Direct stimulation theory
- Odontoblastic transduction theory
- Hydrodynamic theory

Direct stimulation theory

This occurs when
a direct stimulus → nerve endings of dentinal tubules → causing primary fibres of the afferent nerve fibres to excite →
and transmit to Brain.

This theory can also fails:-

- There is basically less no. of nerve fibres even nerve fibres present, then only penetrate the dentinal tubules

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- Sensitivity

Odontoblast transduction theory

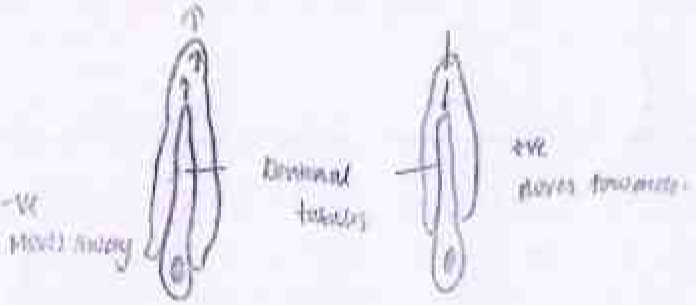
- Odontoblast is the primary structure which shows excitation in response to stimulus.
- Synapse-like → odontoblast and tubules combine and form stimulated impulse that transmitted to other organs.

  This can also fails when → no stimulation occurs.

Hydrodynamic theory

- It is the most accepted theory.
- When the open dentinal tubules are exposed to stimulus like thermal, chemical, evaporating it leads to flow of liquid in the dentinal tubules inward and outward.
- Leads to stimulation of Aδ fibers.
- When the no of tubules and diameter is more then conduction or of stimulation of also increase.
- When the pressure leads to [illegible] move towards pulp

- -ve ⇒ [illegible] moves away. dentinal tubules



5) GIC

Glass ionomer cement is a tooth coloured material.
Gives esthetic.
More biocompatible.
More commonly used nowadays.

Composition

Silica
Alumina } - Provide mass to it.

Aluminium fluoride
Calcium fluoride } - Act as flux
- Improve translucency
- Improve strength.

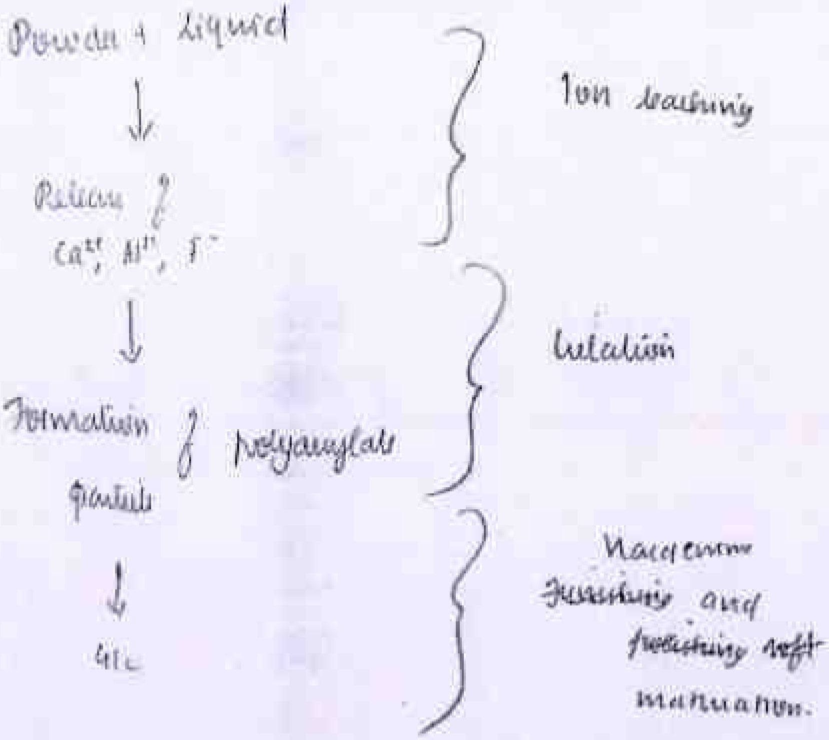
Sodium-aluminium fluoride - Act as flux
Improves translucency
Improves strength

Aluminium phosphate - Improves translucency.

Lanthanum, strontium Barium and other compounds - Radioopacifier.

Liq ⇒ polyacrylic acid, H_2O, tartaric acid, maleic acid, itaconic acid.

Setting reaction of GIC



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47

③.

Ion leaching

It is the first step

When the powder and liquid are mixed together polyacrylate attack the glass particle and releases Ca^{2+}, Al^{3+} and F^-

When F^- in there reacts with Ca and Al leads to formation of CaF and AlF-

Ca while dominate first and then aluminium

Gelation

When the Ca hydro polyacrylate will harden only when aluminium polyacrylate formed. only when Al polyacryla formed and hardens only after 24 hours.

3

Polyacrylate particle formed and reaction happens. 24

Hardening & maturation

Liquid get hydra evaporate & the material get hardening.

17

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6) Early only drilling is used to remove caries. Now there are different methods like:- chemomechanical, ozone, air abrasion and laser. Micromechanical.

Chemomechanical

- Remove infected carious dentin
- Reagent → combination of sodium hypochlorite and amino acid.
- Markets have Carlux and Carisolv available recently.

Carlux

It is a mixture of two solution. One solution is sodium hypochlorite, and other is glycine aminobutyric, sodium chloride.

- They mixed together at the time of adding to tooth surface

Adv

- No need for any anaesthesia

Disadv

Technique difficult for pt.

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Carisolv

- consists of two syringe, syringe 1 sodium hypochlorite and other containing [illegible], [illegible]
- Mix these together only at the time of application.

Ozone type

- There are 3 types i) Soft (involving enamel and dentin caries) ii) Leathery (involve dentin) and iii) Hard (involve remaining soft tissue hard tissue). Removal of the leathery demineralise the [illegible] and remove caries to hard involving hard tissue

Method

~~the~~ The hand piece reaches the ~~are~~ specific area remove the caries.

Ozone is formed by ~~stable~~ combination of oxygen particle with O_2^- ion formed by photodissociation of oxygen

When the freshly prepared O_2 combines with O^- then result in O_3.

3 Air abrasion technique

This method works on Kinetic energy

As this high energy particle strikes on the tooth surface releases the caries particles in small small increments.

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This method is contraindicated in asthmatic, pts, allergic pt's etc

Laser

This is the newer technique to remove caries. The laser beam of strikes the its light from the tooth surface and the caries are removed.

Adv

No smell
No sound
Light vibration.

- Calcium hydroxide is used in deep caries etc as a base for the restoration.
- In deep dentinal caries, during removal of the caries there is some chances of having pulp exposure
- So to provide a layer, a base layer Ca hydroxide is used.
- As it gen^{ral}ly acts a strong bonding agent between the teeth and the restoration material.
- In every treatment like pulpotomy, pulpectomy etc, after preparation of cavity Ca hydroxide is given

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- Then only remove temporary restoration given. high strength.
- Release fluoride, biocompatible.
  Increase bonding strength.

7) - Thermal test
    - Cold test
    - Heat test
  - Electric pulp test
  - Anesthetic test
  - Test cavity
  - Bite test

Thermal test

- It is used to check with heat and cold test.

a) Cold test

- As cold is given or applied to tooth stimulus then the dentinal tubules contract and releases the fluid out of it.
- When pain exists even after removal of stimulus → Irreversible pulpitis
- Pain relieves after removal of stimulus → Reversible pulpitis

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Can be done with..

i) An ice pencil is packed with gauze and placed on tooth

ii) Use of cold water

iii) Ethyl alcohol
   - with gauze
   - easily applied

iv) Dry ice

b) Heat test

It is advantageous that the pt's major complaint is sensitive to heat test.

Can be done by..

- Apply heat to pulp chamber.
- Hot burnisher
- Warm water
- Bur heated
- Syringe containing hot water.

2) Electric pulp test

- Apply ~~heat~~ electric current to pulp.
- Stimulate Aδ fibres.

Procedure

- Clean and isolate the teeth
- Apply electric ~~wa~~ electrolyte to teeth electrode.
- The circuit has to be completed, i.e from the electrode to tooth → from there to body → back to electrode.

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- For this make sure that they do not go over or contact with any metallic restorations or crowns.
- Place hand & gloveless hand/ over the restoration.
- After the circuit is completed, then increase the current.
- Ask the pt to tell when more sensitivity and recorded.

3) Test cavity

This is done when all other method are not applicable.
This is done by with light or high speed hand piece with No 1 or 2 bur with sufficient coolant.
Told the pt to tell when ever sensitivity comes. No anesthesia is required while making cavity.

4) Anesthetic test

2½

- This is done in case where patient unable to differentiate from ~~pat~~ where the pain arises from maxilla or mandible
- Here anesthesia is given in the posterior most tooth positively.
- No change then give ~~antes~~ mesial tooth
- Then also no change then give this anesthetic

Scanned with OKEN Scanner

technique to opposite arch.

5) Bite test

- This is used to find cracked or fractured tooth.
- In this method make the patients to bite on hard objects like cotton roll, orange wood, etc.
- Also done by making pt to bite on Tooth slooth
- This having a concave projection. during biting cusp of teeth touches the ~~[illegible]~~ concavity
- When pain occur during biting apical periodontitis. Pain occur while releasing it is crack tooth/ fracture.

6) Phoenix abscess

- This is an inflammatory lesion found on the apical region.
- Affected region having pus formation, pain on palpation, mobility.
- Diagnosis

Pain - Present.
vitality test - positive.
Radiograph - radiolucency is seen on the apex region.

Rx

- Incision and drainage
- Look for the vitality and condition of the teeth if vital and is ~~we~~ in we can do RCT and preserve.

  Other wise can extract.

1½
- If pain analgesic given
- Antibiotics

9) Crack tooth syndrome

When a fracture line passes through the dentin and pulp of the tooth which results in cavity and pain.

C/F

- Severe pain
- Pain while biting.
- Mobility
- Swelling

Radiographic

A radiolucent line passes can seen

Rx

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Urgent treatment

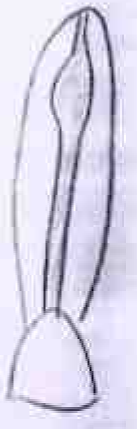
- To relieve pain
- Can grind ~~in~~ position

Rx

- When the crown or tooth fracture less and ~~crown~~ complete coverage crown can be given.
- Splinting can done.
- Extreme, severe fracture removal.

10) Internal root resorption

It is defined as the idiopathic small or large resorption of dentin and root canal. Resulting in an oval shaped enlargement from the root.



C/F

- Pain is the main symptom
- can be detected only by periodic radiograph

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- Main affect maxillary incisor
- Primary & permanent teeth affected
- Pink tooth appearance. seen.

Rx

- Conventional treatment.
- Root canal can be done

Without perforation - obturation.

With perforation

Non-surgical ~~treated~~ - CaOH2 given

Surgical

- Surgical flap
- Root resection

With out perforation

Obturation can be done.

1½ Remove all caries, isolate tooth, gutta percha is given and give restoration.

Nonsurgical

- Clean tooth
- Access cavity prepared
- Isolate
- Ca(OH)2 have given temporary restoration given

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Pt recalled after 1-2 week and look then every thing is intact.
given permanent restoration

Surgical

Surgical flap

Incision → flap rise and remove the resorped area & then sture.

Resection → Sealtion is also given or refilling.

ii) **Endodontic mishap**

A clinician run an situatile during endodontic treatment and its prognosi get affected. This is called endodontic mishap.

It include :-

- Ideal → Inadequately ~~instrumentation~~ cleaning of enamel & dentin canal
    - Lack of ca missed canal
    - Ledge formation.
    - Incomplete ~~treatment~~ canal.
- Debris present--
- Instrument separation
- Deviation of root canal anatomy
    - Zipping
    - Stripping

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Inadequate obturation

- Over instrumentation
- Over preparation
- Under preparation

- Perforation
  - Coronal perforation
  - Root perforation
    - Middle
    - Apical
    - Coronal

- Vertical damage.

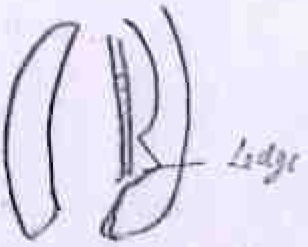
Inadequate ~~removal~~ cleaning of enamel & dentin canal

~~Latt~~ of ledge formation

It is an created defect of root, when instrumentation it touches it before going to canal end.

2

- When file touches then it do not move down forcely slow move up & down



Missed canal

- Main mistake.
- Always look for any missed canal in radiograph

Incomplete canal length

cannot able to go full length of the canal due to incomplete working length

Instrument separation

Most commonly affecting
Instrument may break & cannot able to take back.
Small instrument mainly

Deviation of canal

Zipping

Deviation of the instrument

- Pre curve the instrument.
- Go slowly
- Do not skip any diameter

Stripping

Similar to zipping

Over instrumentation

Take radiograph & do procedure rightly & take instrument of same length.

Over preparation

Do not need any Rx

Under preparation

Have to do & repeat Rx.

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12) Wedging & Wedging tech

It is the method of placing an wedge in the contact below the teeth.

It can be of
- wooden wedge
    - Triangular
    - circular.
- Plastic
    - flared
    - winged
- Tooth coloured.

It is a pointed, wedge shaped element placed on below contact point area of tooth

eg:- Elliot wedge / separator

2

Wedging tech.

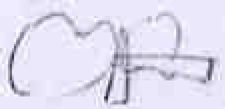
Its is the
- Double wedging → 2 wedges are used one placed & other placed 1° to the 1st wedge
- ~~Stability~~ Zigzag wedging

↓

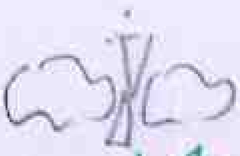
These are also using 2 wedges.

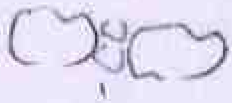
They are place opposite each other.

- Wedge on wedge.



1° wedg





↑

wedg.

Wedge on wedge.

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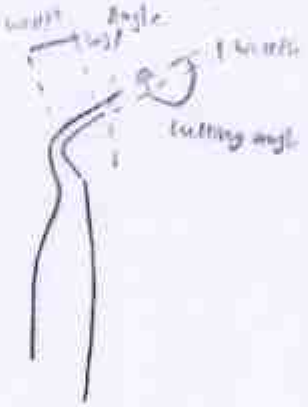
13) Instrument formula

4 unit plane

When the axial wall is not parallel to the long shank

1 - Blade width
2 - Cutting edge angle
3) - Blade height angle.
4) - Blade length



1½

3 plane

When the axial wall ~~we~~ is parallel to the long axis of shank

1) Blade width
2) Blade angle
3) Blade length

14) Double cast

In this tech 2 cast are taken.
One small cast placed on the lower margin & impression is taken
and large cast taken & ~~d~~ mix with Chemical then placed on the tooth.

1

- After 4-6 min takes the longer time of Take expansion.

- This is the shrinkage of impression away from the tissue.

1½

Adv

Less trauma

Disadv

Not much retention

15) Delayed expansion

When the Zn is in contact with the moisture, then delayed expansion or 2° reaction takes place.

1½

When Zn reacts with H_2O leads to formation of Zn oxide & free H_2 particle. leads to hardness & forms delayed expansion

$$Zn + H_2O \rightarrow ZnO + H_2.$$

16) There are → minima.

Minima

Minika

Regular

17

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Minuta - have small size, not provide retention

Minima - choice of retention, better retention. & accessible.

Minikin - Prefered, due to better retention.
stability
can be used when the prepared canal for minima is large

12

Regular - Large diameter
Not used.
less stable.

RE-TEST

Marks: 35

SECTION B – CONSERVATIVE DENTISTRY

Essay

1]Classify dental casting alloys. Explain noble metal alloys- Composition, action of ingredients, advantages and disadvantages.

(4+3+3=10)

Short Notes (5x2=10)

2] Classify inlay waxes. Explain the properties and applications.

3]Mercury toxicity and hygiene

Answer Briefly

4]Factors affecting the rate of cutting of dental burs [5x3=15]

5]Annealing

6] Electralloy

7]Delayed expansion

8] High Copper amalgam

ABEER. NP

-1-

Re-Test

CONSERVATIVE

½
20/35

1) Dental Casting Alloy - ADA No. 5.

Classification of dental casting alloy:-

1) Alloy type of nobility.

Category 1 - High noble alloy. the ~~co~~ weight of ~~noble~~ greater than or equal to 60%.

Category II - Noble alloy - the weight of ~~noble~~ greater than or equal to 25%.

Category III - Base metal alloy, the weight of it less than 25%.

2) Classification based on the types of common metal alloy
- Gold based alloy
- Cobalt based alloy
- Nickel based alloy
- Titanium based alloy
- Palladium based alloy.

3) Classification of Bureau of Standard 1927.

Type 1 - Soft - low strength

Type 2 - Medium - medium strength

Type 3 - Hard - high strength ✓1

Type 4 - Extra hard - very high strength.

4) Classification based on 3 principle elements.
- Au - Pd - Ag
- Pd - Ag - Sn

- Ni Cr Be
- Ti Ni Cr
- Ti Al V
- Co Cr Mo.

⇒ Classification based on type of phase.
- Single phase
- Eutectic phase
- Peritectic phase
- Intermetallic phase.

→ Noble metal alloys are also known as base metal alloys

→ The metals alloys oxides or dissolve in media the release of ions.

→ Major components are Co, Ti & Ni.

→ Minor components are

Aluminium
Beryllium
Chromium
Manganese
Gallium
Silicon
Vanadium.
Carbon
Molybdenum

Classification

→ Ni. Cr alloy
→ Ni. Cr. Be alloy
Co Potassium alloy
→ Ni. High. Cr alloy
} Used for fabrication crowns & bridges.

→ Co. Cr alloy
→ Titanium alloy. - Used for Removable partial denture

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Ni-Cr based alloy

Composition

Nickel - 61.5% - 71.5% - main constituent.

Chromium - 12 - 22% - Provide corrosion resistance.

Molybdenum - 4 - 14% - Decrease coefficient of thermal expansion.

Aluminium - 0-4% - Aluminium nickel precipitate form form increasing strength.

Iron - 0 - 5% - corrosion resistance

Be - 0 - 2%, if Ni-Cr-Be alloy.
- lower melting point of range.

Advantages
→ Used in gypsum & bonded investment material
→ Thick oxide layer & provide the porcelain bonding
→ Improves the castability.
→ Increase the corrosion resistance.
→ Decrease of coefficient of thermal expansion
→ Increase the strength.

Disadvantage
→ Presence of Beryllium low melting range.
→ Be cause the toxicity known as Berylliosis
→ It cause the contact dermatitis.
→ Hyper sensitivity.
→ Nickel is allergic to most of patient.
→ Nickel is allergic more the female than male.

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Cobalt Chromium Based Alloy.

Composition.

Cobalt - 51% 65% - main constituent of alloy.

Chromium - 15% 28%. Corrosion resistance.

Tungsten - Provide the strength.

Traces amount of Ga, Ru, Nb.

Advantage

→ It is the most largest alloy used in dentistry

→ It increase the strength

→ Provide corrosion resistance.

→ Use to patient allergic to Nickel

→ Better biocompatible than Ni Cr based alloy

→ Preservation of the long term shine appearance of the prosthesis.

→ It provide framework for the cast partial denture.

Disadvantage

→ It is carcinogenicity

→ It provide the toxicity due to the debris of of Co.

Titanium alloy

Titanium based alloy - Ti-6Al-4V

Composition.

Titanium - 90% - main constituent.

Aluminium - 6% - α stabiliser

Vanadium - 4% - β stabiliser.

Advantage

→ It has low melting point of range, [illegible]

→ It has low fusion temperature, so high very resistance.

→ Radiovalue property.

Disadvantage

→ Due to the low melting point, it is difficult for casting partial denture

6½ → Special equipments and machines are required

→ When the Ti is exposed to the heated O_2 it form the α phase.

→ This thick oxide layer, leads to the micro-cracks.

→ It require the vacuum / argon temperature.

→ Low coefficient of thermal expansion.

2) Inlay Wax

→ It ADA No. 4.

→ It is a specialised type of wax that is applied to the prepared cavity or die.

Classification of inlay wax.

Type 1 - Medium type of wax for the direct pattern.

Type 2 - Soft wax - for the indirect pattern as inlay, crown, bridges.

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Properties

Gee' Thermal properties

1) Coefficient of thermal expansion

→ The coefficient of thermal expansion of inlay wax is 350×10^{-6} per degree centigrade.

→ Paraffin has the highest coefficient of thermal expansion

→ The coefficient of thermal expansion can be decrease by adding the beeswax or carnauba wax.

Physical Properties

1) Homogeneity :- All the components of the inlay wax is equally and even distributed and shows homogeneity.

2) Contact angle · When the wax is melt, the wetting of the surface, evenly spreading (low contact angle).

3) Flow.

→ Flow of type I inlay wax at is 1% at 37°C

→ Flow of type II inlay wax is 1% at 30°C.

→ Flow of the wax can be reduced by adding carnauba wax or beeswax.

→ Flow of type I and type II wax at 45°C should be 60% - 70%

→ Decrease the flow it will help to decrease the susceptibility of the distortion of the wax.

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4) Ductility :- It should have ~~moderate~~ moderate : 7
ductility
→ It should hard:
→ It show the plastic deformation without the fracture.

5) Residual stress :-
→ Residual stress causes the the distortion of the wax.
→ Maximise the flow, decrease the residual stress can reduce the distortion of wax by adding carnauba wax & ceresin wax.

Application
→ It is used in preparation of inlay, crown. bridges, onlay.

Chemical Properties
Oxidation :- When it is pyrolysed, it decomposes completely into water vapour and carbondioxide without lefting any residue.

Applications
3½
→ Preparation of inlay
→ Preparation of crown, bridges
→ Preparation of RPD and FPD
→ Preparation of onlay.

17

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3) Mercury Toxicity

→ The mercury released from the silver amalgam causes the ci mercury toxicity.

→ The vapours and ions are released to the atmosphere.

→ These are easily absorbed by the blood stream through alveoli of the lung.

→ Especially in dental ~~laboraties~~ laboratories and clinics mercury toxicity takes places.

→ The features are:-
- The neurological disturbance Empa
- Numbness to person
→ Difficulty in hearing, vision and speaking
→ The numbness to feet and hands.
→ Ataxia.
→ Minamata disease is caused by the mercury toxicity,
→ Methyl mercury released is taken by fishes and fishes are consume by human being and animals, and become toxic.

→ ~~Contact with~~
→ Direct contact with mercury cause the skin allergy, i.e ~~de~~ contact dermatites.

→ Hypersensitivity
→ Ulcers in the oral cavity
→ Due to the leuholic acid, it cause eczema disease in mouth.
→ Urticaria can takes places.

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[illegible] in [illegible].

Hygienic Methods

1) While using the mercury, only use it while wearing the gloves.

2) Provide the ~~air~~ freshly air ventilated atmosphere.

3) Regular checking up of the mercury level.

4) Recap and secure the scrap of a mercury.

5) Do not put the waste of mercury with the hospital wastes or incinerates it, it might pollute the atmosphere by releasing its vapours & fume.

6) Place the remainings or waste of mercury in the radiographic fixer solution in a ~~co~~ closed container.

7) Always use non-~~absorbable~~ absorbable surface using mercury

3½ 1½ 8) ~~Easy to~~ It should be easy to clean after spilling it up.

9) Precapsulated ~~amalgam~~ ~~can~~ ~~mix~~ amalgam can be used

10) It ~~should~~ The excess should be removed from oral cavity ~~should~~ in quickly without leaving residue.

11) The polished amalgam will done clean clinically.

Shruti

5) Annealing / Degassing

→ It is method of the removal of surface impurities especially gases or other from the surface of gold.

→ Mainly the gases to be remove is ammonium, sulphate gas.

→ Temperature ranges from 650°C - 700°C.

3 methods are present

- Heating of the gold pellet over a mica tray
- Electric Annealer
- Heating using an alcohol flame methanol (ethanol).

Alcohol flame

→ less contamination of gold.

→ Methanol / Ethanol is used in this method.

→ Blue zone of the flame, i.e. reducing zone of the flame is used.

→ Gold are to taken as pellets.

→ Carried by the carrier at the tip point of carrier.

→ Just beneath the flame's apex, pass the carrier and pellets

→ It is about 2-5 seconds.

→ Heats to become dull red colour

→ Then applied into the cavity.

V7

Advantage

→ less wastage of gold

→ less contamination of gold.

Open alcohol flame Method / Piece Method

→ Acetone free alcohol is used in this method.

→ It is also about 2-3 seconds.

→ Pellets are taken in the carrier point.

→ Angle of carrier and pellets are passed through the blue zone.

→ Then gold become dull and clear.

→ Applied to the prepared cavity.

Advantage

→ Less contamination

→ Less wastage

→ No time consumption.

→ Easier method.

* Heating of the gold pellet on mica tray over the flame / Bulk Annealing Method

→ The gold pellets are placed over the mica tray

→ Heated the mica tray upto the gold pellets become dull and clear.

Advantage

→ More amount of gold pellets can be placed

→ Simple method.

Disadvantage

→ Time consuming → Sticking of gold pellets into tray

→ Gold pellet are not ~~use~~ uniformly heated .

Electric Annealer

→ In this method, time and temperature

→ The pellets are heated at 650°F at 5 mins.

→ The gold pellets are of different types are arranged in different compartment.

Advantage

→ Different types of gold pellets can be heated at a time

→ More amount of gold pellets can be placed.

→ No requires any ~~asistents~~ assistents .

3½ 1½

Disadvantages

→ It is difficult to ~~take~~ choose the gold pellets from the compartment .

→ Over sintering

→ The gold pellets get sticky into the compartment

8) High Copper alloy .

→ It is of 2 types Admixed ~~[illegible]~~ high copper alloy and single composition high copper alloy .

Admixed ~~[illegible]~~ High Copper alloy of composition

Silver - 67%.

Tin - 27%.

Copper - 11%.

Zinc - 2%.

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Single Compositional High Copper Alloy

Silver - 57% }
Tin - 25% } Ternary
Copper - 15% }

Quaternary

Silver - 57%
Tin - 24%
Copper - 13%
Indium - 4%.

Reactions of Admixed High Copper Alloy

2 Step reactions

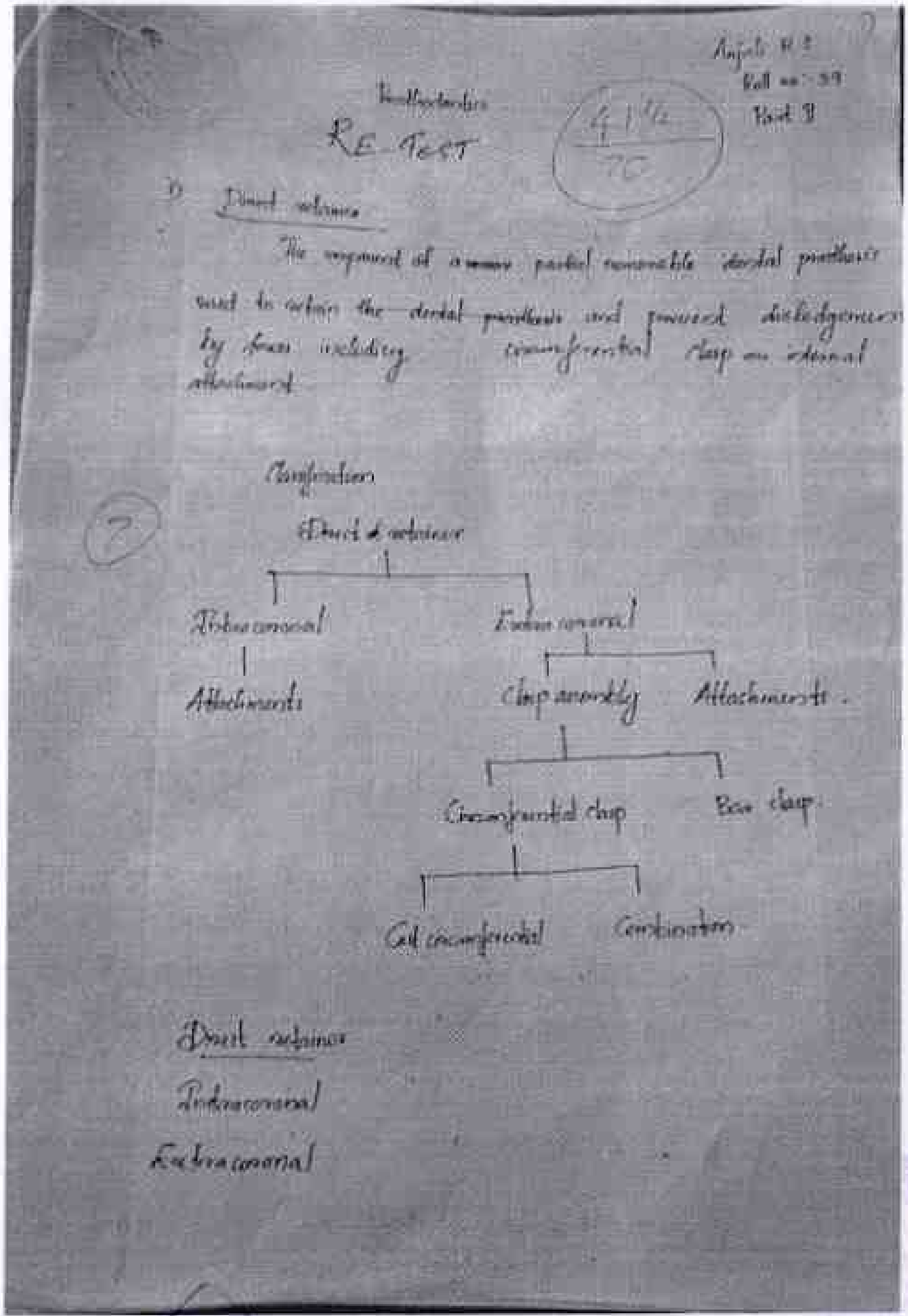
$$\text{I. } \underset{(\gamma)}{Ag_3Sn} + Hg \longrightarrow \underset{(\gamma_1)}{Ag_2Hg_3} + \underset{(\gamma_2)}{\cancel{Ag}Sn_{7-8}Hg} + \underset{(\gamma)}{Ag_3Sn}.$$

$$\text{II } \underset{(\gamma_2)}{Sn_{7-8}Hg} + \underset{\substack{\text{Eutectic}\\ \text{phase}\\ (\varepsilon)}}{Cu-Ag} \longrightarrow \underset{(\cancel{\varepsilon}\,\eta)}{Cu_6Sn_5} + Ag_2Hg.$$

2½

In this stage, ~~γ₂~~ γ₂ phase is eliminated by the ~~ε~~ η phase.

→ ~~tn~~ This process takes place in the final set amalgams.



Anjali K S
Roll no:- 39
Part II

Prosthodontics
RE TEST

41½
70

1) Direct retainer

The component of a [illegible] partial removable dental prosthesis used to retain the dental prosthesis and prevent dislodgement by forces including circumferential clasp or internal attachment.

Classification

7

Direct retainer
- Intracoronal
  - Attachments
- Extracoronal
  - Clasp assembly
    - Circumferential clasp
      - Cast circumferential
      - Combination
    - Bar clasp.
  - Attachments.

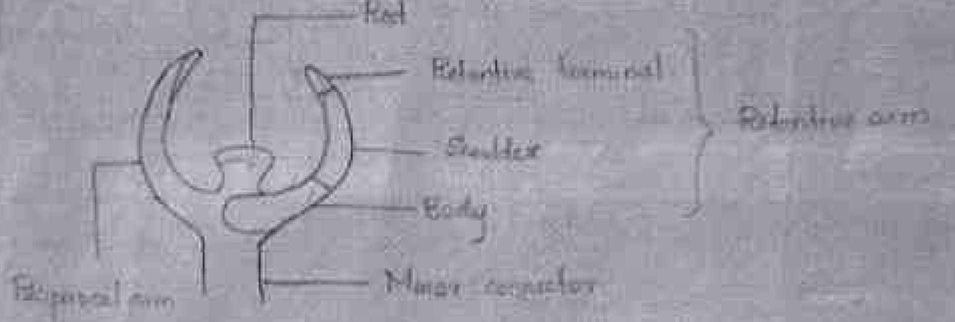
Direct retainer

Intracoronal

Extracoronal

Clasp assembly.

The component of a direct retainer that encompass
the abutment tooth by more than 180° and ~~prevent~~ including opposite throughout the extension
angles and ~~passes~~ contact the ~~the~~ tooth
~~displacement by functional, rotational horizontal and~~
~~rotational forces.~~ of clasp and prevent displacement by functional
horizontal and rotational forces.



Components.

Retentive arm — It is a part of clasp assembly that provide retention. The retentive arm is usually present in the buccal surface and it engages the undercut.

It consist of.

Retentive terminal :- It is the terminal part of retentive arm. It is more flexible and engages ~~one~~ undercut. Usually ~~present below~~ starts ~~from the~~ above the height of contour and terminate below the height of contour

Shoulder :- It connect the retentive terminal to body. It ~~is placed at~~ little has ~~no~~ limited flexibility

Body :- It is the rigid part, ~~less~~ flexible, passes through the height of contours, It connect the shoulder arm and to the minor connector.

Rest :- occlusal, incisal or lingual rests. It provide ~~a~~ vertical support, prevent tissue ward movement and movement of ~~the~~ retainer against the buccal tissue or underlying tissue. ~~Horizontal stabilization~~

Reciprocal arm :- The lateral forces originated and transmitted to the retentive arm passes ~~through the~~ over the height of contour is counterbalanced by the ~~retentive~~ reciprocal arm passes ~~along the retentive to plane.~~ reciprocal - Reciprocal arm is passing along the height of contour in the opposite direction of retentive arm - In lingual aspect.

2) ~~Met~~ Methods of gingival retraction.

The deflection of marginal gingiva away from the tooth is termed as gingival retraction.

7

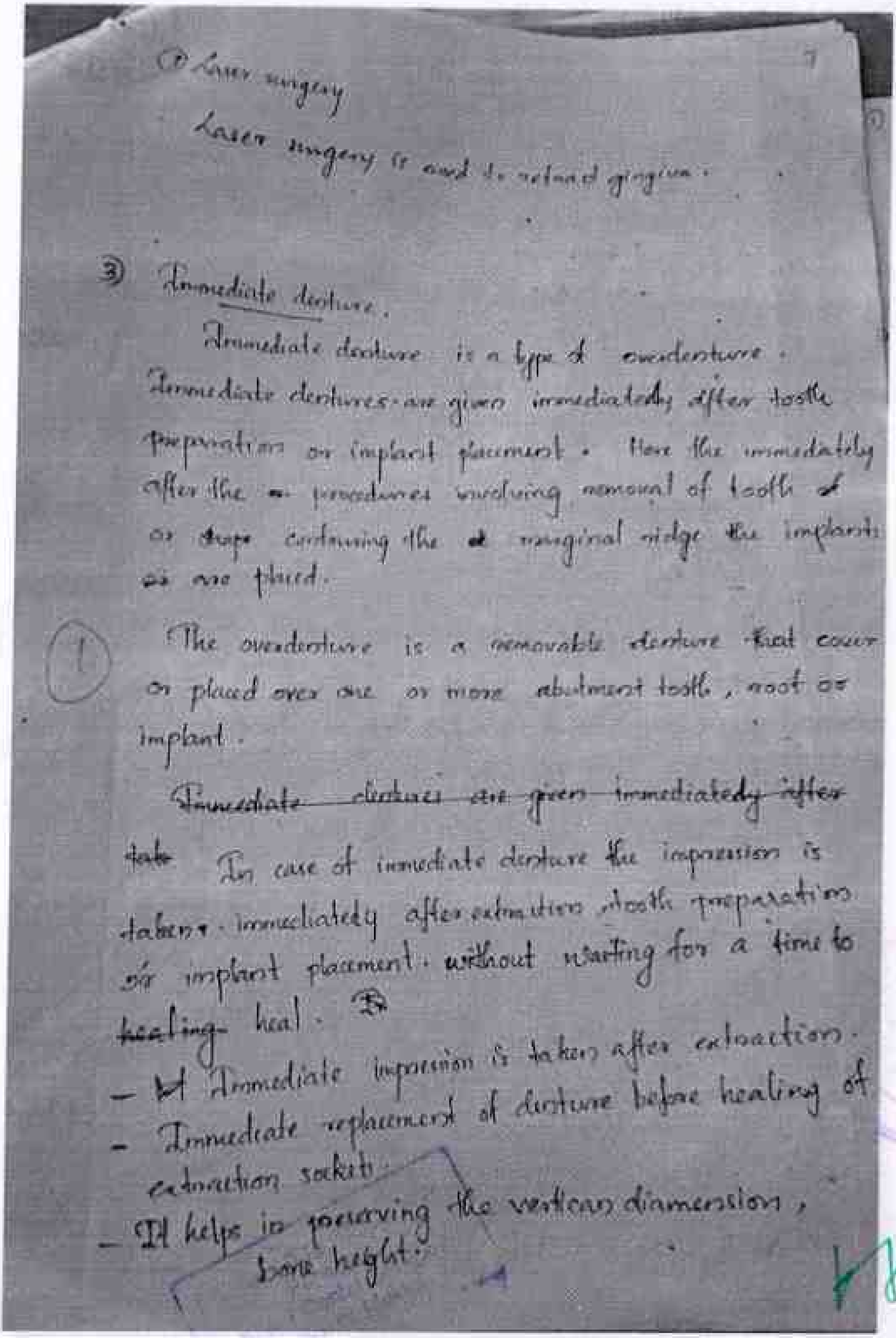
(1) Mechanical technique.

It is also known as physical technique.

It include.

1, Copper band.

A copper band is adjusted to the contour of gingiva is placed on the in to the gingival contour.



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② Laser surgery

Laser surgery is used to retract gingiva.

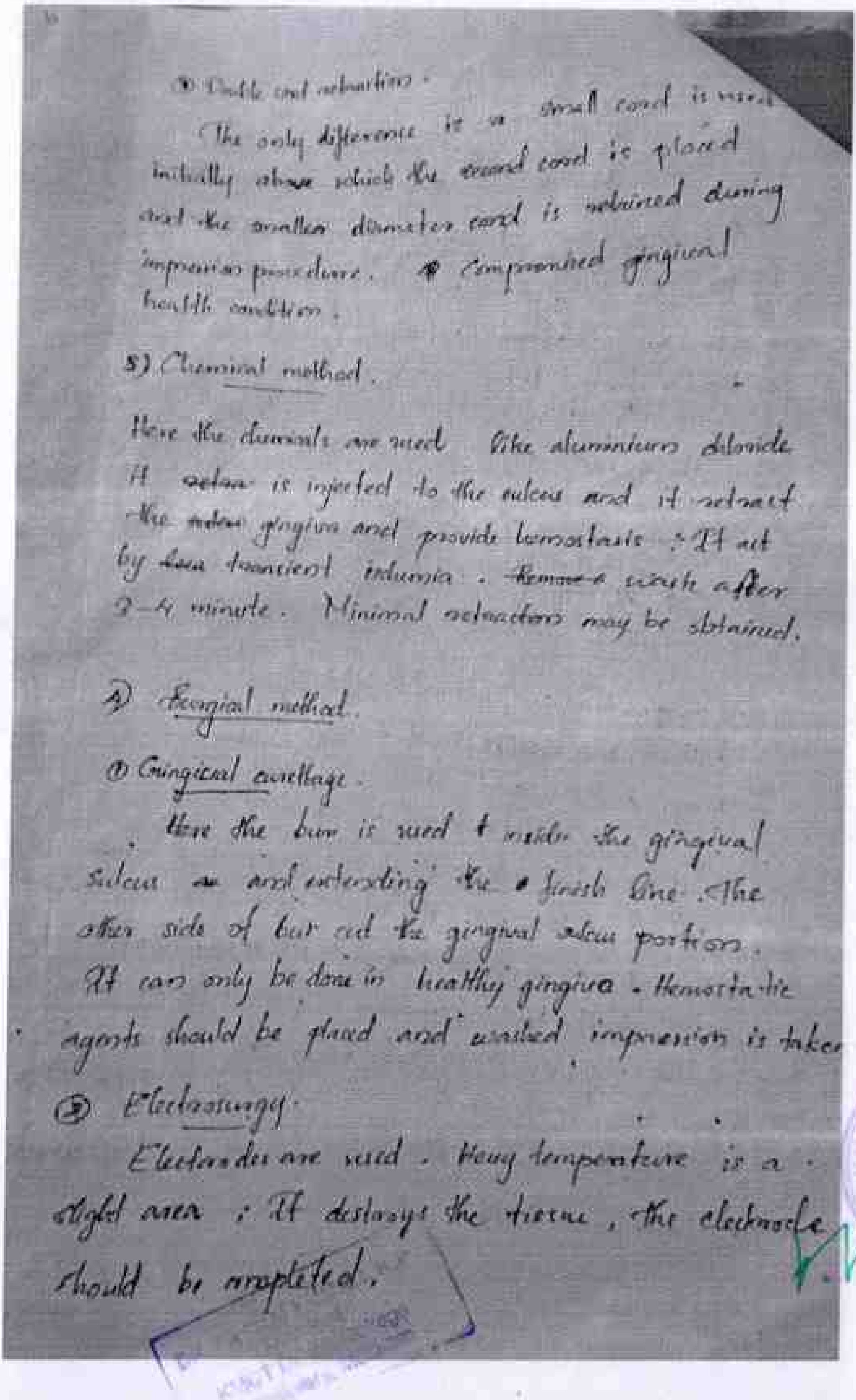
③ Immediate denture.

Immediate denture is a type of overdenture. Immediate dentures are given immediately after tooth preparation or implant placement. Here the immediately after the ~~-~~ procedures involving removal of tooth ~~of~~ or shape contouring the ~~a~~ marginal ridge the implants ~~as~~ are placed.

① The overdenture is a removable denture that cover or placed over one or more abutment tooth, root or implant.

~~Immediate dentures are given immediately after~~ ~~tok~~ In case of immediate denture the impression is taken immediately after extraction, tooth preparation or implant placement without waiting for a time to ~~healing~~ heal.

- Immediate impression is taken after extraction.
- Immediate replacement of denture before healing of extraction socket.
- It helps in preserving the vertical dimension, bone height.



④ Double cord retraction.

The only difference is a small cord is used initially ~~above~~ which the second cord is placed and the smaller diameter cord is retained during impression procedure. ✱ Compromised gingival health condition.

5) Chemical method.

Here the chemicals are used like aluminium chloride. It ~~solution~~ is injected to the sulcus and it retract the ~~[illegible]~~ gingiva and provide hemostasis. It act by ~~[illegible]~~ transient ischemia. ~~Remove~~ wash after 3-4 minute. Minimal retraction may be obtained.

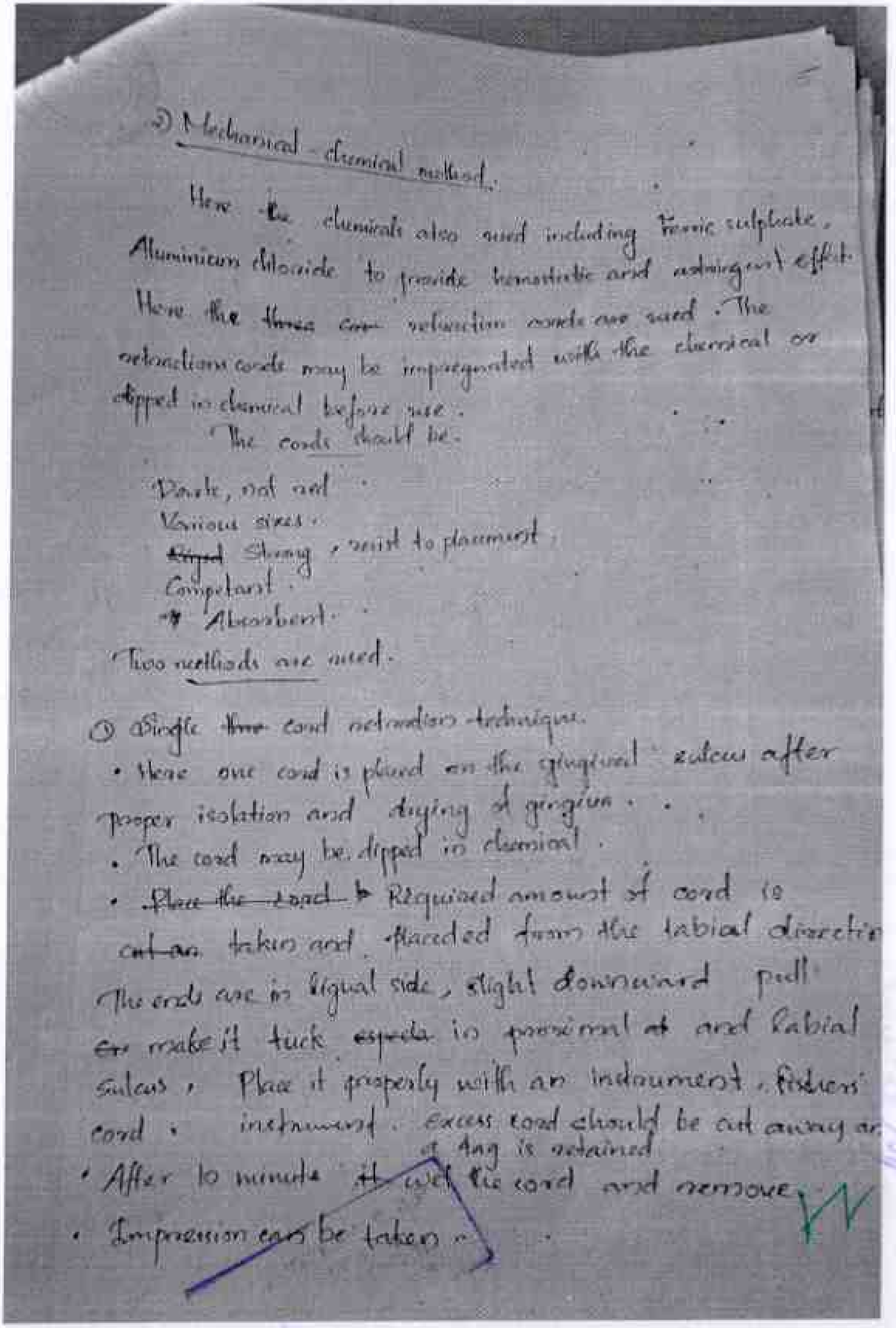
6) Surgical method.

① Gingival curettage.

Here the bur is used to widen the gingival sulcus ~~a~~ and extending the finish line. The other side of bur cut the gingival sulcus portion. It can only be done in healthy gingiva. Hemostatic agents should be placed and washed, impression is taken

② Electrosurgy.

Electrodes are used. Heavy temperature is a slight area: It destroys the tissue, the electrode should be completed.



2) Mechanical - chemical method.

Here ~~the~~ chemicals also used including Ferric sulphate, Aluminium chloride to provide hemostatic and astringent effect. Here the ~~three~~ ~~can~~ retraction cords are used. The retractions cords may be impregnated with the chemical or dipped in chemical before use.

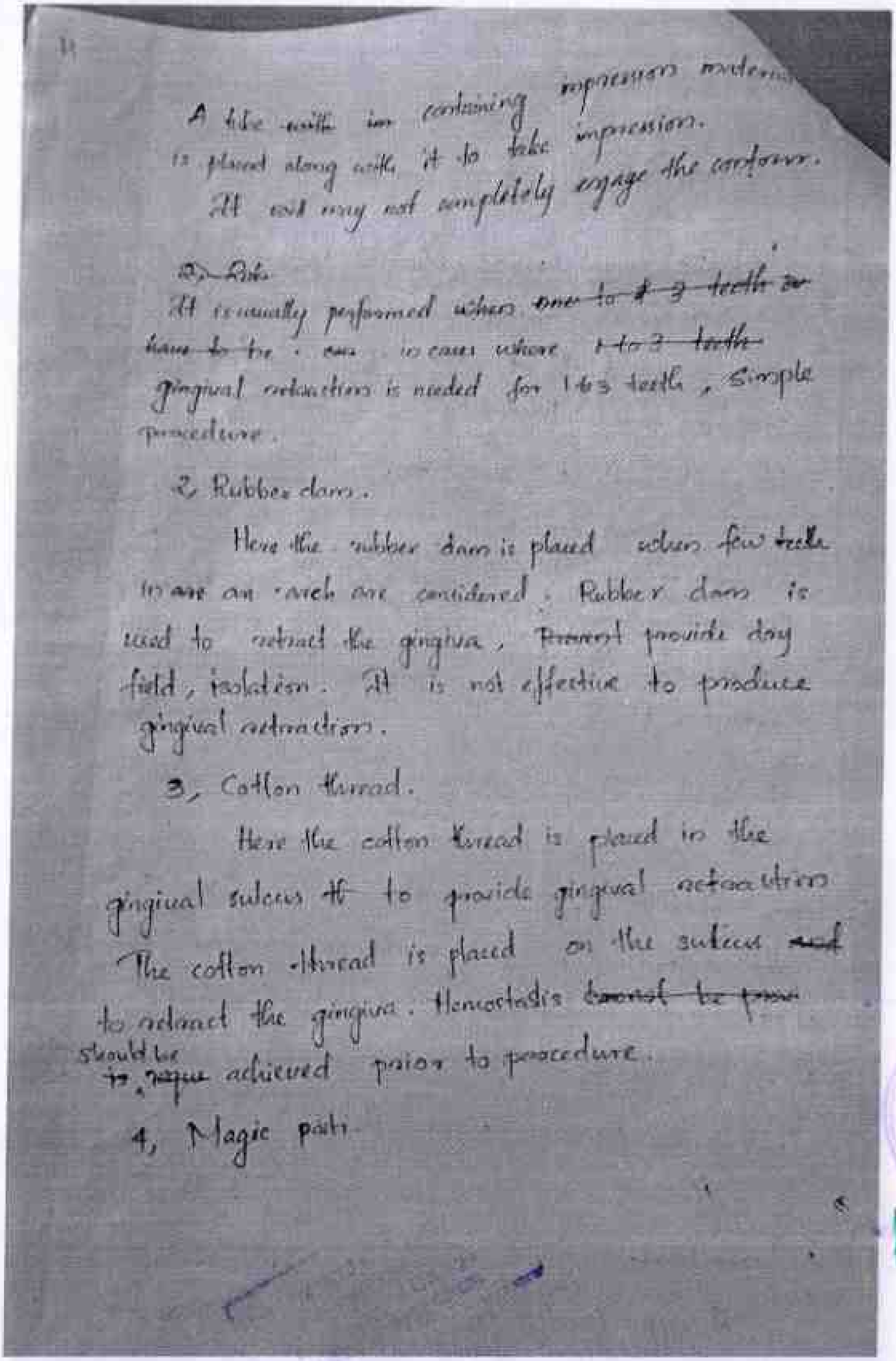
The cords should be.

Dark, not red
Various sizes.
~~Rigid~~ Strong, resist to placement.
Competent.
~~*~~ Absorbent.

Two methods are used.

① Single ~~two~~ cord retraction technique.

- Here one cord is placed on the gingival sulcus after proper isolation and drying of gingiva. .
- The cord may be dipped in chemical.
- ~~Place the cord~~ Required amount of cord is ~~cut an~~ taken and placed from the labial directio The ends are in lingual side, slight downward pull ~~or~~ make it tuck ~~especia~~ in proximal ~~at~~ and labial sulcus. Place it properly with an instrument. Fischer's cord instrument. Excess cord should be cut away ar of 4mg is retained
- After 10 minute ~~it~~ wet the cord and remove.
- Impression can be taken.



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A tube ~~with~~ ~~in~~ containing impression material is placed along with it to take impression.
It will may not completely engage the contours.

~~2, Tube~~
It is usually performed when ~~one to 1 2 teeth are have to be~~ . ~~can~~ in cases where ~~1 to 3 teeth~~ gingival retraction is needed for 1to3 teeth, Simple procedure.

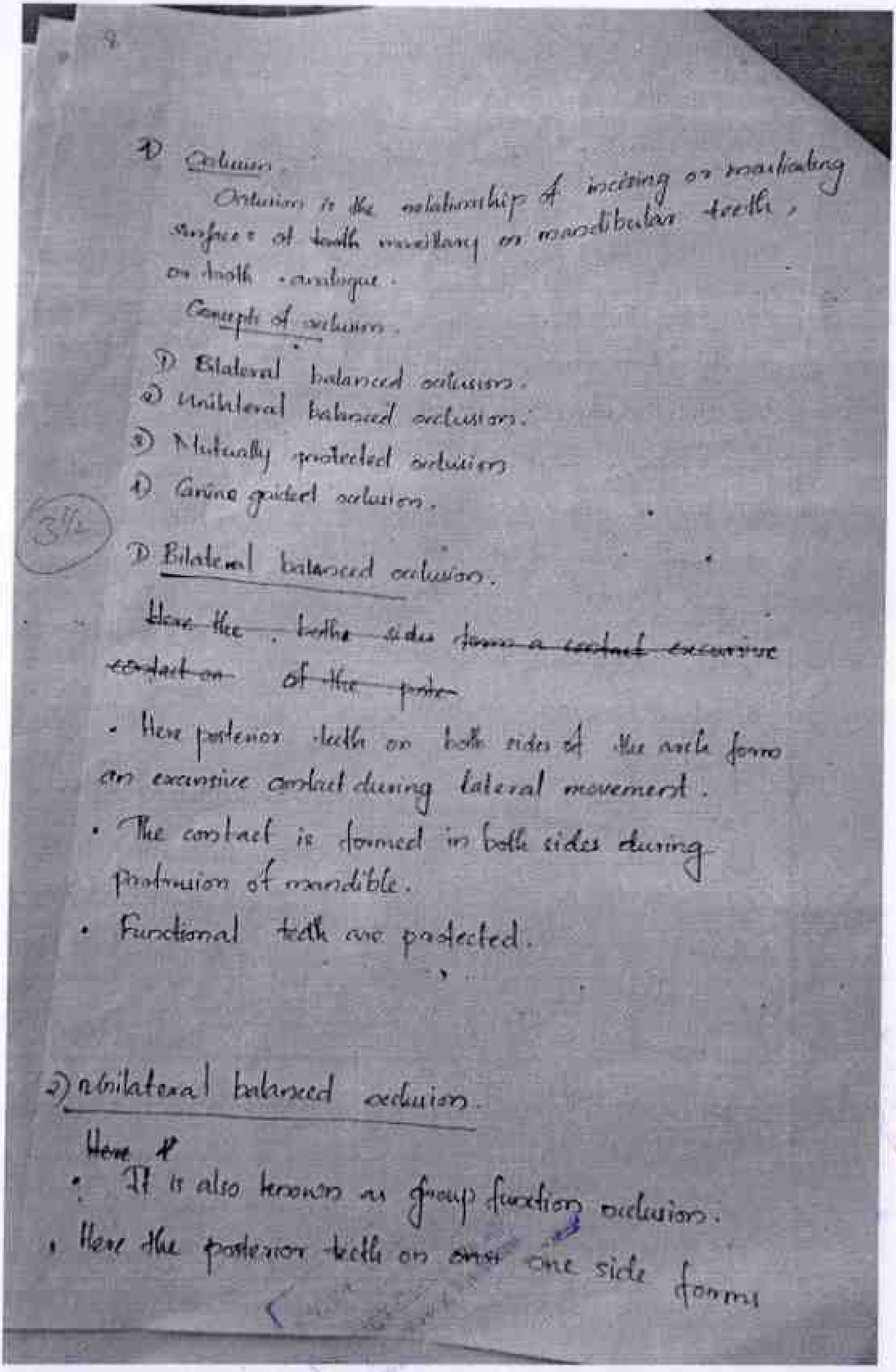
2, Rubber dam.

Here the rubber dam is placed when few teeth in are an arch are considered. Rubber dam is used to retract the gingiva, ~~Prevent~~ provide dry field, isolation. It is not effective to produce gingival retraction.

3, Cotton thread.

Here the cotton thread is placed in the gingival sulcus ~~it~~ to provide gingival retraction The cotton thread is placed on the sulcus ~~and~~ to retract the gingiva. Hemostasis ~~cannot be prov~~ should be ~~is requi~~ achieved prior to procedure.

4, Magic pak.



8

1) Occlusion.

Occlusion is the relationship of incising or masticating surface of teeth maxillary or mandibular teeth, or teeth analogue.

Concepts of occlusion.

1) Bilateral balanced occlusion.
2) Unilateral balanced occlusion.
3) Mutually protected occlusion
4) Canine guided occlusion.

3½

1) Bilateral balanced occlusion.

~~Here the . bothe sides forms a contact excursive contact on of the poste~~

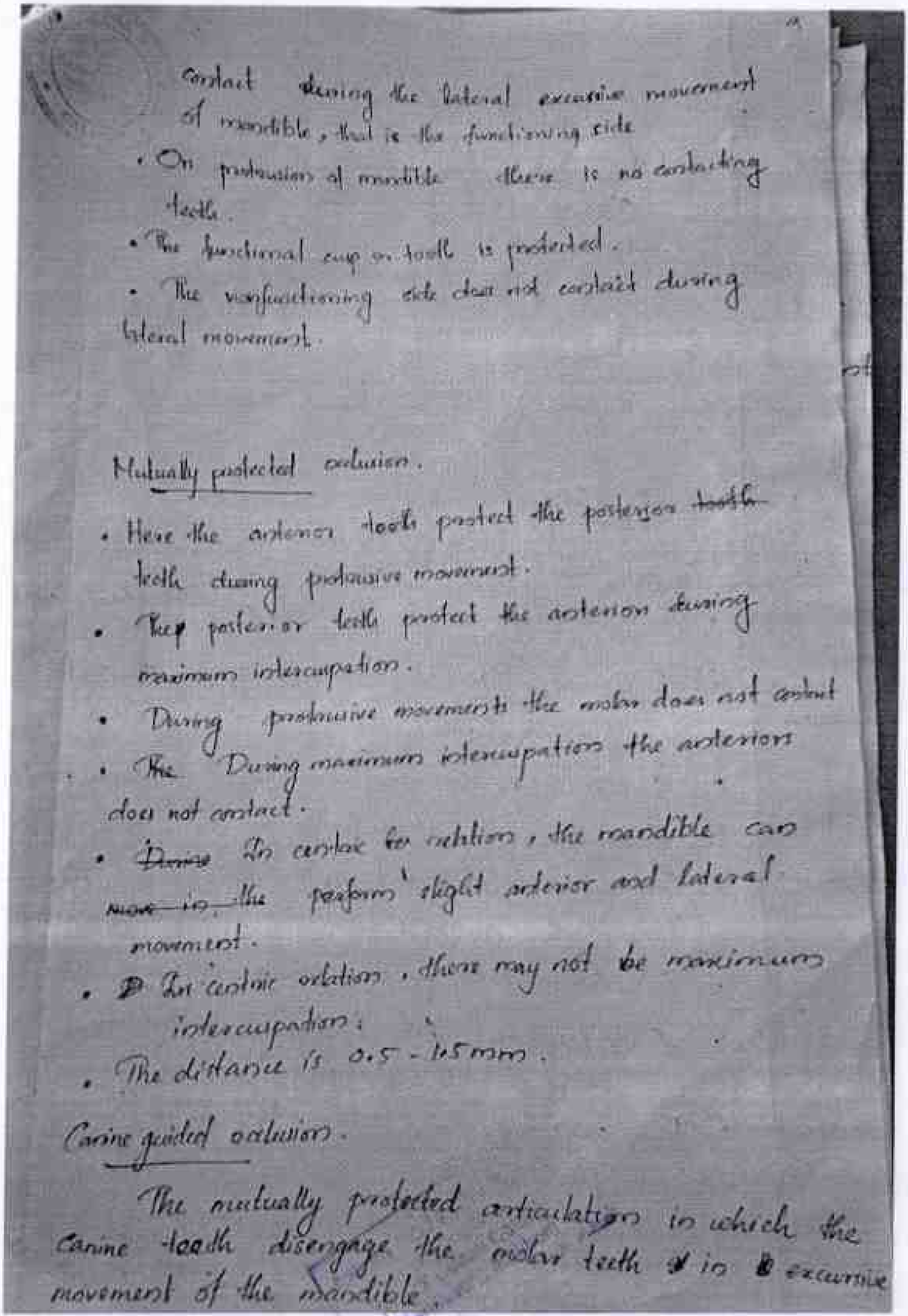
- Here posterior teeth on both sides of the arch forms an excursive contact during lateral movement.
- The contact is formed in both sides during protrusion of mandible.
- Functional teeth are protected.

2) unilateral balanced occlusion.

Here it

- It is also known as group function occlusion.
- Here the posterior teeth on ~~one~~ one side forms

18



contact during the lateral excursive movement of mandible, that is the functioning side

- On protrusion of mandible there is no contacting teeth.
- The functional cusp on tooth is protected.
- The nonfunctioning side does not contact during lateral movement.

Mutually protected occlusion.

- Here the anterior teeth protect the posterior ~~teeth~~ teeth during protrusive movement.
- They posterior teeth protect the anterior during maximum intercuspation.
- During protrusive movements the molar does not contact
- ~~The~~ During maximum intercuspation the anteriors does not contact.
- ~~During~~ In centric relation, the mandible can ~~move in the~~ perform slight anterior and lateral movement.
- In centric relation, there may not be maximum intercuspation.
- The distance is 0.5 - 1.5mm.

Canine guided occlusion.

The mutually protected articulation in which the canine teeth disengage the molar teeth in excursive movement of the mandible.

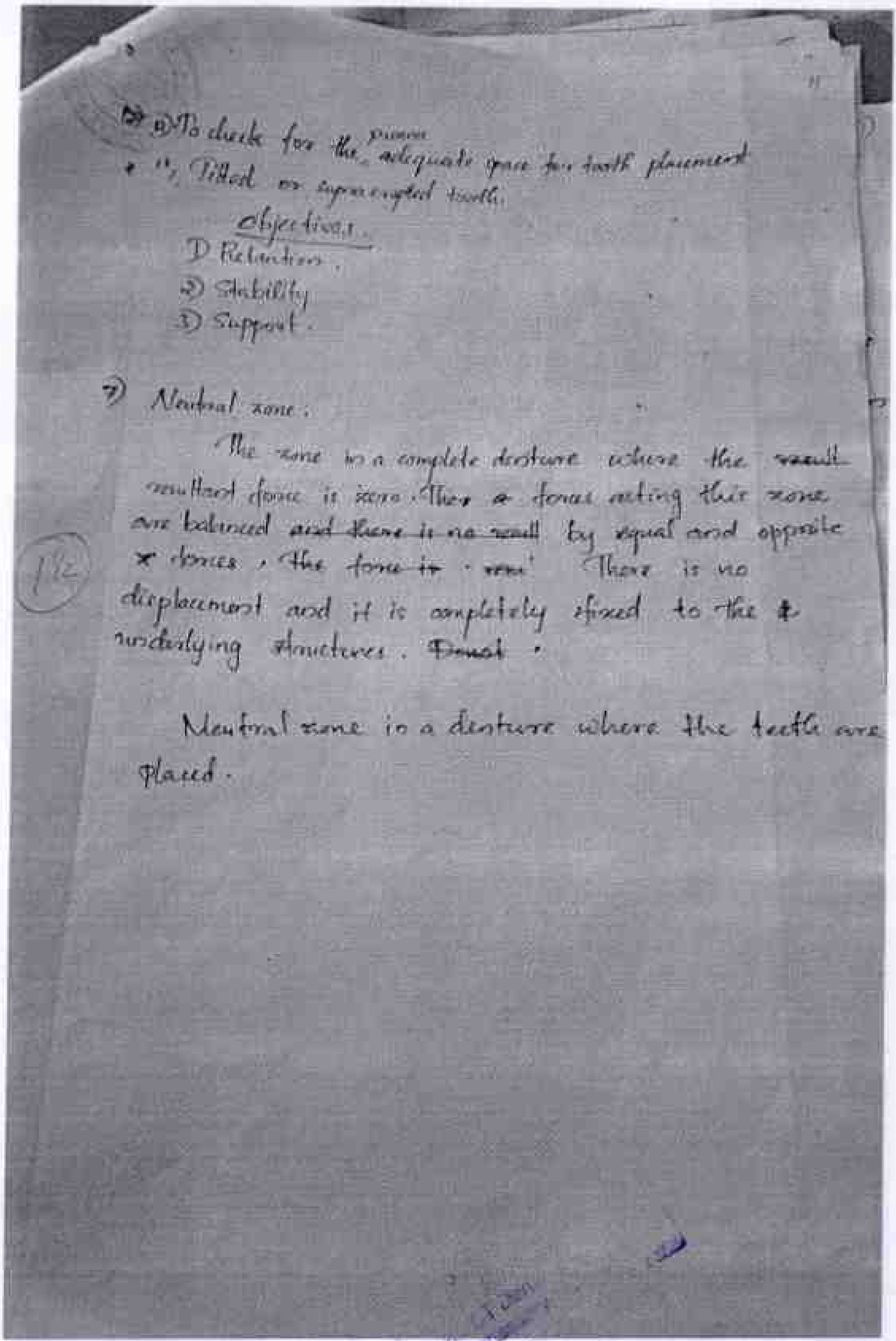
5) Principles of tooth preparation.

1
Preservation of tooth structure
Obtaining retention form
Resistance of form.
Preservation of periodontium.

6) Objectives of impression making

~~Complete ie~~

1, To ~~to~~ completely reproduce the ~~oral cavi~~ structures of oral cavity.
2, Determine the position, and condition of the tooth
3, Locate retentive undercuts.
4, Duplicate the maxillary and mandibular arch ~~by cast~~
2½
5, Locate the contour of tooth.
6, For cast preparation to orient it to centric relation, for a three dimensional view, simulate jaw movement
7, For each Laboratory procedures, preparations.
8, 1. To compare ~~the treatment~~ oral condition before and after treatment.
9, ~~For~~ To obtain the exact contour of the prepared tooth for crown placement
10. Diagnostic purpose and for treatment plans.
11. Accurately measure the contours to adapt the denture accurately.



8) To check for the presence adequate space for tooth placement
• " , Tilted or supraerupted teeth.

Objectives.

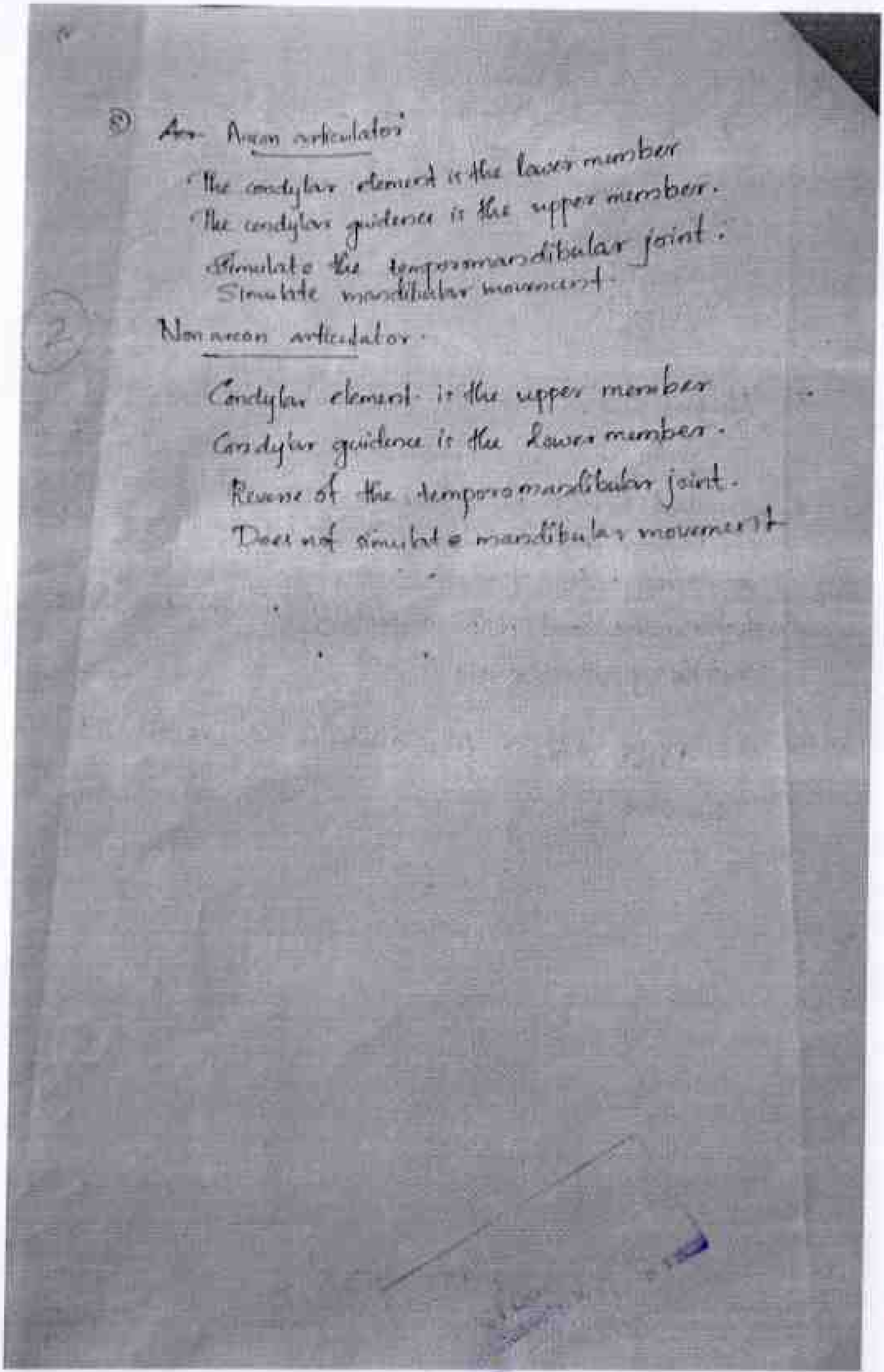
1) Retention.
2) Stability
3) Support.

7) Neutral zone:

The zone in a complete denture where the ~~result~~ resultant force is zero. The forces acting this zone are balanced ~~and there is no result~~ by equal and opposite forces, ~~the force is zero~~. There is no displacement and it is completely fixed to the underlying structures. ~~[illegible]~~.

Neutral zone in a denture where the teeth are placed.

1½



8) An- Arcon articulator

The condylar element is the lower member
The condylar guidence is the upper member.
Simulate the temporomandibular joint.
Simulate mandibular movement.

2

Non arcon articulator.

Condylar element is the upper member
Condylar guidence is the lower member.
Reverse of the temporomandibular joint.
Does not simulate mandibular movement

12

9) Overdenture

Overdenture is a removable complete denture that cover or placed over the one or more abutment tooth, root or implant.

It can be

① Tooth supported overdenture
② Implant supported overdenture.

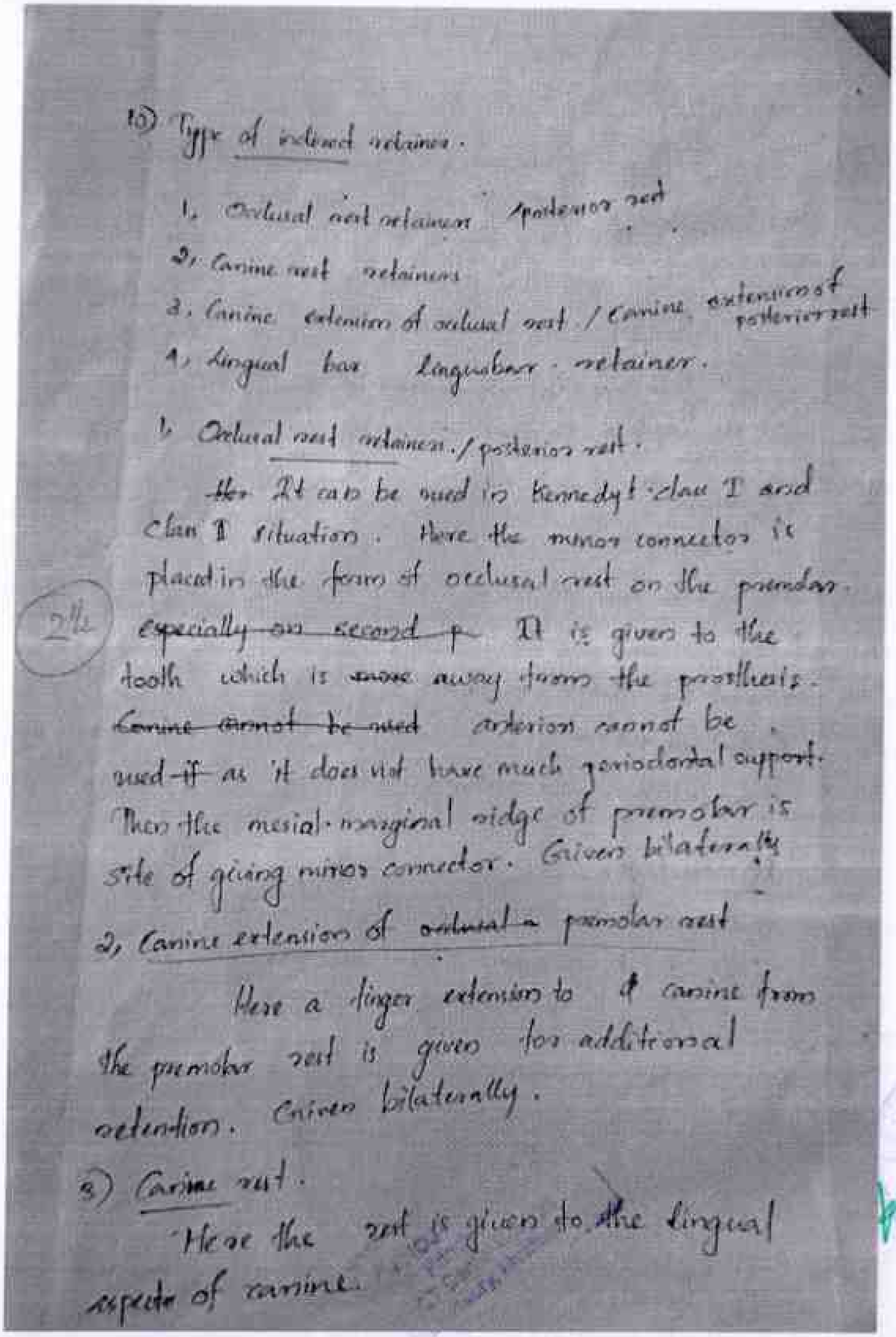
$2\frac{1}{4}$

~~[illegible]~~

Advantages.

It preserve the abutment and bone support.
It preserve the alveolar ridge from resorption.
Preserve the Vertical dimension.
Aesthetically ~~pleas~~ +!
Better retention, no dislodgement.

Disadvantage.
Adequate bone support is required
Difficult to maintain oral hygiene.



10) Type of indirect retainer.

1. Occlusal rest retainer / posterior rest
2. Canine rest retainer
3. Canine extension of occlusal rest / Canine extension of posterior rest
4. Lingual bar Lingual bar retainer.

1. Occlusal rest retainer / posterior rest.

~~Her~~ It can be used in Kennedy's class I and class II situation. Here the minor connector is placed in the form of occlusal rest on the premolar. ~~especially on second p~~ It is given to the tooth which is ~~more~~ away from the prosthesis. ~~Canine cannot be used~~ anterior cannot be used ~~if~~ as it does not have much periodontal support. Then the mesial marginal ridge of premolar is site of giving minor connector. Given bilaterally

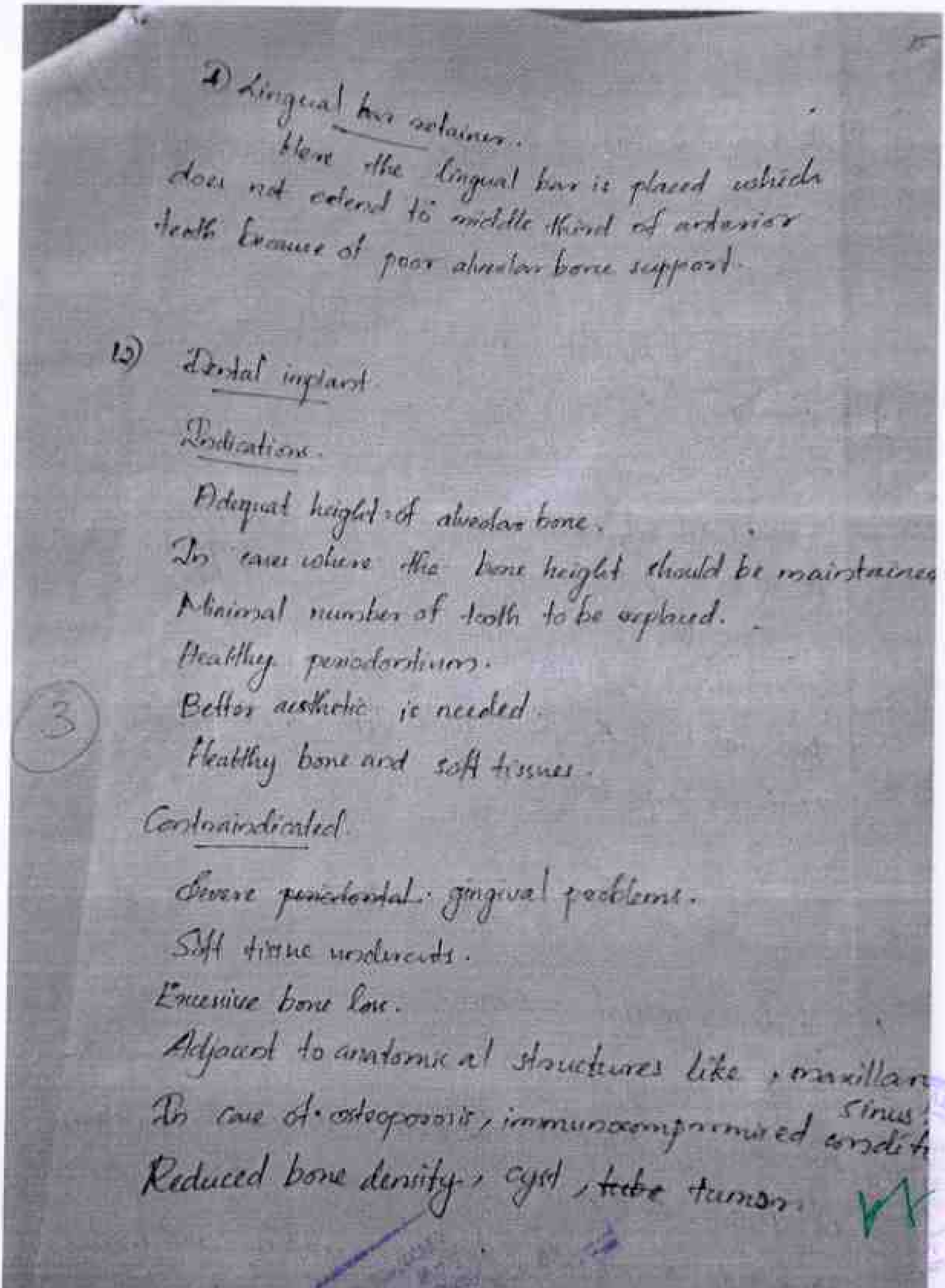
2½

2. Canine extension of ~~occlusal~~ premolar rest

Here a finger extension to ~~t~~ canine from the premolar rest is given for additional retention. Given bilaterally.

3) Canine rest.

Here the rest is given to the lingual aspect of canine.



2) Lingual bar retainer.

Here the lingual bar is placed which does not extend to middle third of anterior teeth because of poor alveolar bone support.

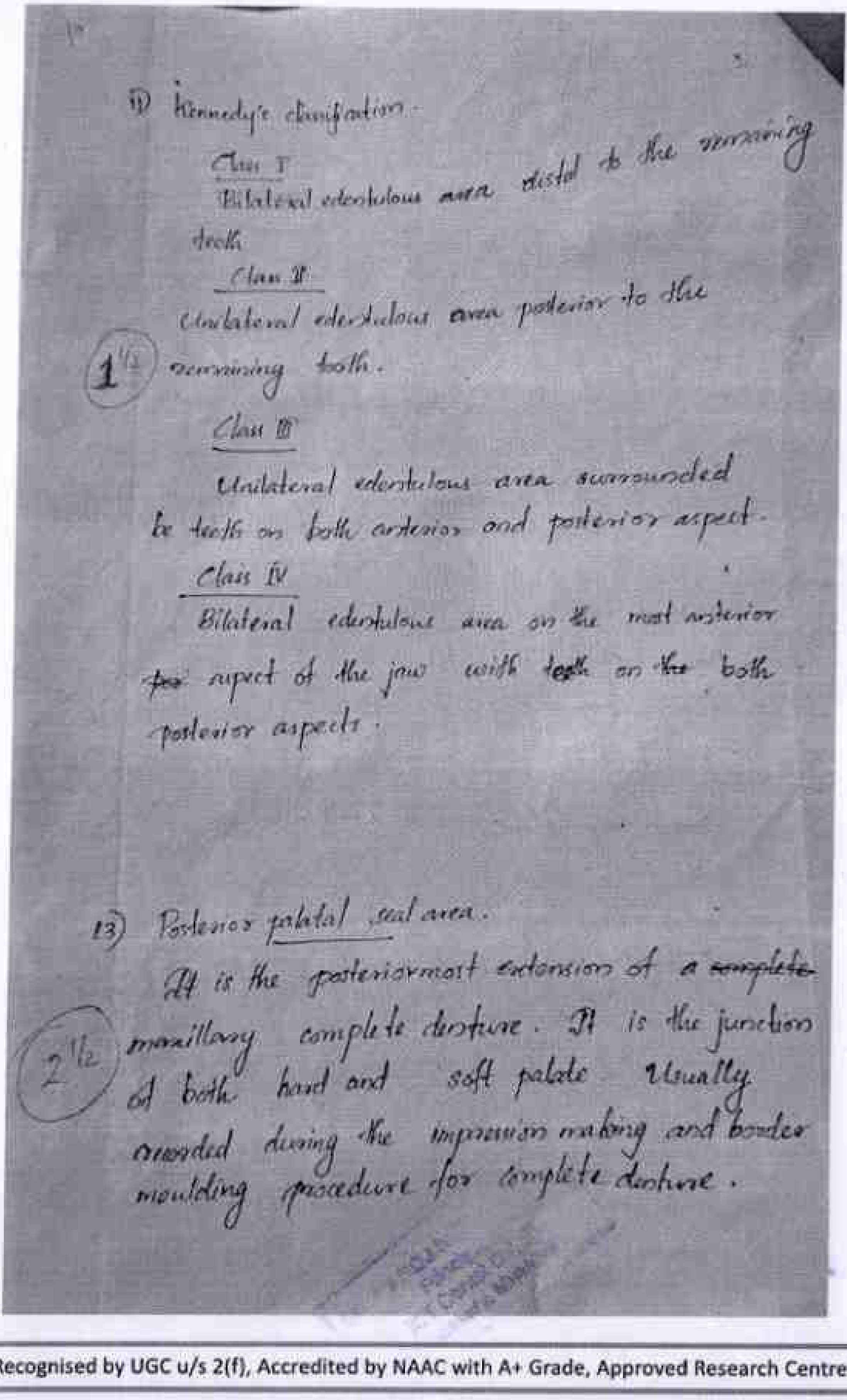
12) Dental implant

Indications.

Adequat height of alveolar bone.
In cases where the bone height should be maintained
Minimal number of teeth to be replaced.
Healthy periodontium.
③ Better aesthetic is needed.
Healthy bone and soft tissues.

Contraindicated.

Severe periodontal gingival problems.
Soft tissue undercuts.
Excessive bone loss.
Adjacent to anatomical structures like, maxillar sinus
In case of osteoporosis, immunocompromised condit
Reduced bone density, cyst, ~~tube~~ tumor.



3

11) Kennedy's classification.

Class I

Bilateral edentulous area distal to the remaining teeth

Class II

Unilateral edentulous area posterior to the remaining teeth.

$1\frac{1}{2}$

Class III

Unilateral edentulous area surrounded be teeth on both anterior and posterior aspect.

Class IV

Bilateral edentulous area on the most anterior ~~for~~ aspect of the jaw with teeth on the both posterior aspects.

13) Posterior palatal seal area.

It is the posteriormost extension of a ~~complete~~ maxillary complete denture. It is the junction of both hard and soft palate. Usually recorded during the impression making and border moulding procedure for complete denture.

$2\frac{1}{2}$

It consist of an anterior vibrating line and a posterior vibrating line. Anterior vibrating line is recorded by asking the patient to say 'Ah' in short bursts and posterior vibrating line is recorded by valsalva maneuver method. ~~Ask the~~ close the patients ~~mou mo~~ nose slightly and ask him to exhale ~~for~~ through nose. The anterior vibrating line is a cupid bow shaped and posterior vibrating line is straight. It can also be evaluated with a 'T' burnisher.

⑭ Palatal ~~major~~ bar major connector.

It is ~~a the~~ one of the major connector used in maxillary prosthesis.

A palatal bar which is of thick metalic bar and adapted to the palate.

② It help in better adaptation.

Patient may have discomfort in ~~sea~~ speaking, chewing

Better retention.

Indicated

In class II, class III situations.

~~Reff~~ Palatal tori can be relieved down extend.

Contraindicated

High arched palate
Narrow palate
~~Palatal tori~~

⑭ Pier abutment

- It is the single abutment tooth to which the denture is attached.
- Single tooth to which the entire masticatory forces are the transmitted.
- The tooth should ~~be periodontally~~ have better periodontal support.

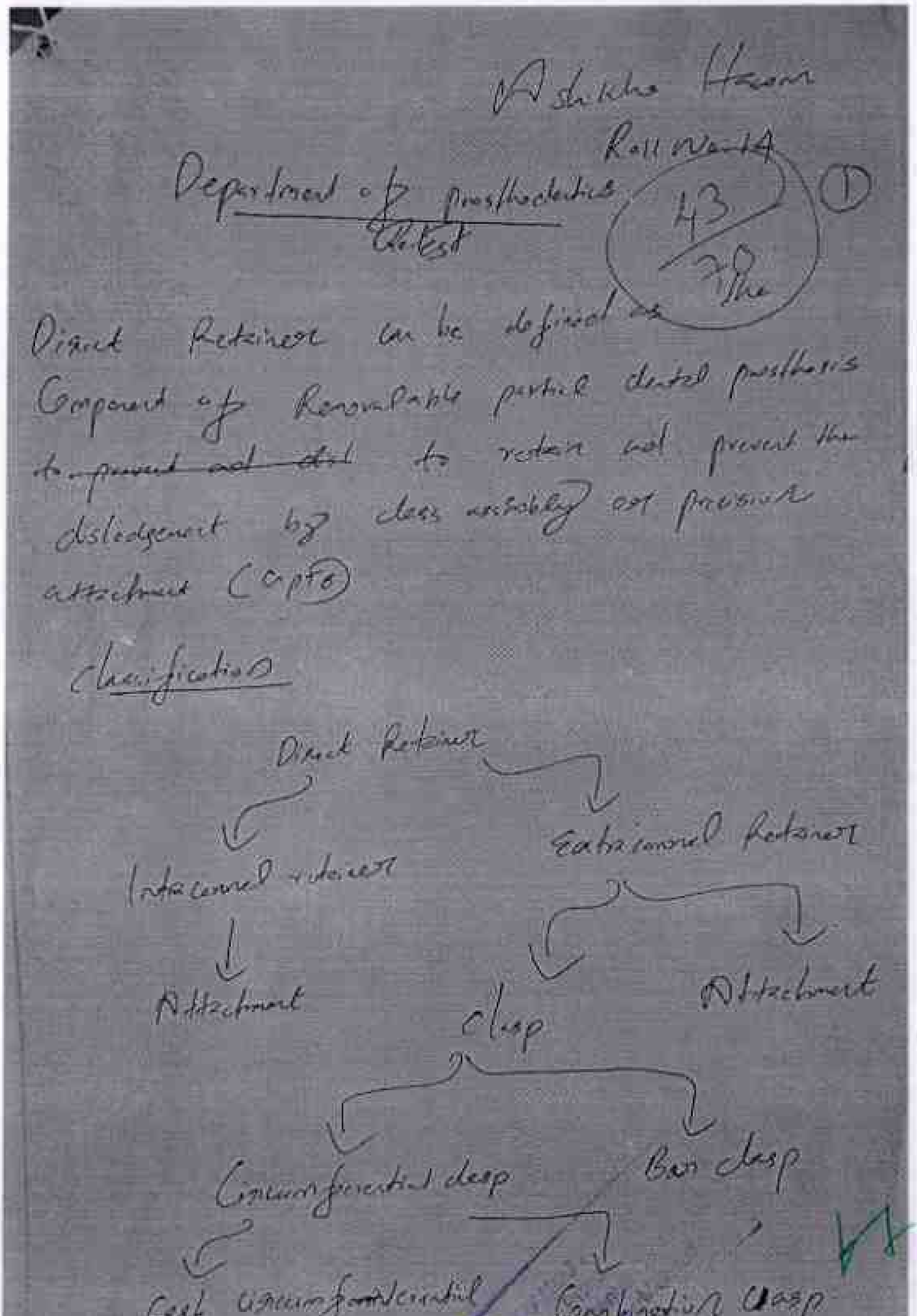
1½

- Sometimes the both side of the tooth will be endo edentulous, It forces are transmitted to this tooth may cause its fracture, periodontal problems, ~~tooth slow~~
- Tooth should be caries ~~to~~ free.
- Circumferential clasps can be used. ~~In cases of~~ Implant can also be given to support.
- Tooth should have a intact canamel

⑮ Pindex system.

~~In a~~ In some cases pins are placed in abutment tooth is called pindex systems. Retentive pins and to which I the crown is ~~adda~~ along with the denture is attached.

½



Ashikha Hasan
Roll No: 14

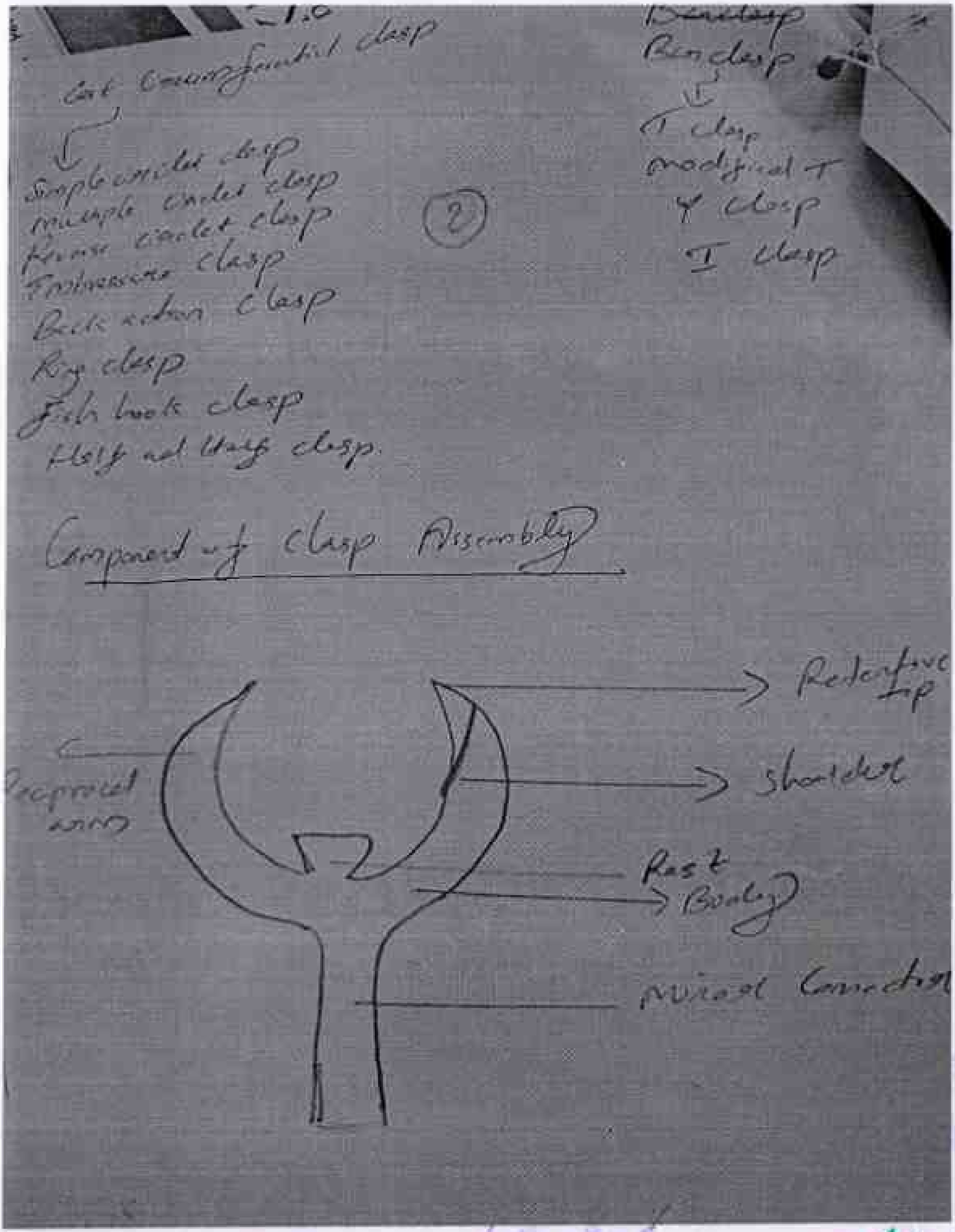
Department of prosthodontics
Class test

43/70 ①

Direct Retainer can be defined as Component of Removable partial dental prosthesis ~~to prevent and dist~~ to retain and prevent the dislodgement by clasp assembly or precision attachment (GPT8)

Classification

Direct Retainer
Intracoronal retainer
Attachment
Extracoronal Retainer
Clasp
Attachment
Circumferential clasp
Bar clasp
Cast circumferential
Combination clasp



1.0

Cast circumferential clasp

Simple circlet clasp
multiple circlet clasp
Reverse circlet clasp
Embrasure clasp
Back action clasp
Ring clasp
Fish hook clasp
Half and half clasp.

②

Bar clasp

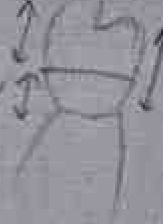
T clasp
modified T
Y clasp
I clasp

Component of clasp Assembly

Retentive tip
Shoulder
Reciprocal arm
Rest
Body
Minor Connector

MANOJ KUM
Principal
T Dental College
ry, Mukkam

2



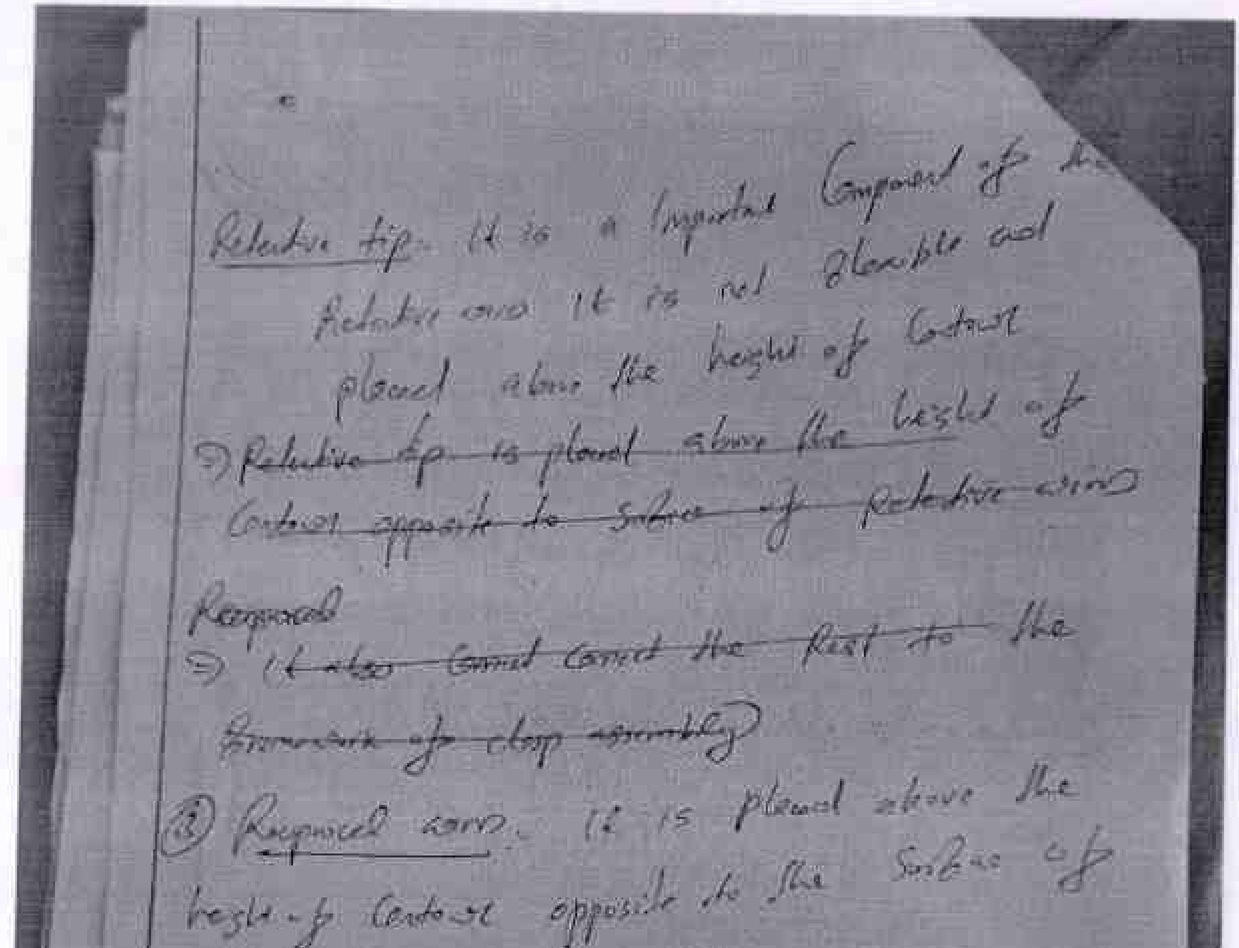
① Rest - Rest is the major Component it gives Vertical Support for the clasp assembly and provides [illegible] prevent of Tissue

② Retentive arm: Retentive arm consist of

~~① Body~~ ① Retentive tip
~~② shoulder~~ ② shoulder
~~③ Retentive tip~~ ③ Body

Body - Body connects the Rest to the minor Connector
~~NO~~ Flexible and ~~placed above the height of Contour~~ engages the undercut maximum

Shoulder: It Connect the Body to the Retentive tip
It is minimum flexible and ~~engages to~~
Show minimum engage to the undercut



Retentive tip:- It is a Important Component of the Retentive arm It is not flexible and placed above the height of Contour

⇒ ~~Retentive tip is placed above the height of Contour opposite to Surface of Retentive arm~~

Reciprocal
⇒ It ~~also Connect Connect the Rest to the framework of clasp assembly~~

③ Reciprocal arm:- It is placed above the height of Contour opposite to the Surface of Retentive arm

⇒ To provide indirect
⇒ Close ~~adaption~~ adaptation of denture to the tissue
⇒ Reciprocal arm should be rigid and Non tapering
⇒ It is placed in the [illegible] junction between the gingival and middle third

②

⇒ Minor Connector : It Connect the Rest to the framework of | clasp assembly

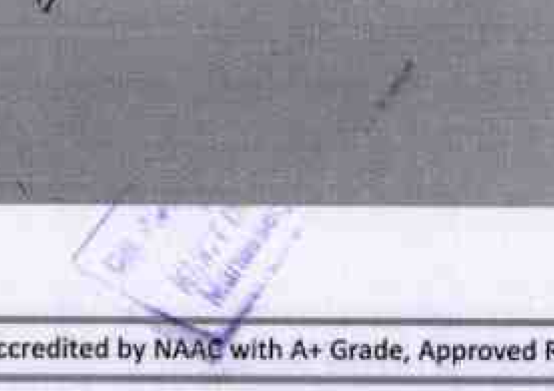
characteristics of extracoronal clasp

⇒ dislodging forces such like sliding band and line of gravity should be perpendicular to plane of occlusion

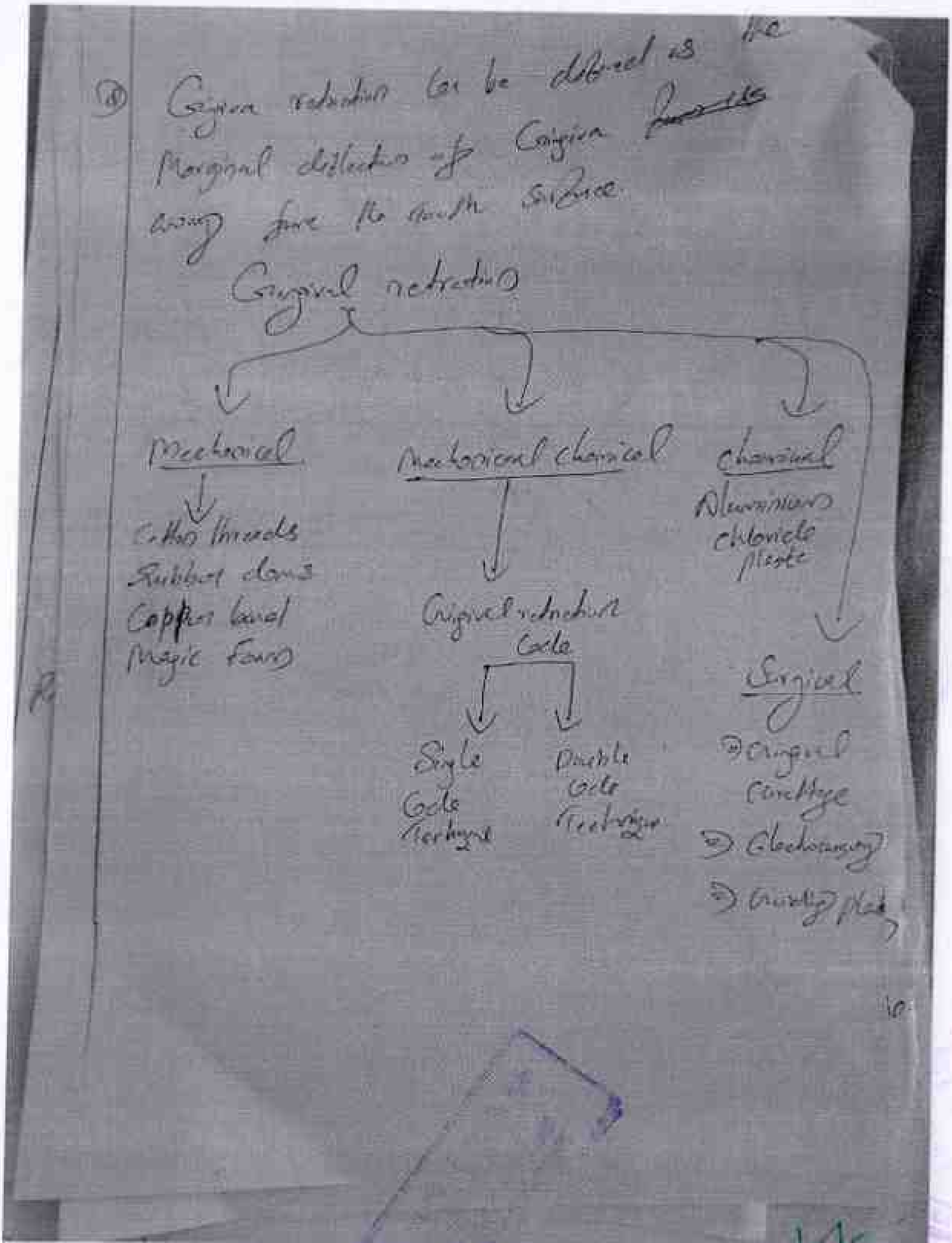
⇒ Prothero cone theory

two posterior crown shares a common base like two cones with same base

⇒ A line joining to connect these 2 cones known as height of contour



prothero cone theory



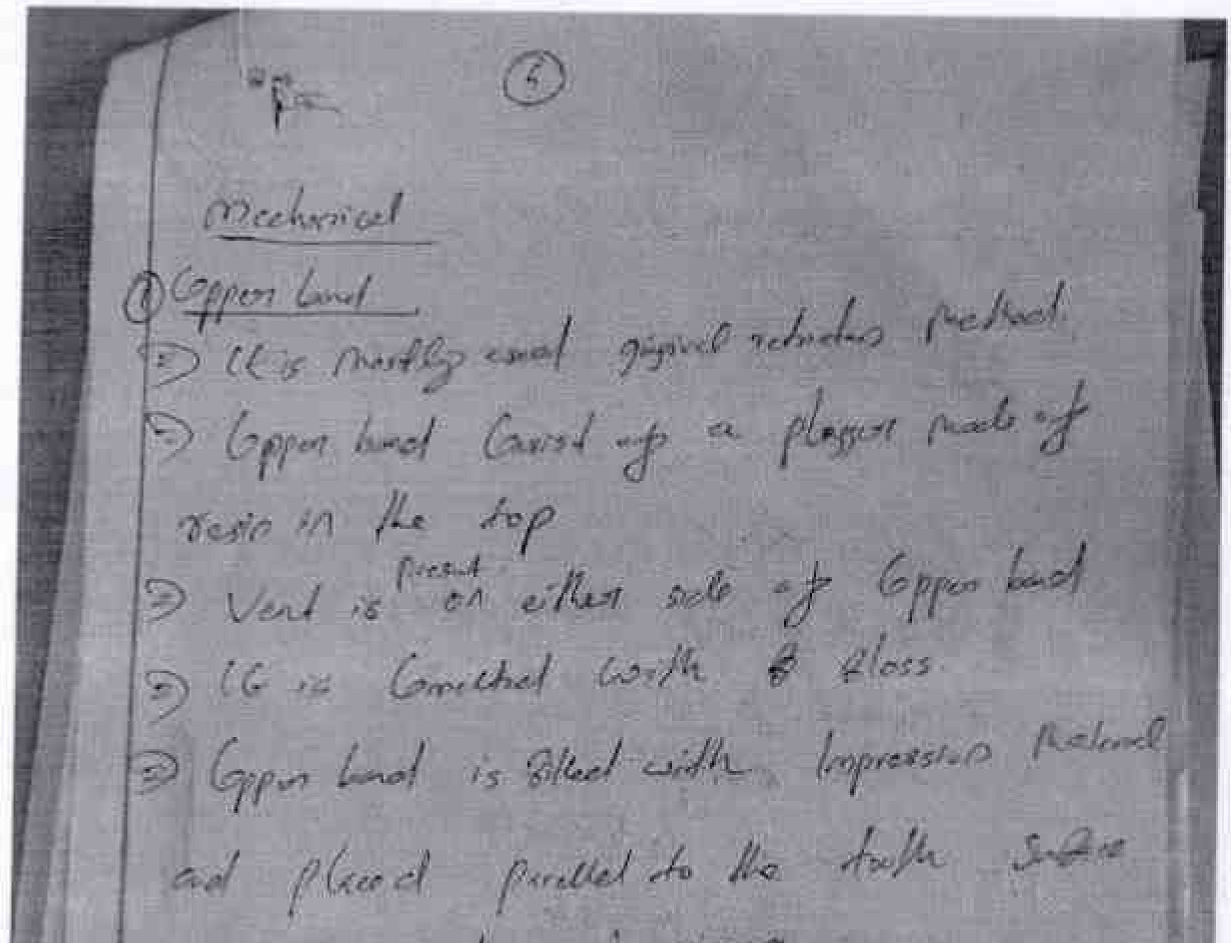
⑩ Gingiva retraction can be defined as the marginal deflection of gingiva ~~[illegible]~~ away from the tooth surface

Gingival retraction

- Mechanical
  - Cotton threads
  - Rubber dams
  - Copper band
  - Magic foam
- Mechanical chemical
  - Gingival retraction cords
    - Single cord technique
    - Double cord technique
- Chemical
  - Aluminium chloride paste
- Surgical
  - ⇒ Gingival curettage
  - ⇒ Electrosurgery
  - ⇒ Gingivoplasty

10

11



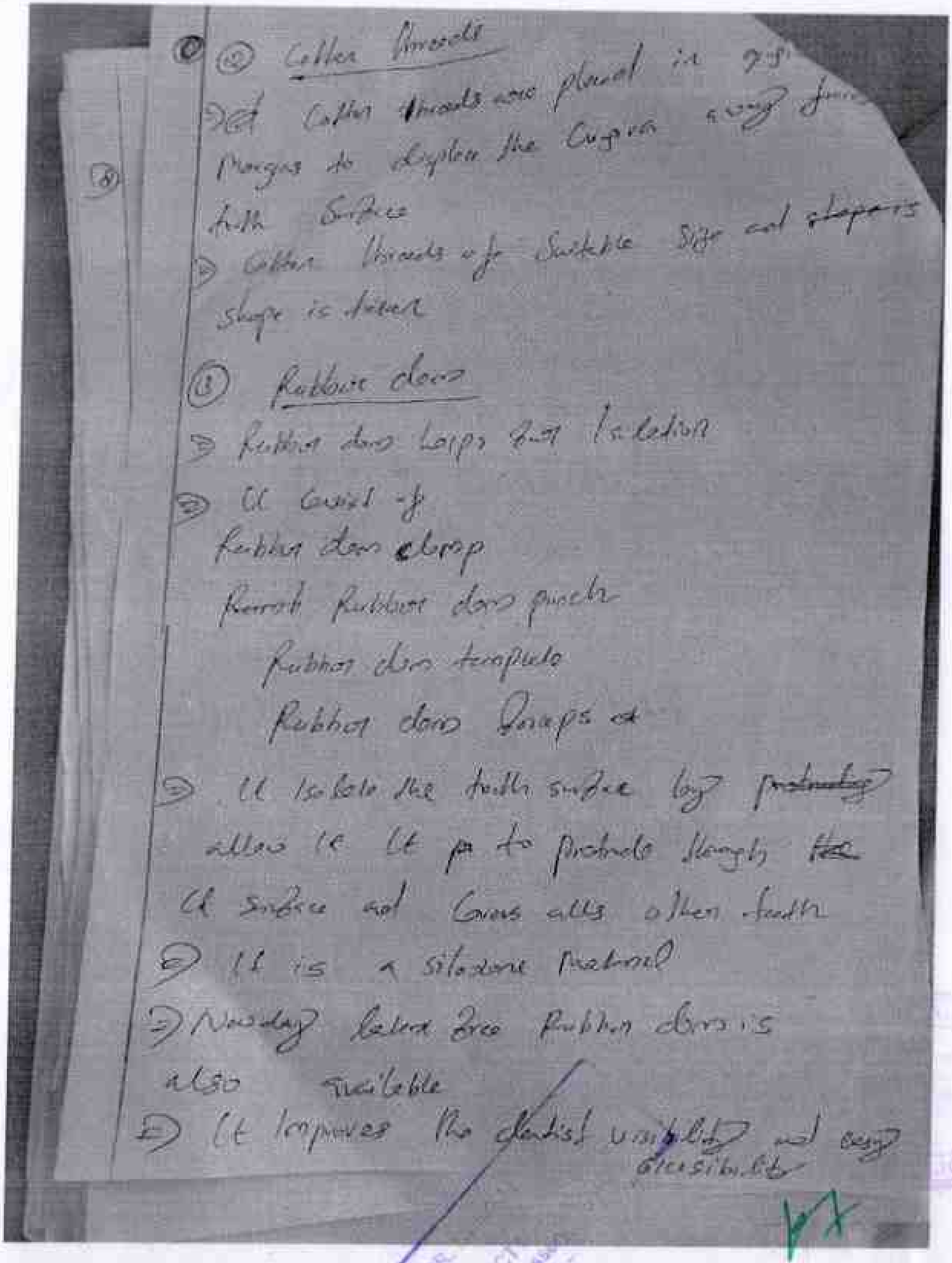
⑤

Mechanical

① Copper band

- ⇒ It is mostly used gingival retraction method.
- ⇒ Copper band Consist of a plugger made of resin in the top
- ⇒ Vent is present on either side of Copper band
- ⇒ It is Connected with floss.
- ⇒ Copper band is filled with Impression material and placed parallel to the tooth surface for the retraction of gingiva.

floss
resin
plug
Vent
Impression material



(2) Cotton threads

⇒ A cotton threads were placed in gingival margins to displace the gingiva away from tooth surface

⇒ Cotton threads of suitable size and shapers shape is taken

(8)

(3) Rubber dam

⇒ Rubber dam keeps that isolation

⇒ It consist of
Rubber dam clamp
Rubber rubber dam punch
Rubber dam template
Rubber dam forceps

⇒ It isolate the tooth surface by ~~protruding~~ allow to it to protrude through ~~the~~ it surface and covers all other teeth

⇒ It is a silicone material

⇒ Nowadays latex free rubber dam is also available

⇒ It improves the dentist visibility and easy accessibility

⑤

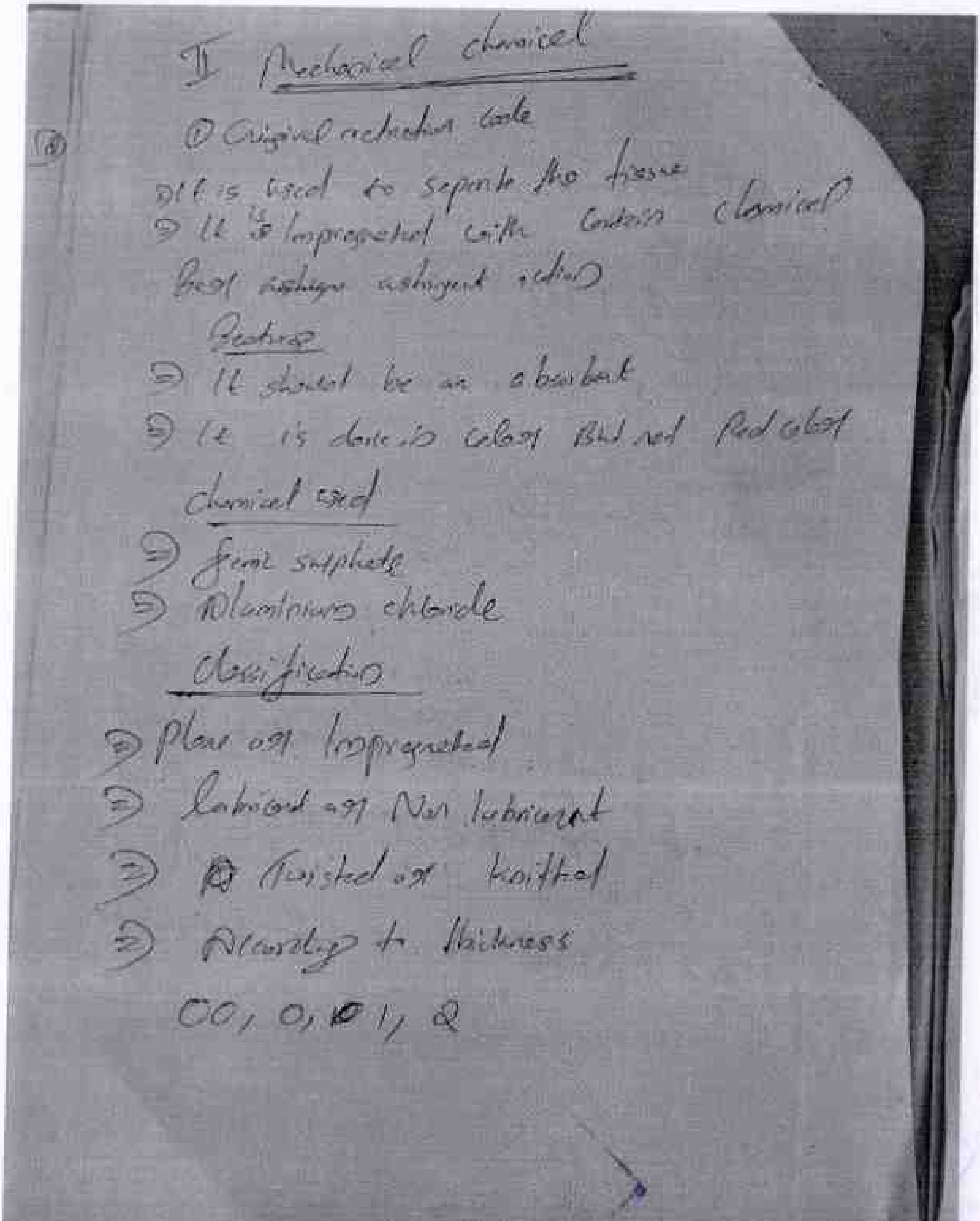
Rb ~~Contracti~~

Contraindication

⇒ Asthmatic patient
⇒ Nasal Congestion
⇒ Uncooperative and mentally disabled patient

⑤ Magic foam

⇒ Magic foam consist of Hollow Cylinders rolls and magic foam plate
⇒ It is ~~Coaspie~~ Copiecompier
⇒ Magic foam is filled in CeperCompier and also filled ~~in the~~ placed in prepared tooth
⇒ ~~Here~~ ~~Cpiecomp~~ Copiecompier is placed on it to the tooth surface and patient is asked to bite for 3-4 minutes.



II Mechanical chemical

(8) ① Original retraction cord

⇒ It is used to separate the tissue

⇒ It is impregnated with certain chemical

for astringe astringent action

Features

⇒ It should be an absorbent

⇒ It is dark in colour But not Red colour

chemical used

⇒ ferric sulphate

⇒ Aluminium chloride

classification

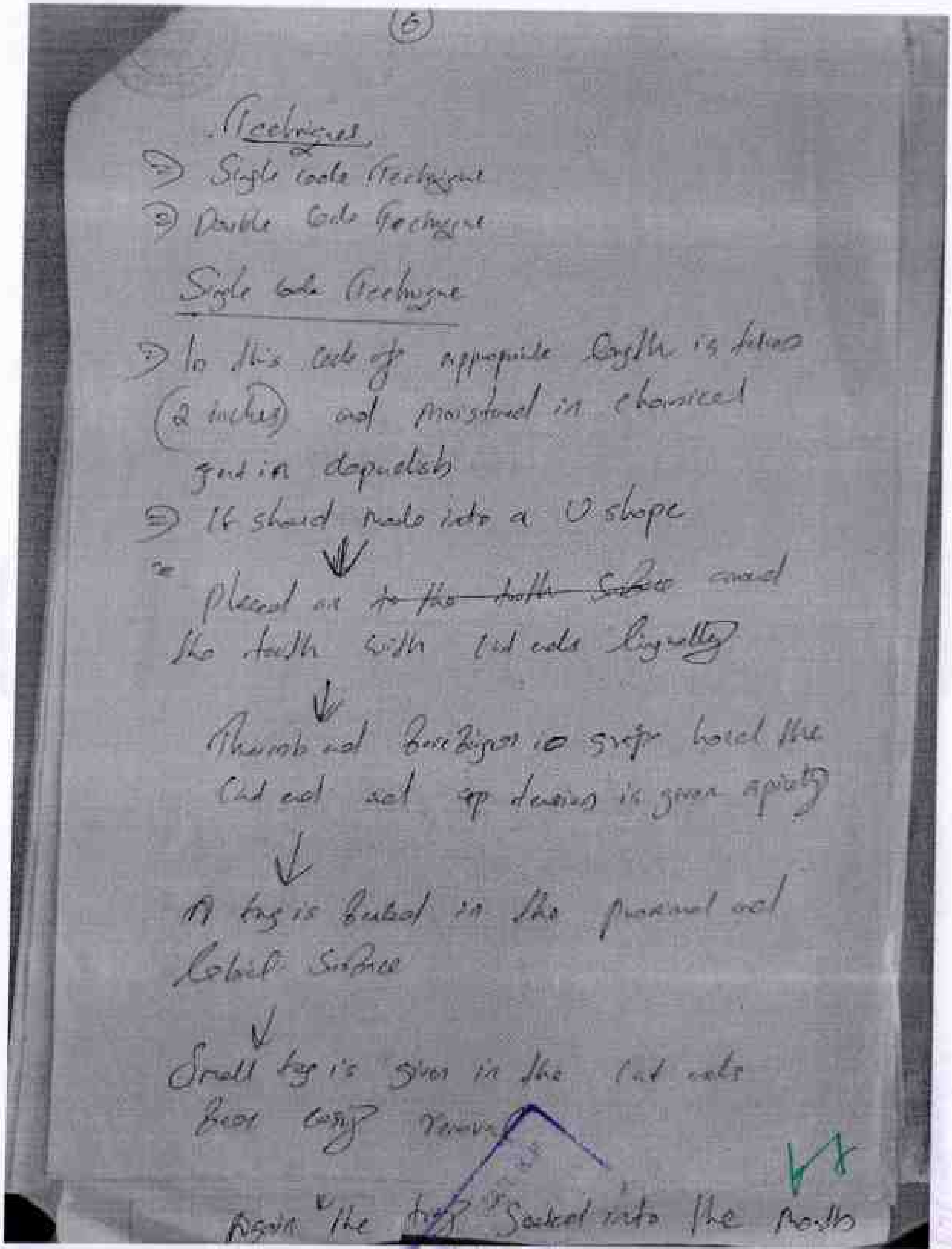
⇒ plain or Impregnated

⇒ lubricant or Non lubricant

⇒ Twisted or knitted

⇒ According to thickness

00, 0, 1, 2



Techniques

⇒ Single cord Technique
⇒ Double cord Technique

Single cord Technique

⇒ In this cord of appropriate length is taken (2 inches) and moistened in chemical put in dappen dish

⇒ It should made into a U shape

↓

placed on ~~to the tooth surface~~ around the tooth with cord ends lingually

↓

Thumb and forefinger to grip hold the cord end and apply tension in given apically

↓

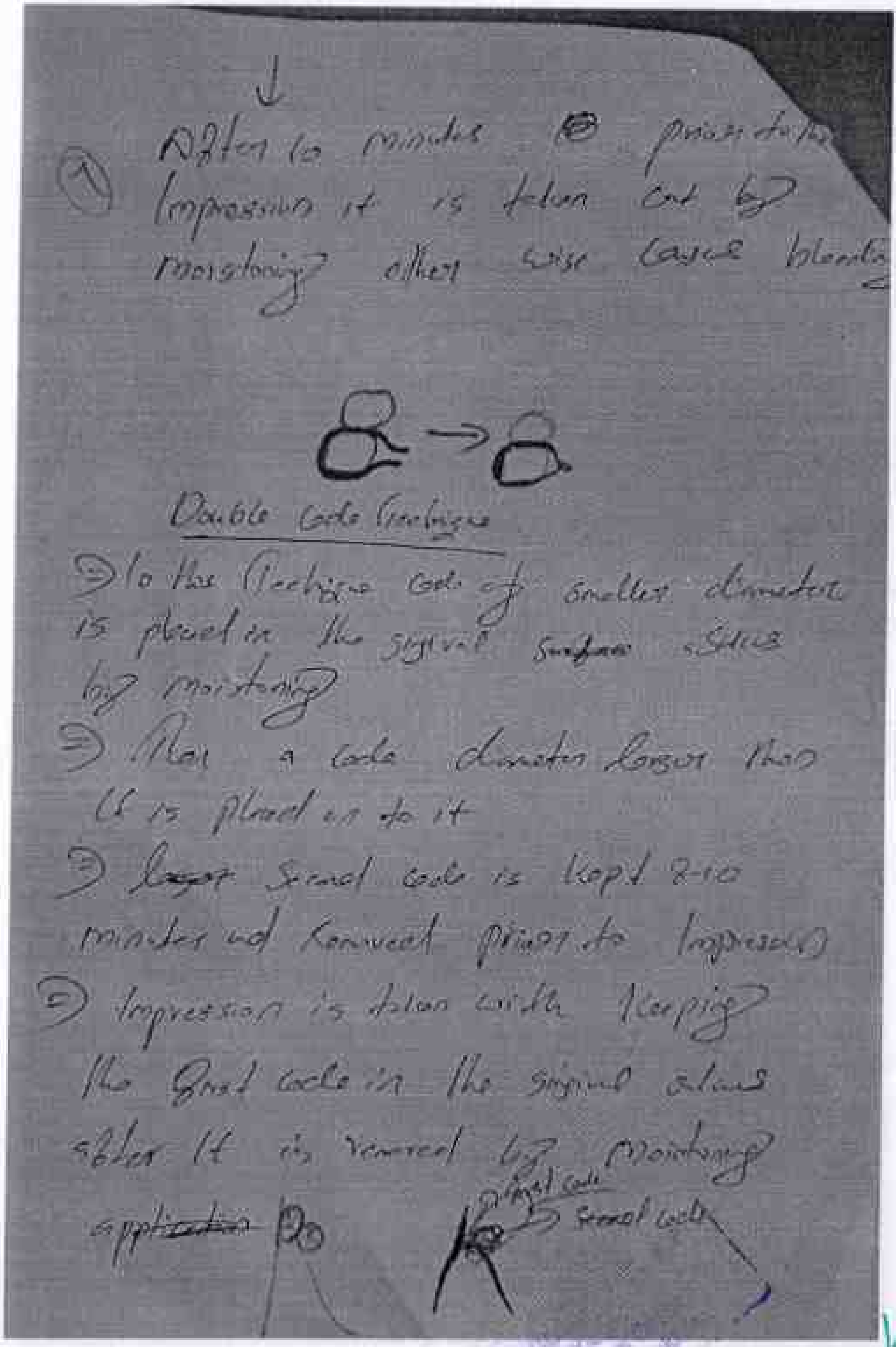
A tag is tucked in the proximal and labial surface

↓

Small tag is given in the cord ends for easy removal

↓

Again the tag Socket into the mouth



↓

① After 10 minutes ~~[illegible]~~ prior to the Impression it is taken out by moistening other wise cause bleeding

Double cord technique

⇒ In this technique cord of smaller diameter is placed in the gingival ~~surface~~ sulcus by moistening

⇒ Then a cord diameter larger than it is placed on to it

⇒ ~~Larger~~ Second cord is kept 8-10 minutes and removed prior to Impression

⇒ Impression is taken with keeping the first cord in the gingival sulcus after it is removed by moistening ~~application~~

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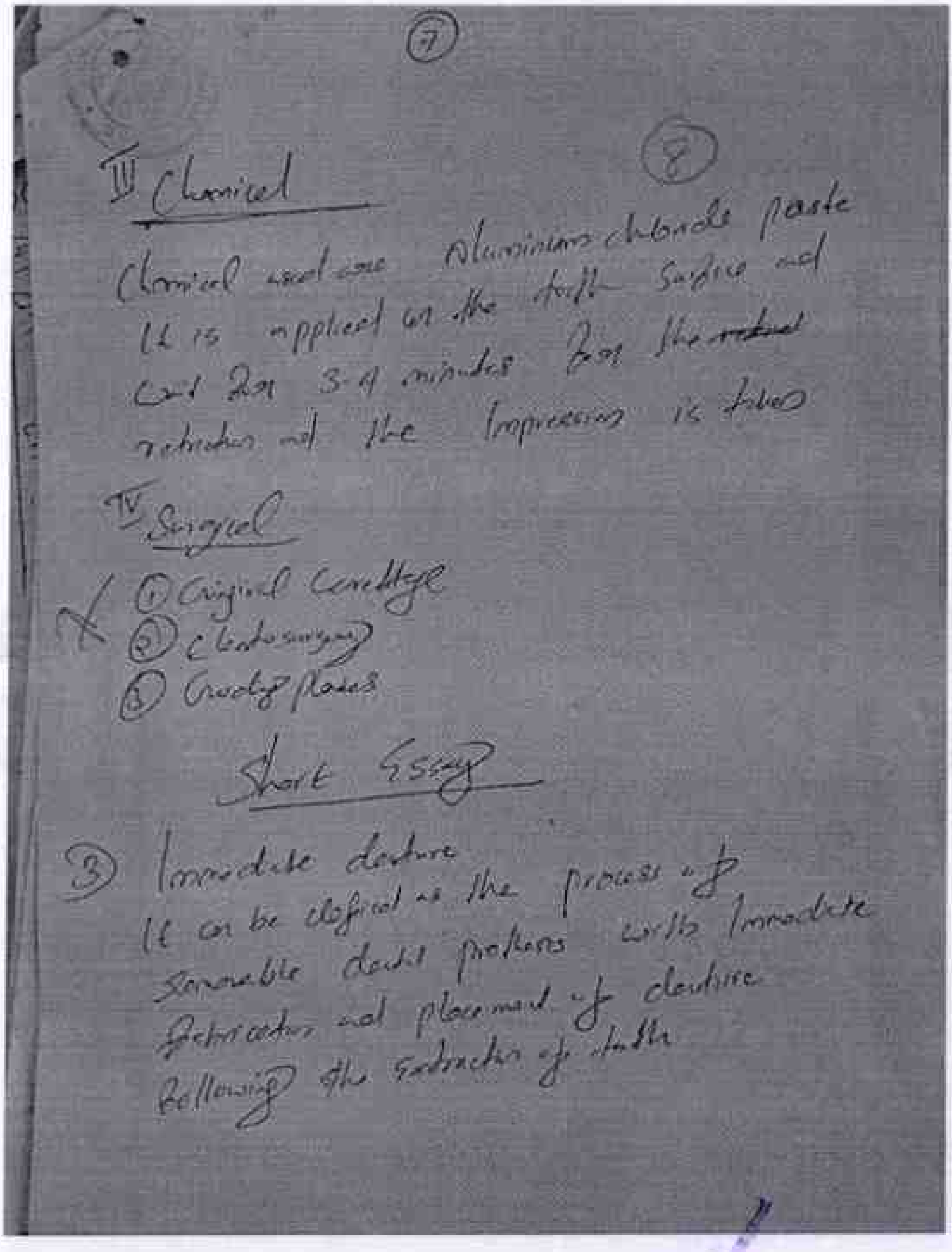


⑦

⑧

III Chemical

Chemical used are Aluminium chloride paste. It is applied on the tooth surface and wait for 3-4 minutes for the retraction and the Impression is taken

IV Surgical

① Gingival Curettage
② Electrosurgery
③ Rotary [illegible]

Short Essay

③ Immediate denture
It can be defined as the process of removable dental prosthesis with Immediate fabrication and placement of denture following the extraction of teeth

Techniques
(a) Single Impression Technique
(b) Double Impression Technique

3

(1) Diagnosis and Treatment planning
⇒ Extraction of posterior teeth and it taken
GA Local Ana looking

(2) Impression
⇒ Impression is taken with Irreversible hydro hydrocolloid

↓

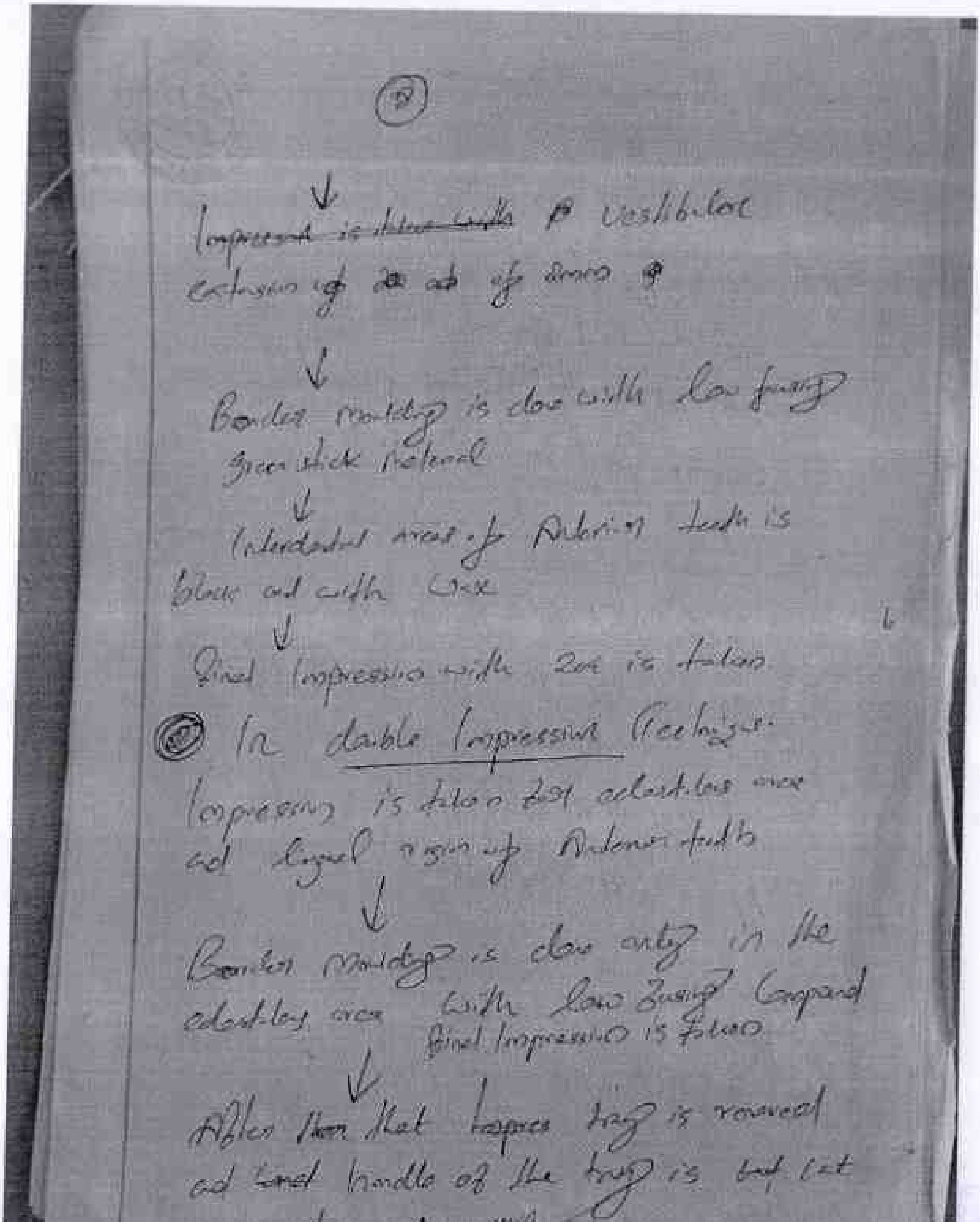
Master cast is poured and Casting tray is fabricated

↓

(2) In Single Impression Technique, an Impression of
~~(1) Spacer :- a base plate~~ &
edentulous area and teeth is taken

(1) Spacer :- a base plate wax for teeth one base plate wax for edentulous area

(2) Steps :- Inlet one in the Anterior region other in the other side of first molar molar region.



⑧

↓
~~Impression is taken with~~ vestibular
extension of ~~[illegible]~~ [illegible] of [illegible]

↓
Border molding is done with low fusing
green stick material

↓
Interdental area of Anterior teeth is
blocked out with wax

↓ 6
Final Impression with ZOE is taken.

◎ In double Impression technique
Impression is taken first edentulous area
and lingual region of Anterior teeth

↓
Border moulding is done only in the
edentulous area with low fusing compound
Final Impression is taken

↓
After then that Impres tray is removed
and handle of the tray is cut

↓
Again the tray again seated into the mouth

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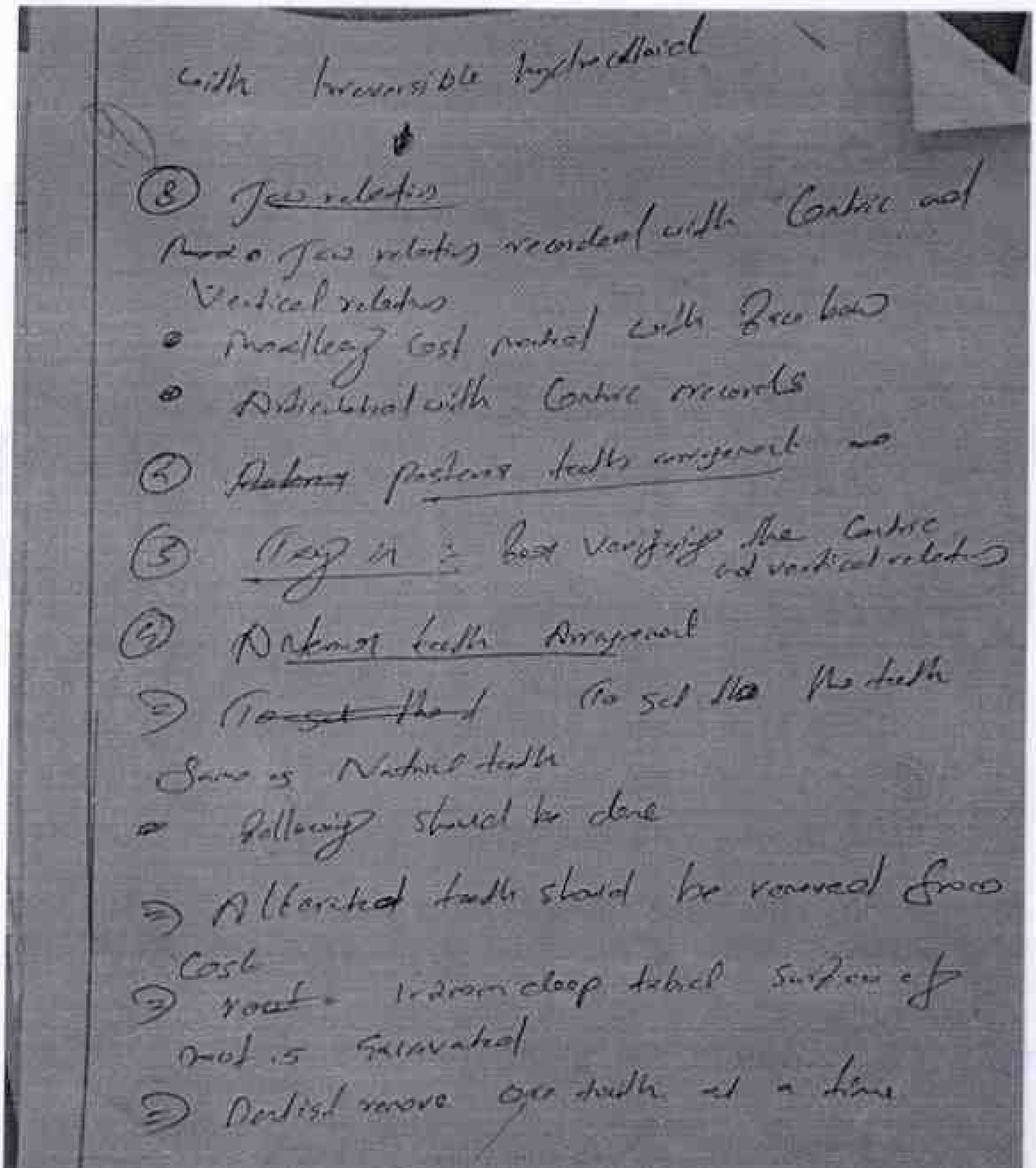


with Irreversible hydrocolloid

③ Jaw relation

And Jaw relation recorded with Centric and Vertical relation

- Maxillary cast mounted with Face bow
- Articulated with Centric records

④ ~~Anterior~~ posterior teeth arrangement

⑤ Try in :- for verifying the Centric and vertical relation

⑥ Anterior teeth Arrangement

⇒ ~~Tought thed~~ To set the the teeth Same as Natural teeth

- following should be done

⇒ Alternated teeth should be removed from Cast

⇒ root - 1-2mm deep labial surface of root is excavated

⇒ Dentist remove one teeth at a time

(8) (10)

(12)

① Balanced occlusion

It can be defined as the Bilateral, simultaneous occlusal contact of Anterior and posterior teeth in centric and eccentric relation possition

Factors affecting Balanced occlusion

① Condylar guidance

=> It is the upper Anterior post portion of articulator controls the movement of mobile member

~~Features~~

② Condylar guidance Inclination

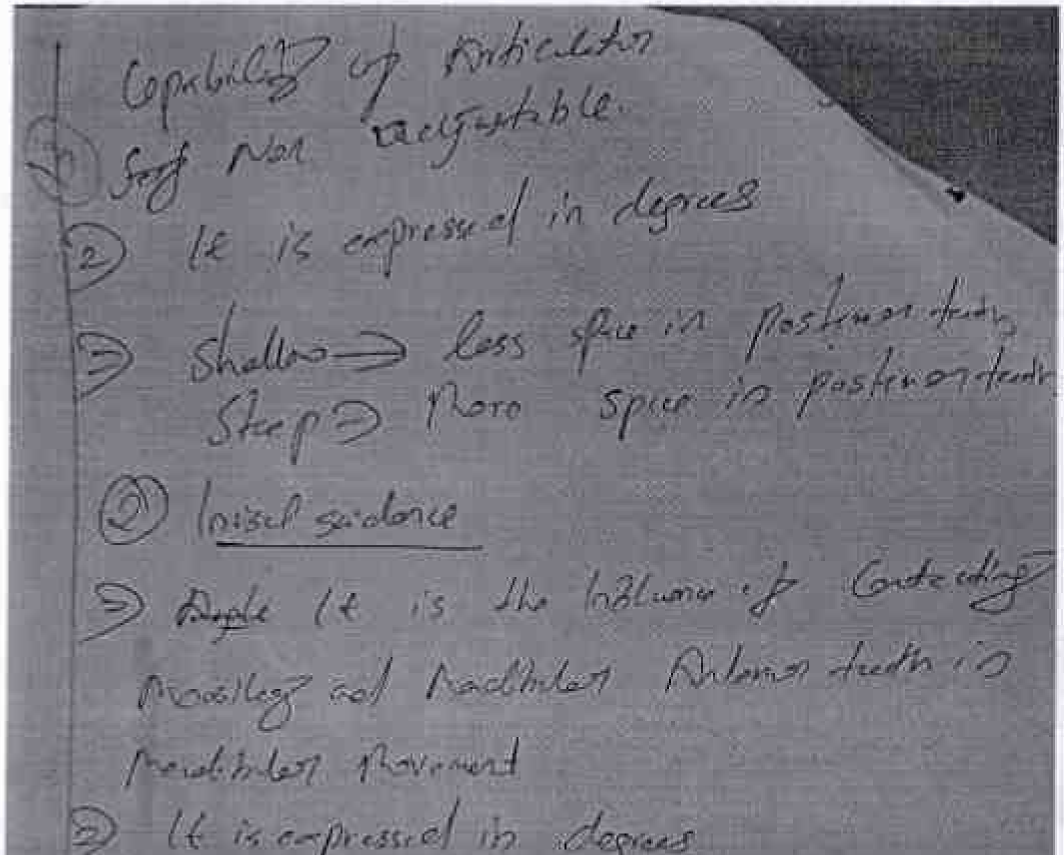
The angle form of Inclination of Condylar guidance controls the surface of Articulator and reference plane.

features

=> Mandibular guidance generated transverse through contours of glenoid fossa

½

=> It duplicates the articular depends in



Capability of Articulator

① Semi Non adjustable.

② It is expressed in degrees

⇒ Shallow ⇒ less space in posterior teeth
Steep ⇒ More space in posterior teeth

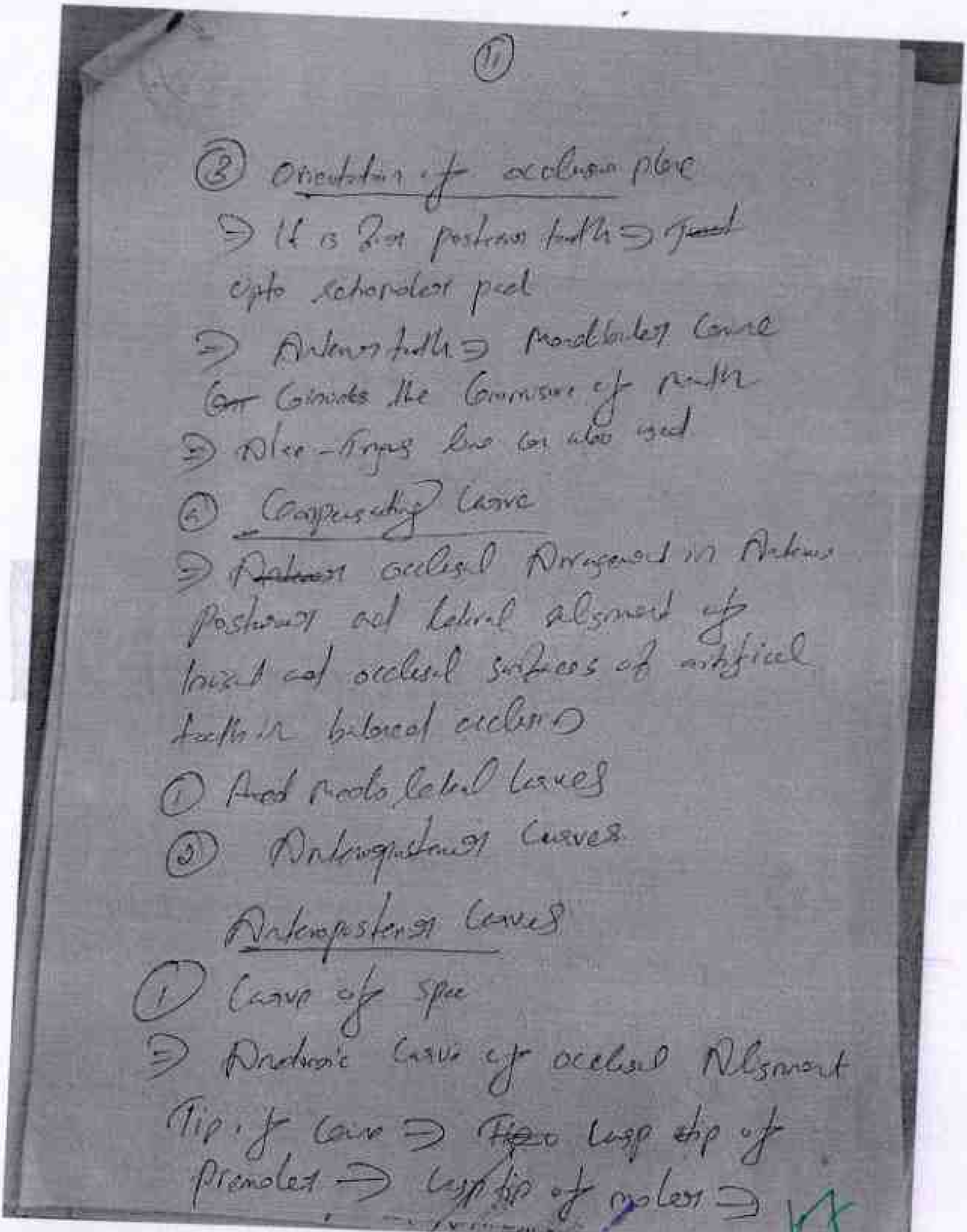
② Incisal guidance

⇒ ~~Angle~~ It is the influence of contacting maxillary and mandibular Anterior teeth in mandibular movement

⇒ It is expressed in degrees

⇒ used in Fig in

Incisal guidance Inclination
Vertical overlap
Horizontal plane



(11)

② Orientation of occlusion plane

⇒ It is for posterior teeth ⇒ fixed upto retromolar pad

⇒ Anterior teeth ⇒ mandibular curve ~~Co~~ Coincide the Curvature of [illegible]

⇒ Ala-tragus line can also used

⑤ Compensating Curve

⇒ ~~Anterior~~ occlusal Arrangement in Anterior posterior and lateral alignment of incisal and occlusal surfaces of artificial teeth in bilateral occlusion

① And medio lateral curves

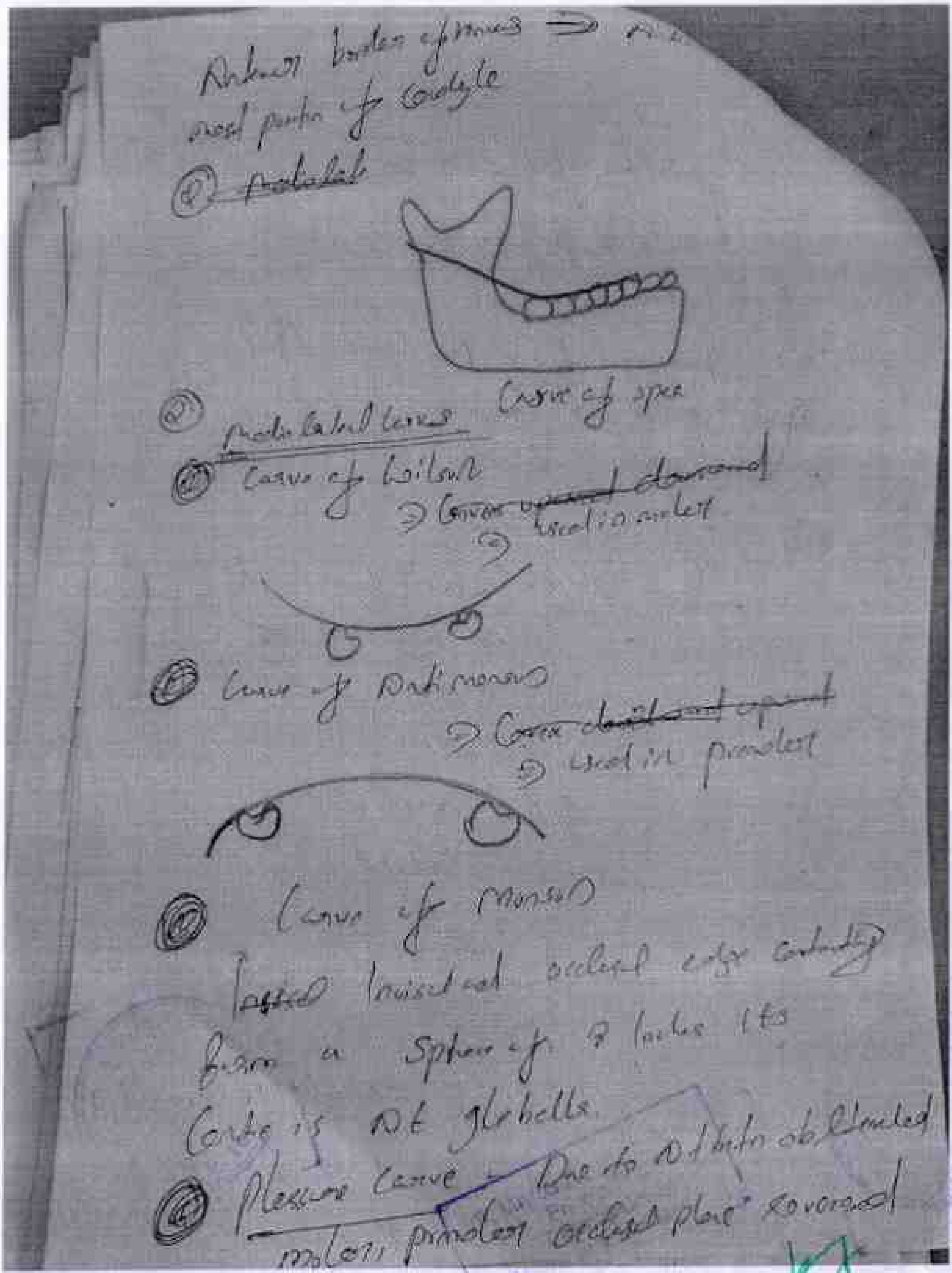
② Anteroposterior curves

Anteroposterior curves

① Curve of Spee

⇒ Anatomic curve of occlusal Alignment

Tip of curve ⇒ ~~Ant~~ cusp tip of premolar ⇒ cusp tip of molar ⇒



Anterior border of ramus ⇒ [illegible]
most portion of condyle

② ~~protrusal~~

Curve of spee

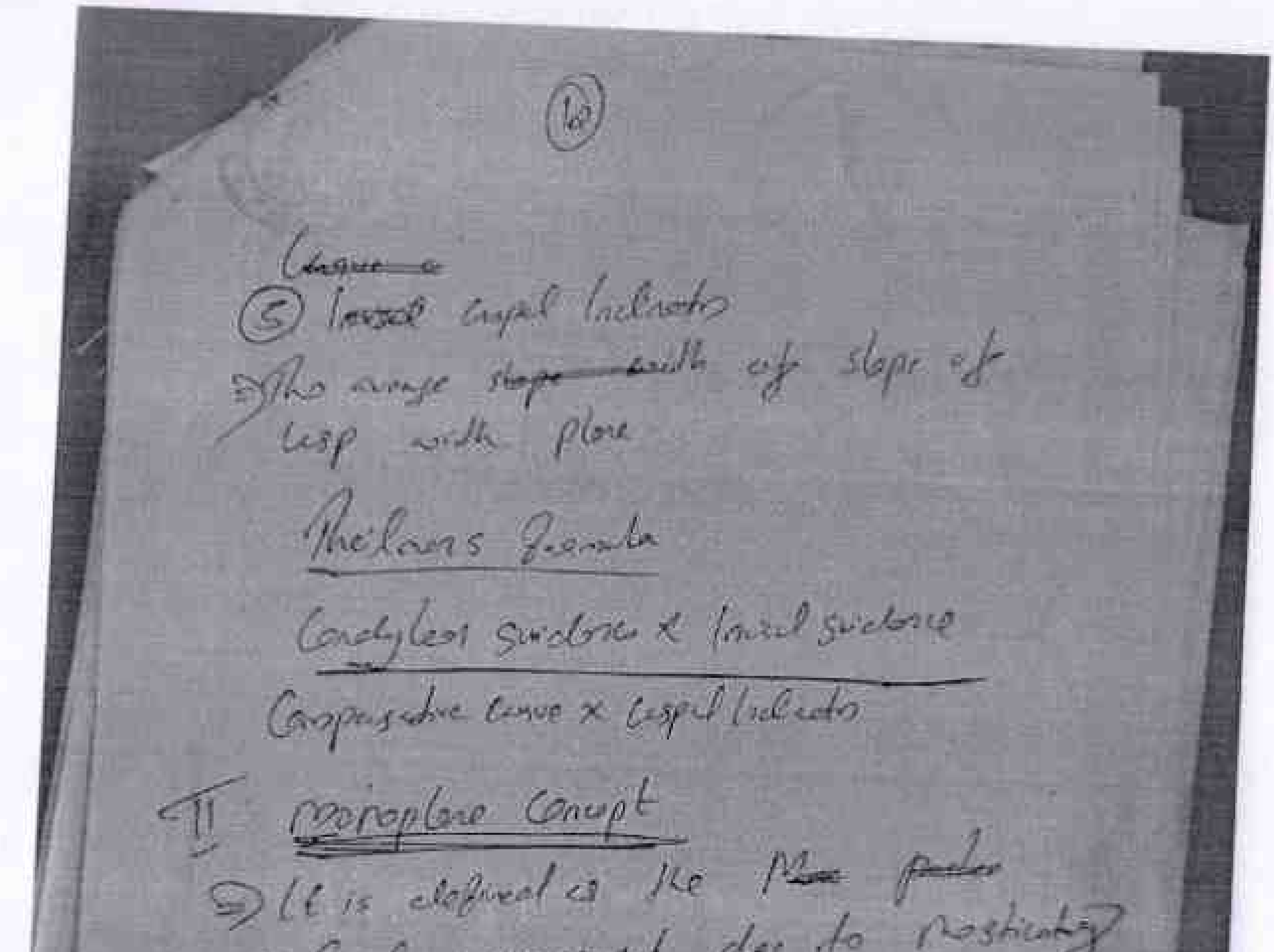
② mediolateral curves

③ Curve of Wilson
⇒ Concave ~~upward~~ downward
used in molars
⇒

④ Curve of Anti monson
⇒ Convex ~~downward upward~~
⇒ used in premolar

⑤ Curve of monson
lingual incisal occlusal edge contacting
form a sphere of 4 inches its
centre is at glabella.

⑥ Pleasure curve – Due to attrition ob[illegible]
molars premolar occlusal plane reversed



(10)

~~[illegible]~~

⑤ Incisal cuspal inclination

⇒ The average ~~slope width~~ of slope of cusp with plane

Thielman's formula

$$\frac{\text{Condylar guidance} \times \text{Incisal guidance}}{\text{Compensating curve} \times \text{cuspal inclination}}$$

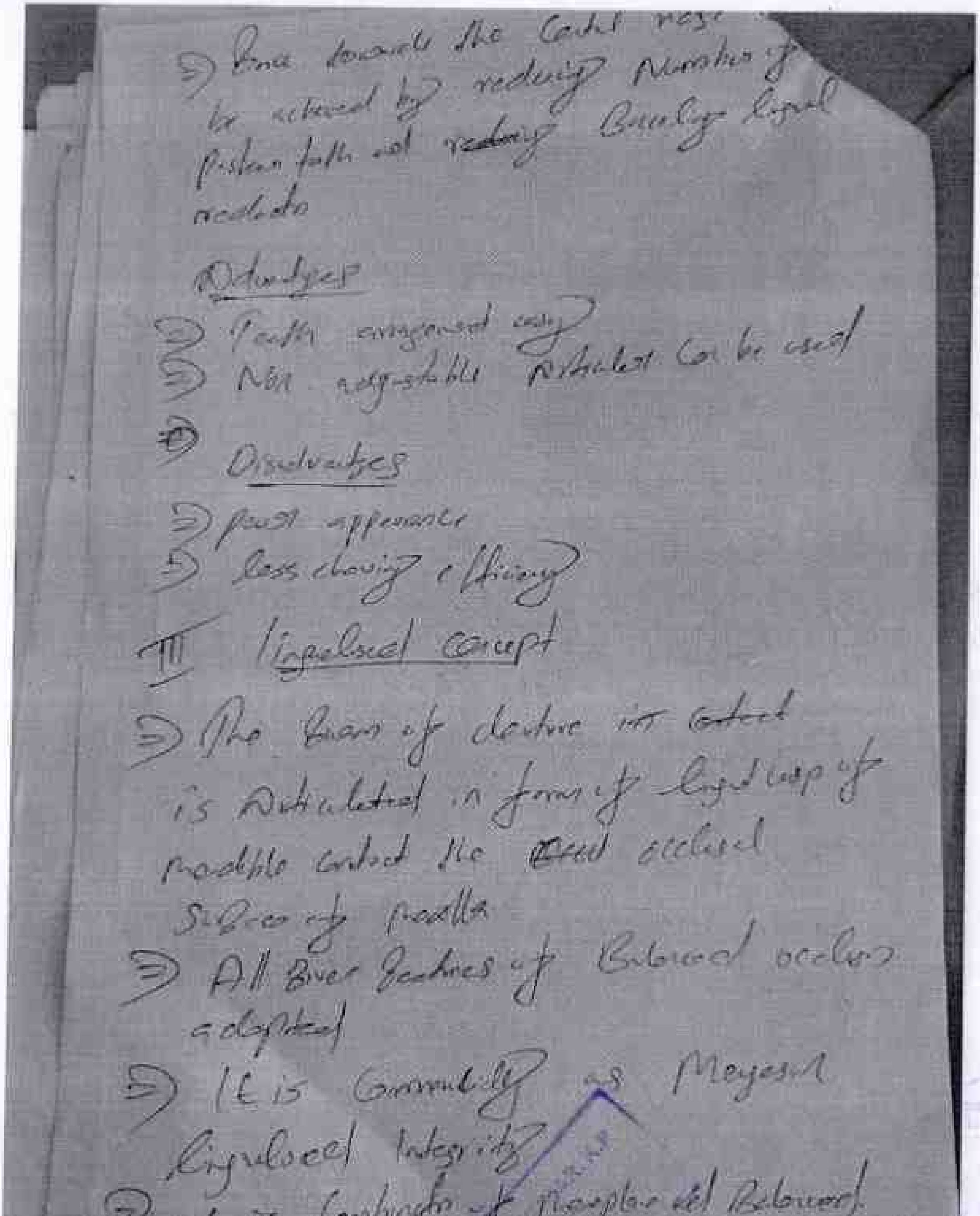
II Monoplane Concept

⇒ It is defined as the ~~Plane~~ ~~[illegible]~~ occlusal arrangement due to masticatory force of posterior teeth but it lacks cuspal height

⇒ Non Anatomic teeth

⇒ ~~P~~ Elimination of cusp, ~~to~~ reducing lateral forces of denture & enhance stability

⇒ In balanced occlusion occlusal scheme is not ~~not~~ well. In this it is achieved by balancing ramp & compensating curve



⇒ Force towards the Crest ridge be achieved by reducing Number of posterior teeth and reducing Buccolingual width

Advantages

⇒ Teeth arrangement easy
⇒ Non adjustable articulator can be used
⇒

Disadvantages

⇒ poor appearance
⇒ less chewing efficiency

III Lingualised concept

⇒ The basis of denture ~~~~ contact is articulated in form of lingual cusp of madible contact the ~~~~ occlusal Surface of maxilla
⇒ All Basic features of Balanced occlusion adopted
⇒ It is commonly as Meyers Lingualised Integrity
⇒ It is Combination of Monoplane and Balanced

(13)

Advantage

⇒ Better chewing efficiency
⇒ Good appearance of premolar

disadvantage

⇒ Teeth is difficult to Arrange
⇒ No ~~sc~~ Scientific data for stability.

(6) objectives of Impression making in Complete denture

I Retention
~~II Stability~~
~~III Support~~
~~IV Preservation of residual ridge~~
V

I Retention

⇒ The quality inherent to prosthesis to prevent the dislodging force in path of placement

Reduce Attendance Pressure

(a) ~~Physical factors~~

Saliva

⑭

(a) physiologic factors

⇒ Saliva plays important role in denture bearing area

⇒ Saliva should be thin and watery

⇒ Thick saliva decrease retention

⇒ Xerostomia - no retention

(b) ~~Anat~~ Anatomic factors

(i) size of denture bearing area Increases ~~[illegible]~~ Increases Retention

(i) Tissue ~~[illegible]~~ displaceability will reduce the retention to during impression making

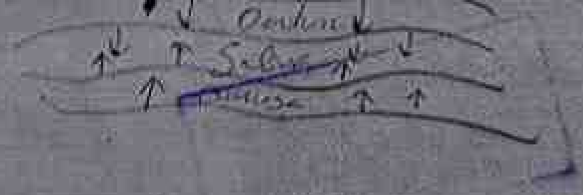
(c) physical factors

(i) Adhesion

⇒ Attraction between unlike molecules

⇒ Ionic force between saliva, mucosa and denture

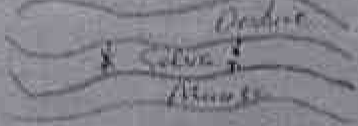
⇒ Xerostomia ⇒ Stiffness of retention



(ii) Cohesion

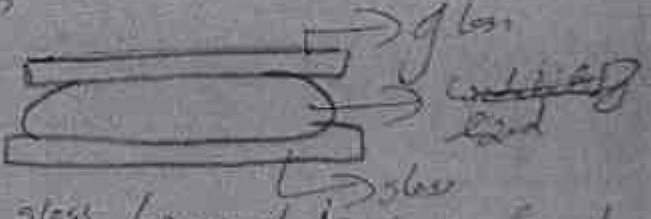
⇒ Attraction between two like molecules
Normally less retention

⇒



(iii) Interfacial Surface Tension

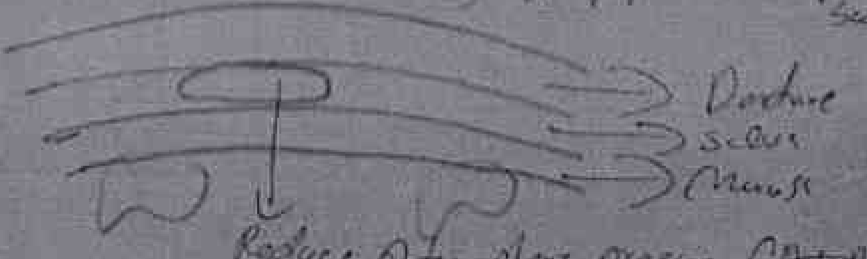
⇒ It depends on fluid wettability
⇒ Denture - less wettability less Retention
and mucosa - more wettability more Retention
⇒ Denture coated with salivary pellicle
increase Retention



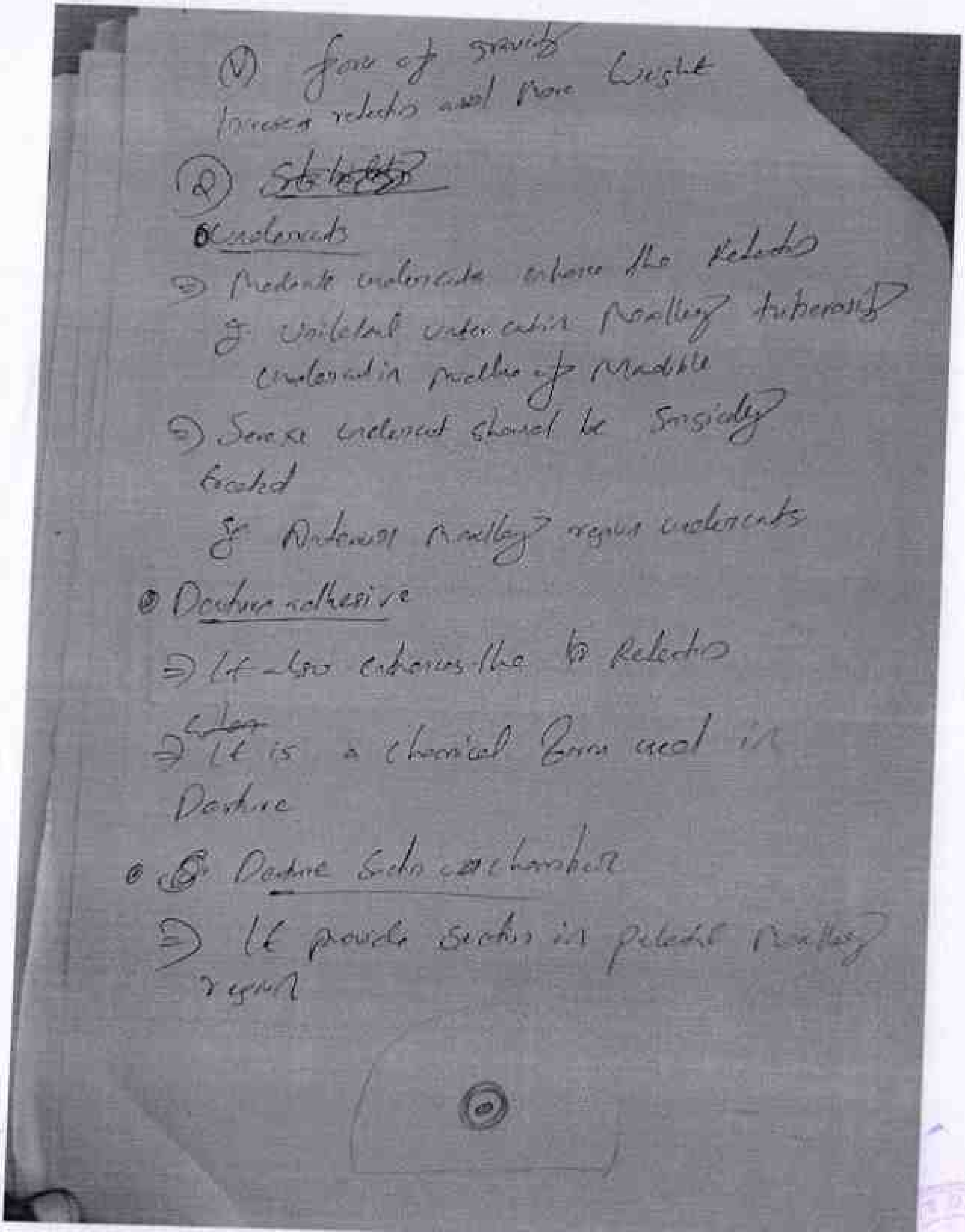
⇒ liquid b/w the glass immersed in same liquid
No surface tension easily glass can be separated.

(iv) Atmospheric pressure

⇒ It depends on peripheral seal



Reduce Atmospheric pressure (~~[illegible]~~



(V) force of gravity
Increases retention and more weight

(2) ~~Stability~~

6 Undercuts

=> Moderate undercuts enhance the retention
& Unilateral undercuts maxillary tuberosity
undercut in midline of Mandible

=> Severe undercut should be surgically treated
& Anterior maxillary region undercuts

• Denture adhesive

=> It also enhances the ~~to~~ retention

=> ~~Also~~ It is a chemical form used in Denture

• ~~@~~ Denture Suction chamber

=> It provide suction in palatal maxillary region

III Stability

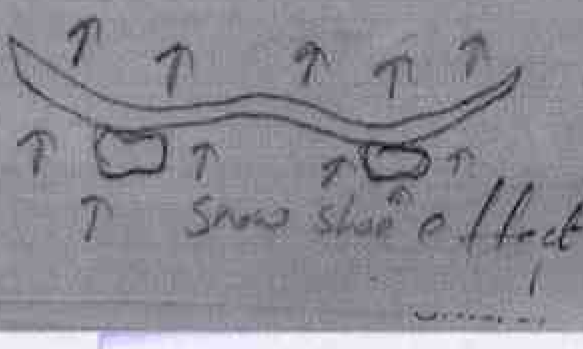
=> The ability of Intermediate prosthesis to frame constant and stable against the functional, horizontal, rotational stress

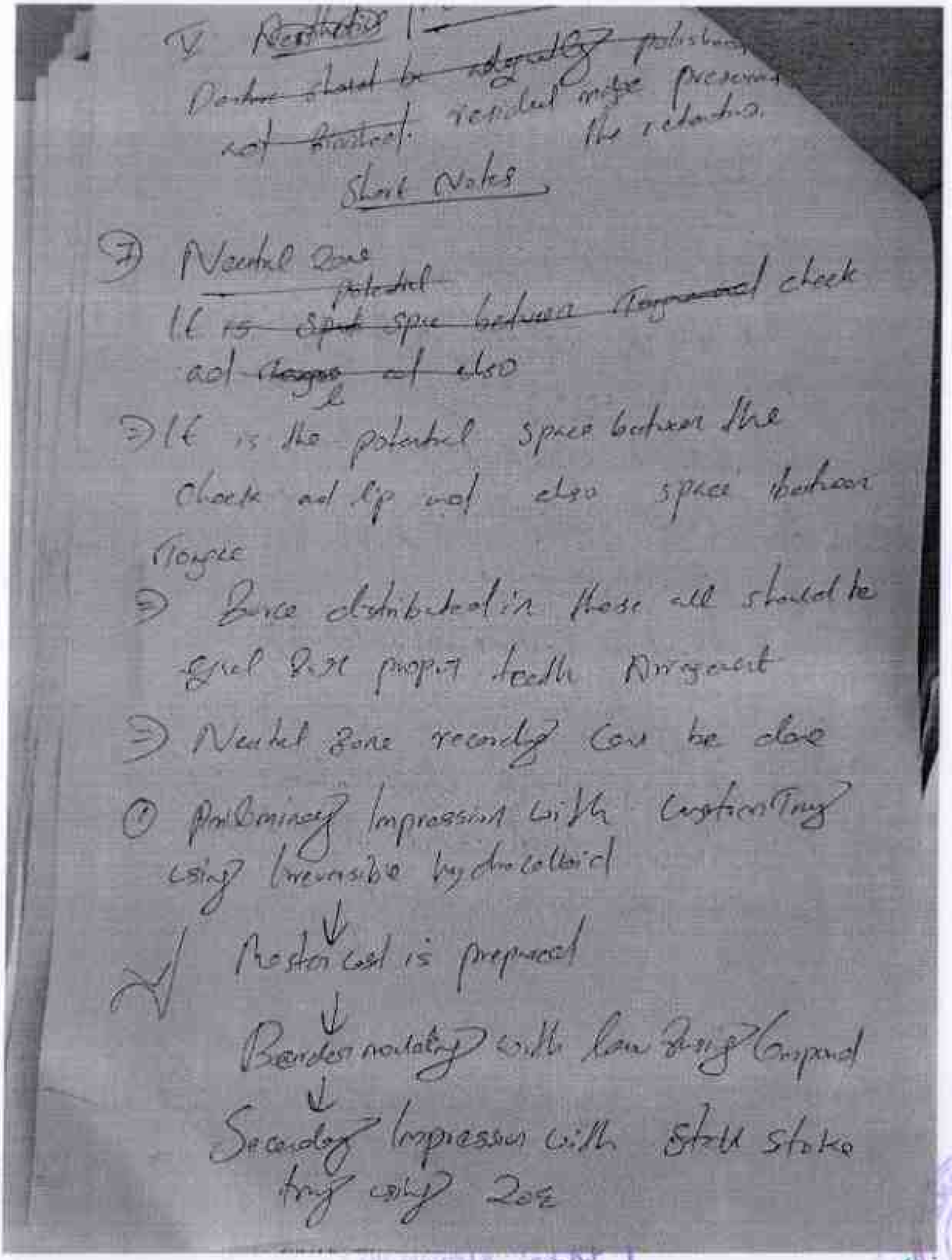
① Vertical height of ridge
② Soft tissue covering the denture
③ Close adaptation to the denture
④ Teeth Arrangement
⑤ Denture Contour and polishing

IV. Support

=> It is ability to stand without any displacement ~~bot~~ of denture should be given with proper support
=> force is equally distributed

2





V. Restoration
~~Denture should be adequately~~ polishing
residual ridge preserved
~~not treated.~~ the retention.

Short Notes

7) Neutral Zone
~~It is~~ potential ~~space between tongue and~~ cheek
and ~~tongue and also~~

⇒ It is the potential space between the cheek and lip and also space between tongue

⇒ Force distributed in those all should be equal for proper teeth arrangement

⇒ Neutral zone recording can be done

① Preliminary impression with Custom Tray using irreversible hydrocolloid

↓

Master cast is prepared

↓

Border molding with low fusing compound

↓

Secondary impression with Stock stoke tray using ZOE

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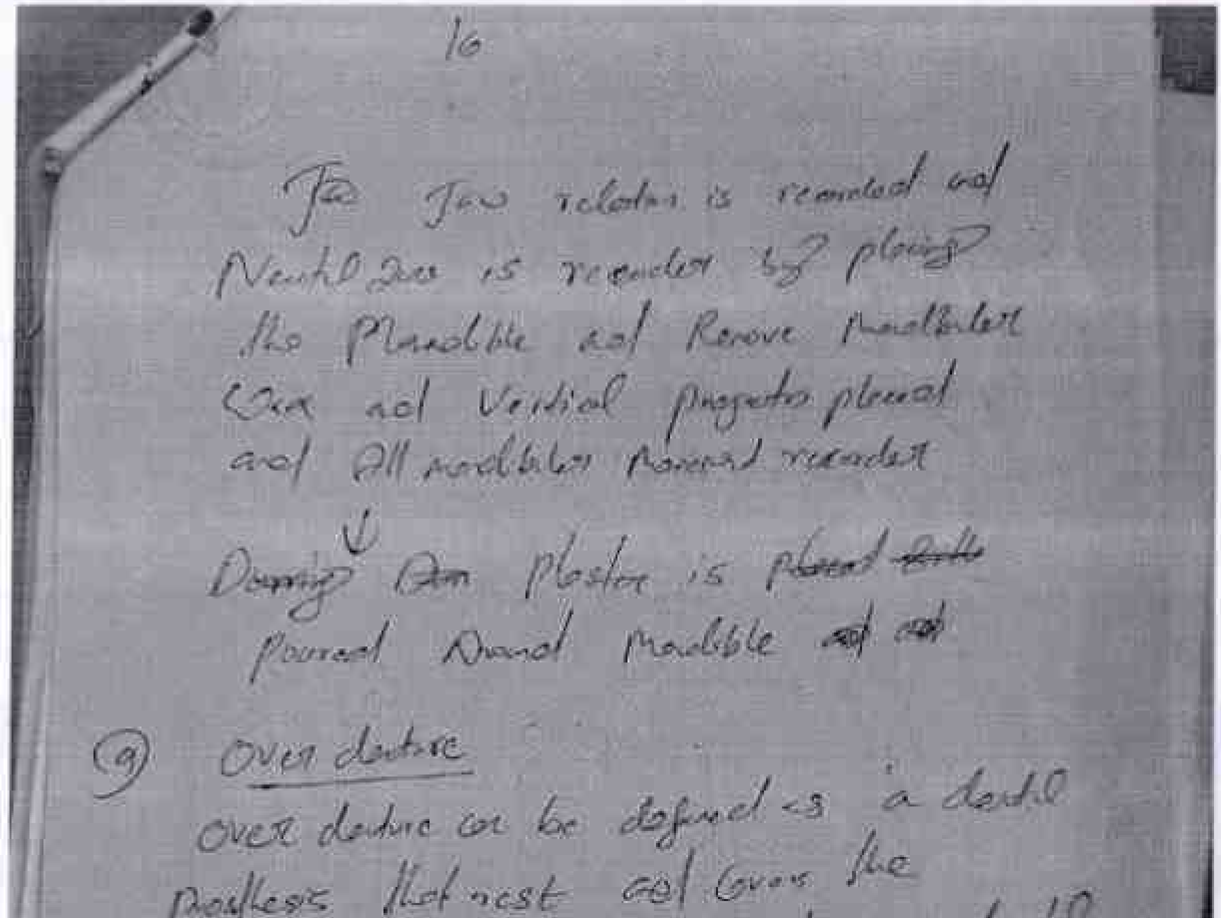

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The Jaw relation is recorded and Neutral zone is recorded by placing the Mandible and Remove mandibular wax and Vertical projection placed and All mandibular movement recorded

↓

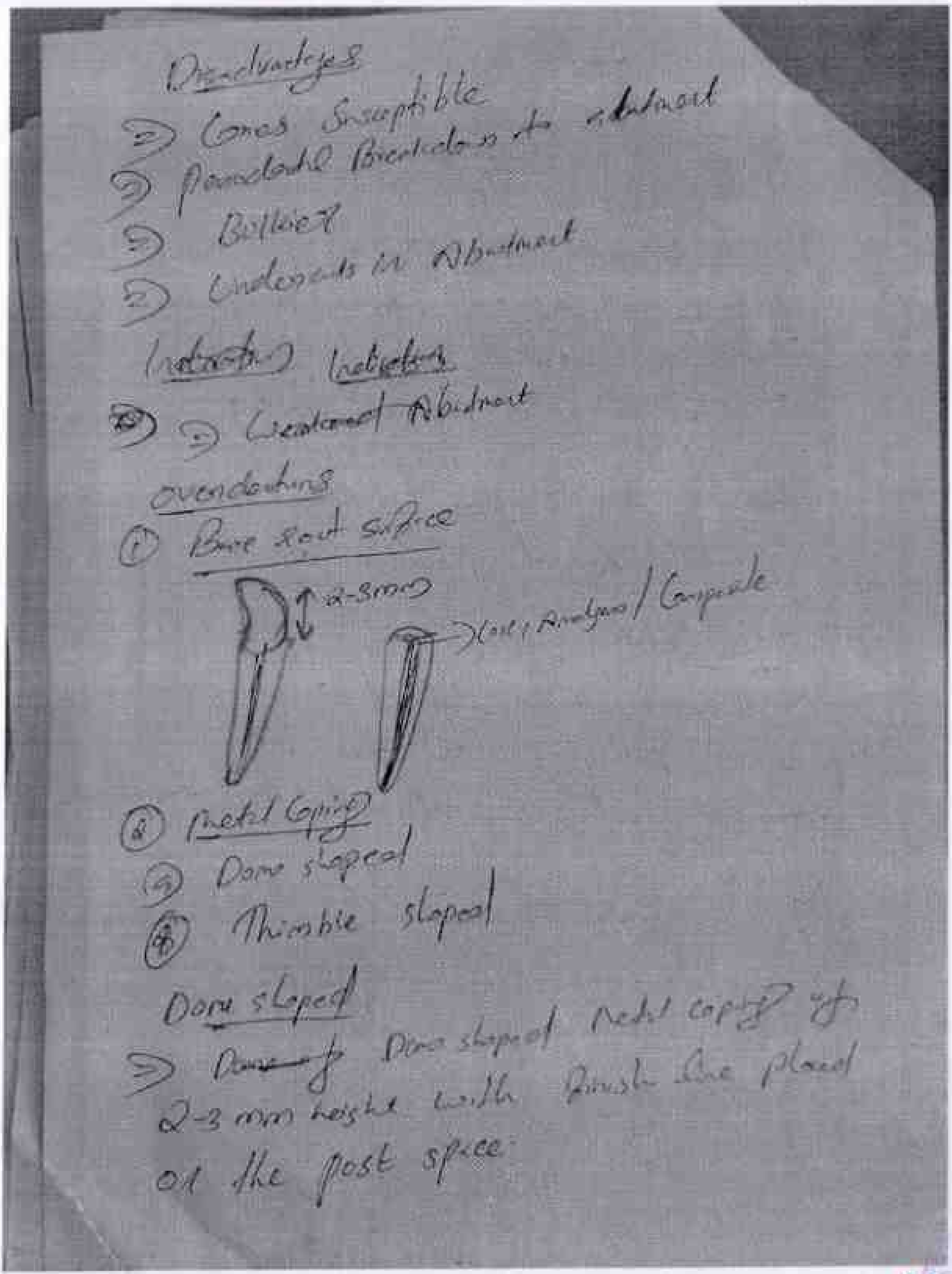
During Dam Plaster is ~~placed~~ ~~[illegible]~~ poured Around mandible ~~and~~ and

(9) Over denture

Over denture can be defined as a dental prosthesis that rest and cover the ~~remaining~~ teeth or teeth root or dental Implants

Advantages

=> ~~Preserv~~ Preserve residual ridge
=> Maintenance of proprioception
=> Retention
=> Stability
=> Reversibility (~~Can~~ Converted to CD)



Disadvantages

⇒ Caries Susceptible

⇒ Periodontal Breakdown to abutment

⇒ Bulkier

⇒ Undercuts in Abutment

~~Indication~~ Indications

~~2)~~ ⇒ Weakened Abutment

Overdentures

① Bare Root surface

2-3mm

Xcel / Amalgam / Composite

② Metal Copings

③ Dome shaped

④ Thimble shaped

Dome shaped

⇒ ~~Dome~~ Dome shaped metal copings of 2-3 mm height with finish line placed at the post space

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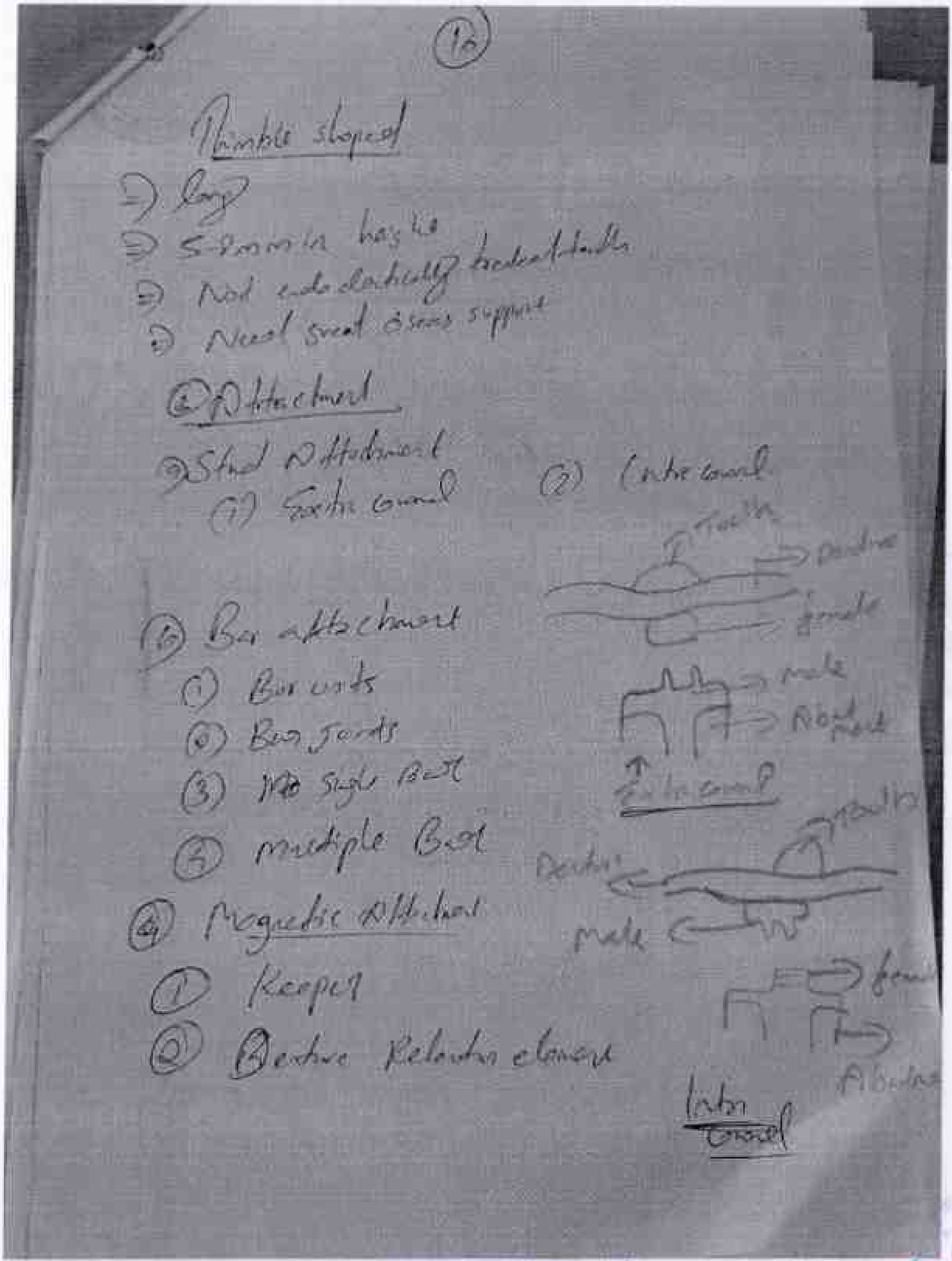


(1a)

Thimble shaped

⇒ long
⇒ S-Posmia has to
⇒ Not endodontically treated teeth
⇒ Need great tissue support

② Attachment

a) Stud Attachment

(1) Extra coronal (2) Intra coronal

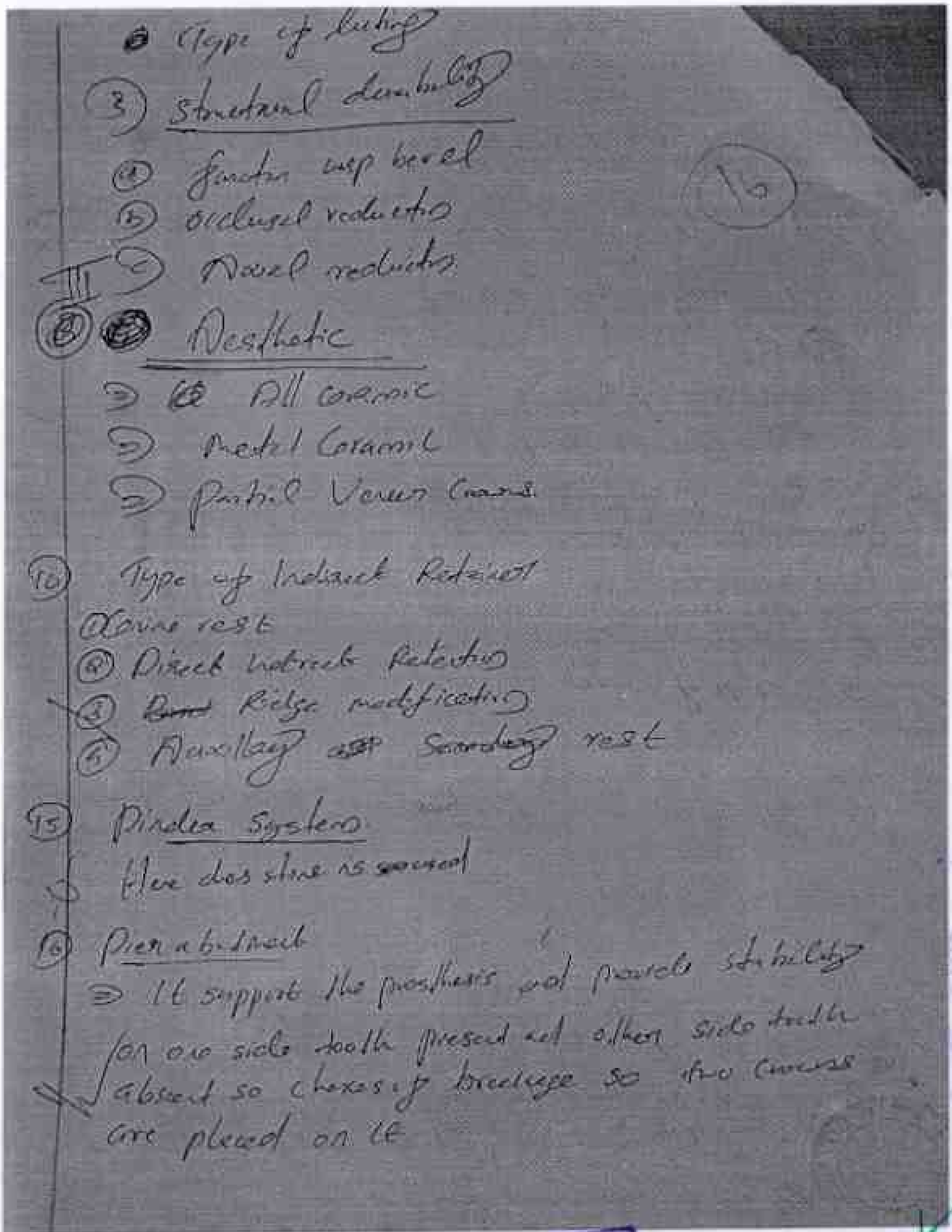
b) Bar attachment

(1) Bar units
(2) Bar joints
(3) ~~Wo~~ Single Bar
(5) multiple Bar

(4) Magnetic Attachment

(1) Keeper
(2) Denture Retention element

Tooth
Denture
female
male
Root face
Extra coronal
Tooth
Denture
male
female
Abutment
Intra coronal



(Type of luting)

(3) Structural durability

(a) Function cusp bevel
(b) Occlusal reduction
II (c) Axial reduction

(B) Aesthetic

=> All ceramic
=> Metal Ceramic
=> Partial Veneer Crowns

(10) Type of Indirect Retainer
(1) Canine rest
(2) Direct indirect Retention
(3) ~~Rest~~ Ridge modification
(4) Auxillary ~~[illegible]~~ Secondary rest

(15) Pindex System
Here dos stone is poured

(16) Pier abutment
=> It support the prosthesis and provide stability on one side tooth present and other side tooth absent so chances of breakage so two crowns are placed on it

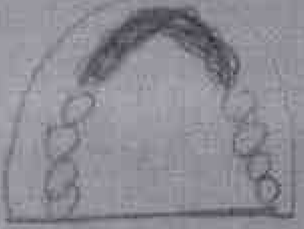
(16)

17

⑪

Class IV

⇒ Single Bilateral edentulous area Anterior to the remaining Natural teeth



3

⑫ Indications

Tooth replacement

⇒ Single tooth replacement

⇒ ~~ed~~ Complete edentulous arch

⇒ long span edentulous span

⇒ Distal extension

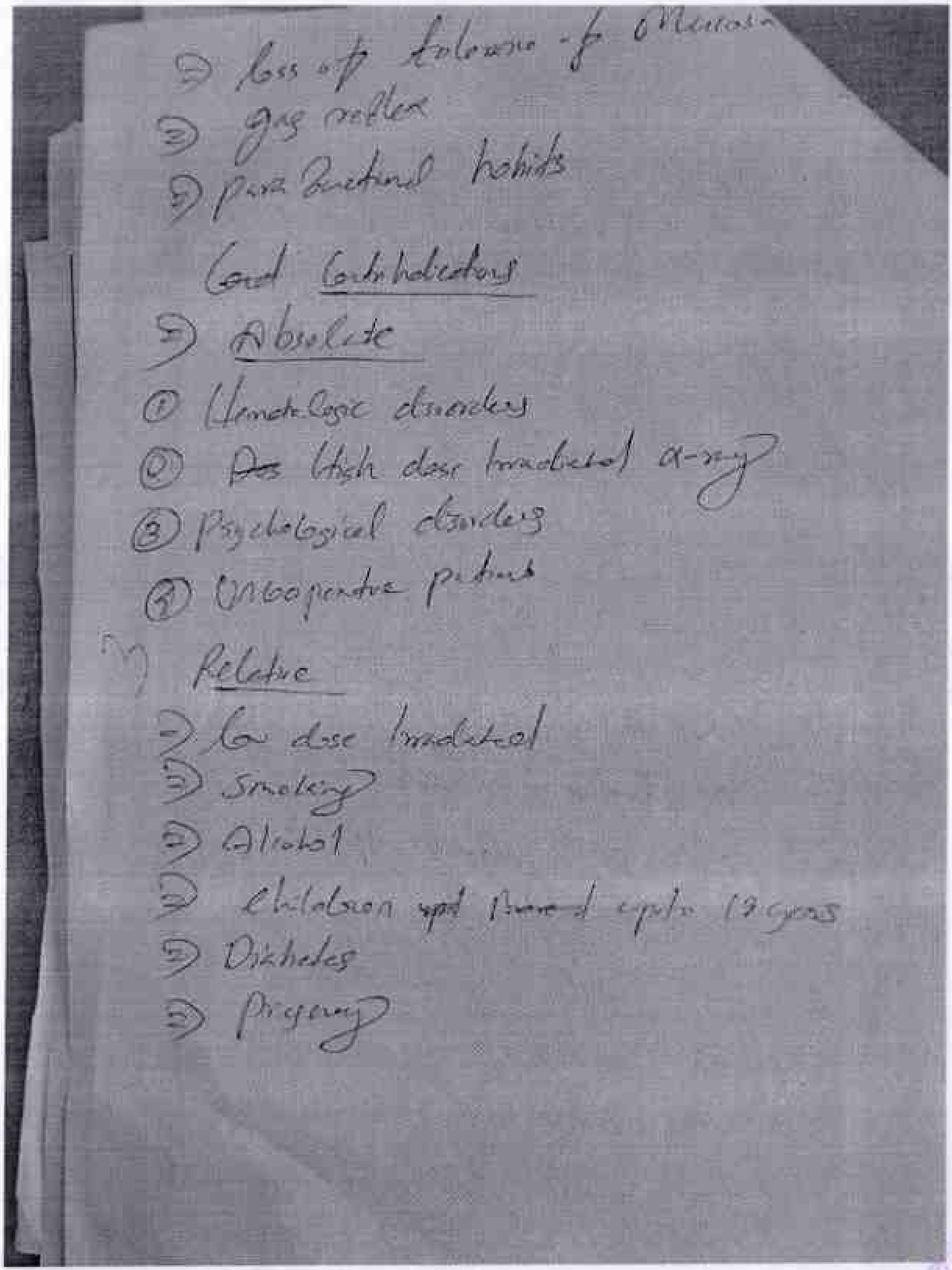
when 2pd Compromised is

⇒ ~~Canlev~~ Cantilever

⇒ Weak abutment

When complete denture Compromised

⇒ loss of muscle Coordination



⇒ loss of tolerance of Mucosa

⇒ gag reflex

⇒ para functional habits

Cont Contraindications

⇒ Absolute

① Hematologic disorders

② ~~As~~ High dose Irradiated x-ray

③ Psychological disorders

④ Uncooperative patient

Relative

⇒ Low dose Irradiated

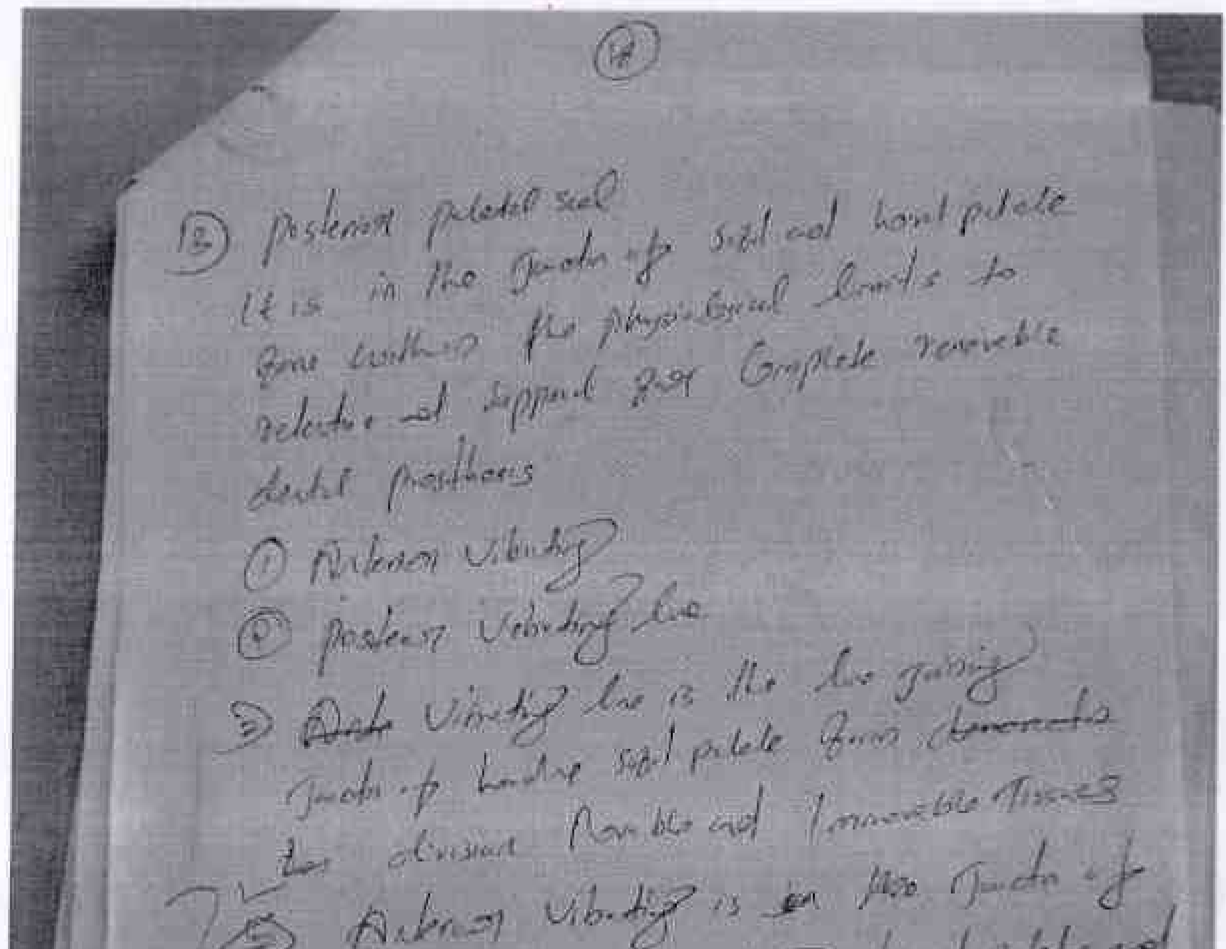
⇒ Smoking

⇒ Alcohol

⇒ Children and [illegible] upto 18 years

⇒ Diabetes

⇒ Pregnancy



(8)

(12) posterior palatal seal
It is in the junction of soft and hard palate
gives within the physiological limits to
retention and support for Complete removable
dental prosthesis

(1) Anterior vibrating
(2) posterior vibrating line

=> ~~Anter~~ Vibrating line is the line joining
junction of hard and soft palate forms ~~demarcate~~
the division movable and Immovable tissues

=> Anterior vibrating is ~~an~~ the junction of
Attached tissue overlying hard palate and
Immediate movable tissue of
soft palate

=> Not straight line => projection of
Anterior Nasal Spine

Method of recording

=> Valsalva Manuva :- patient is Instructed
to hold the nostrils and

Continuation copy

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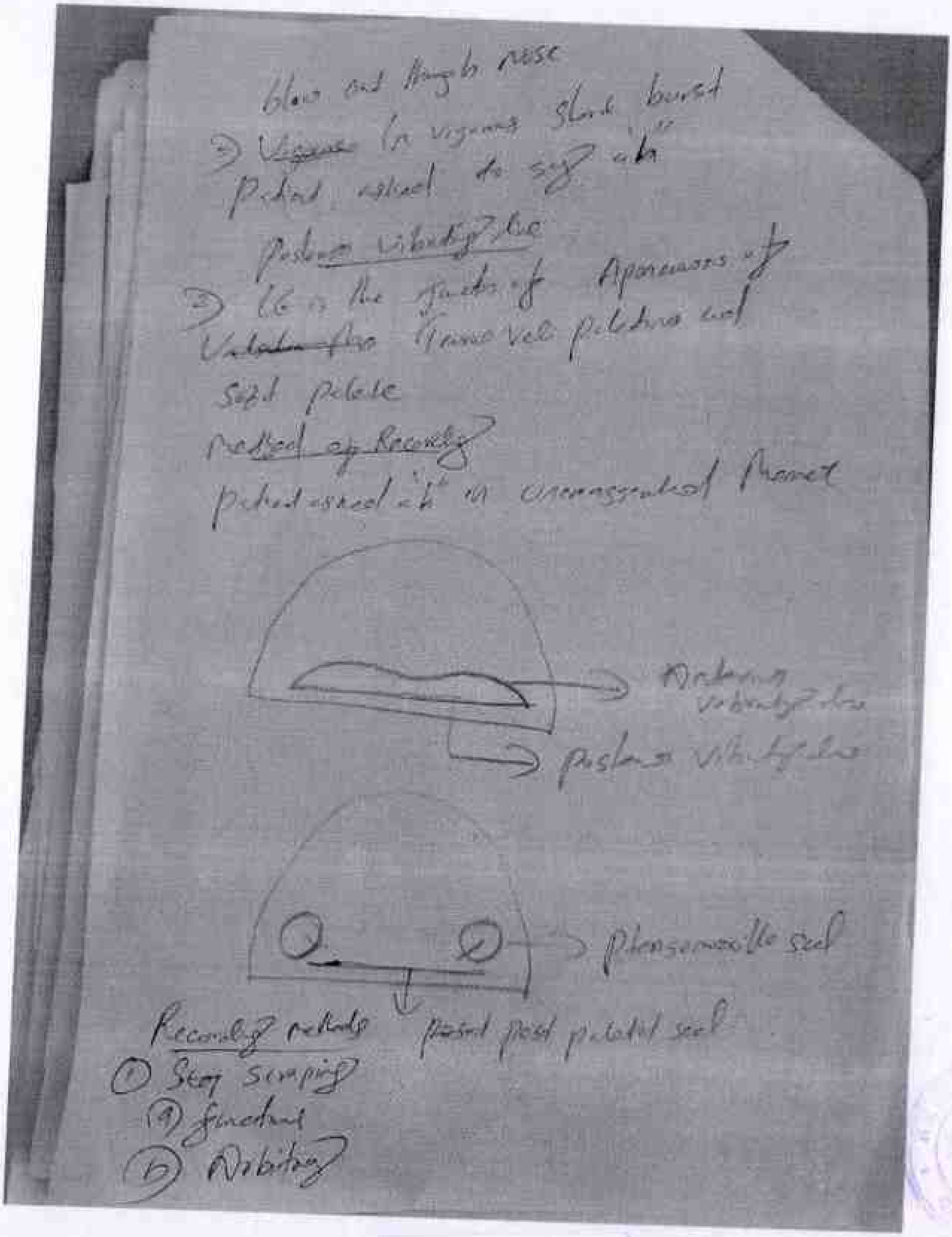

blow out through nose

3) ~~Vigorous~~ (or vigorous short burst
patient asked to say "ah"

posterior vibrating line

3) It is the junction of Aponeurosis of ~~Vibrating flap~~ Tensor veli palatini and
soft palate

Method of Recording

patient asked "ah" in unexaggerated manner

Anterior vibrating line

posterior vibrating line

pterygomaxillo seal

posterior post palatal seal

Recording methods

① Skey Scraping

② functional

③ Arbitrary

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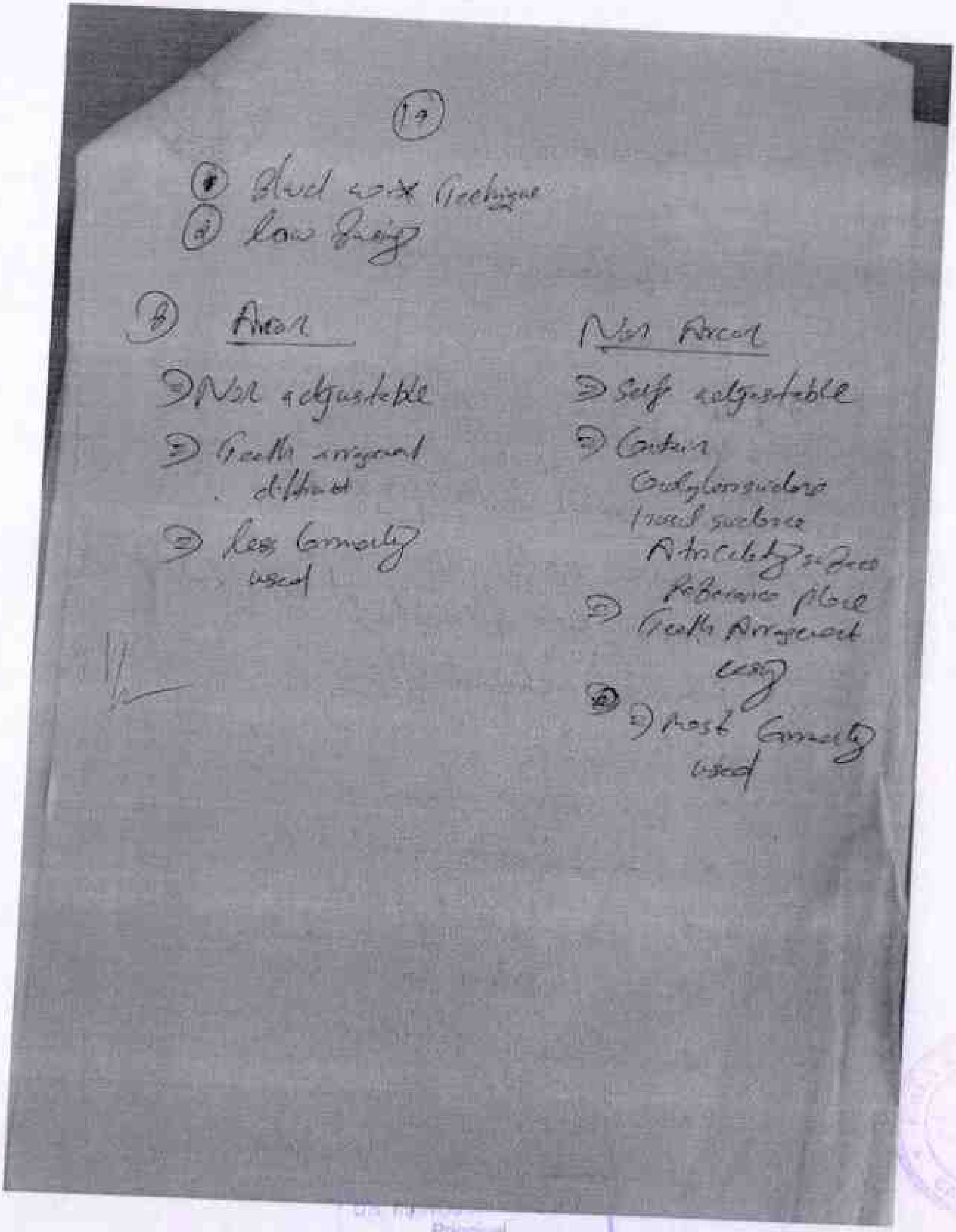

(19)

① Bead wax technique
② low fusing

③ Arcon | Non Arcon

Arcon	Non Arcon
⇒ Nor adjustable	⇒ Self adjustable
⇒ Teeth arrangement difficult	⇒ Contain condylar guidance incisal guidance Attachability surfaces reference plane
⇒ less commonly used	⇒ Teeth Arrangement easy
	② ⇒ most commonly used

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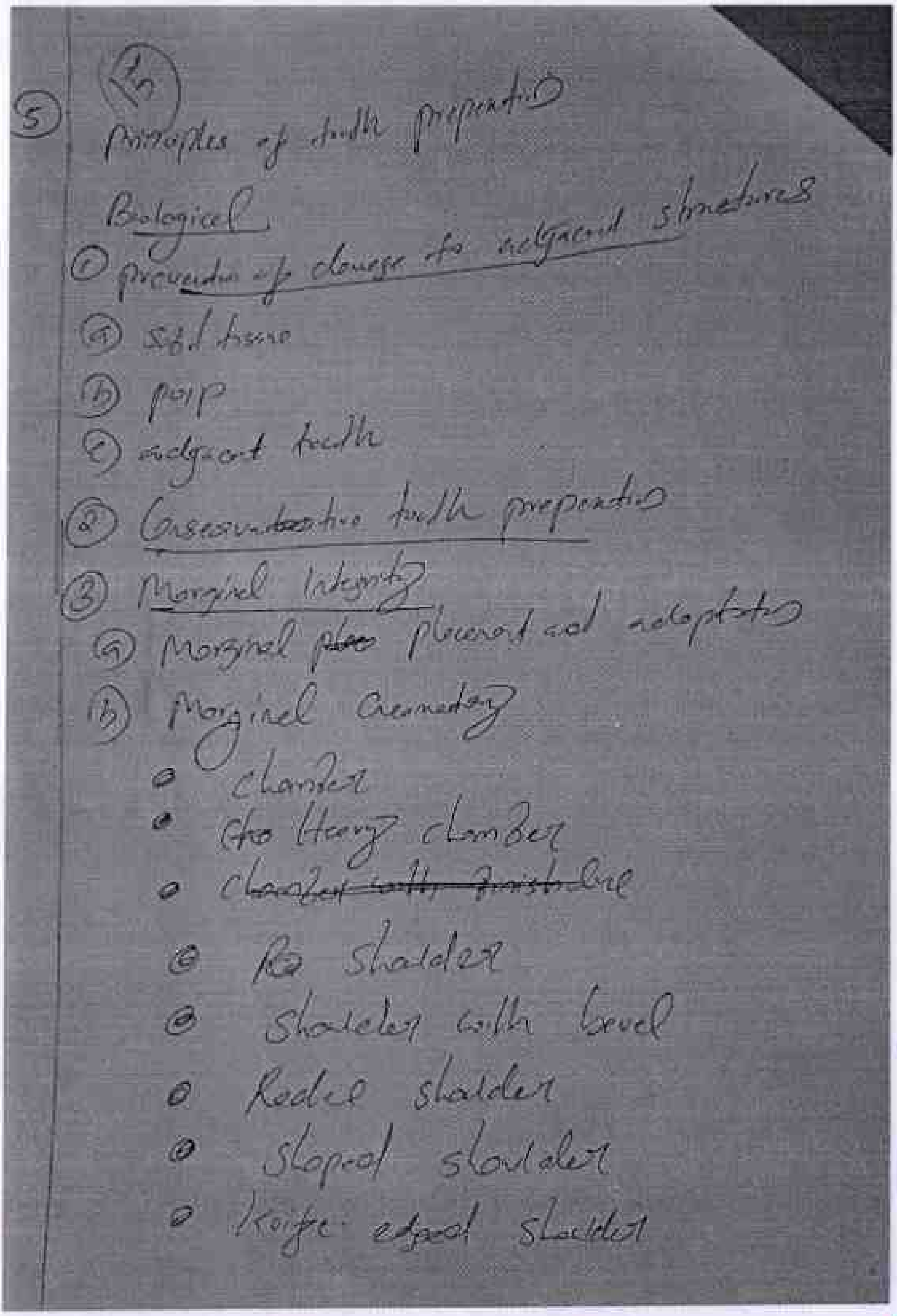

⑤ (1b)

principles of tooth preparation

Biological

① prevention of damage to adjacent structures

ⓐ soft tissue

ⓑ pulp

ⓒ adjacent teeth

② Conservative tooth preparation

③ Marginal Integrity

ⓐ Marginal ~~plac~~ placement and adaptation

ⓑ Marginal Geometry

- chamfer
- Heavy chamfer
- ~~chamfer with finish line~~
- ~~Re~~ shoulder
- shoulder with bevel
- Radial shoulder
- sloped shoulder
- knife edged shoulder

17

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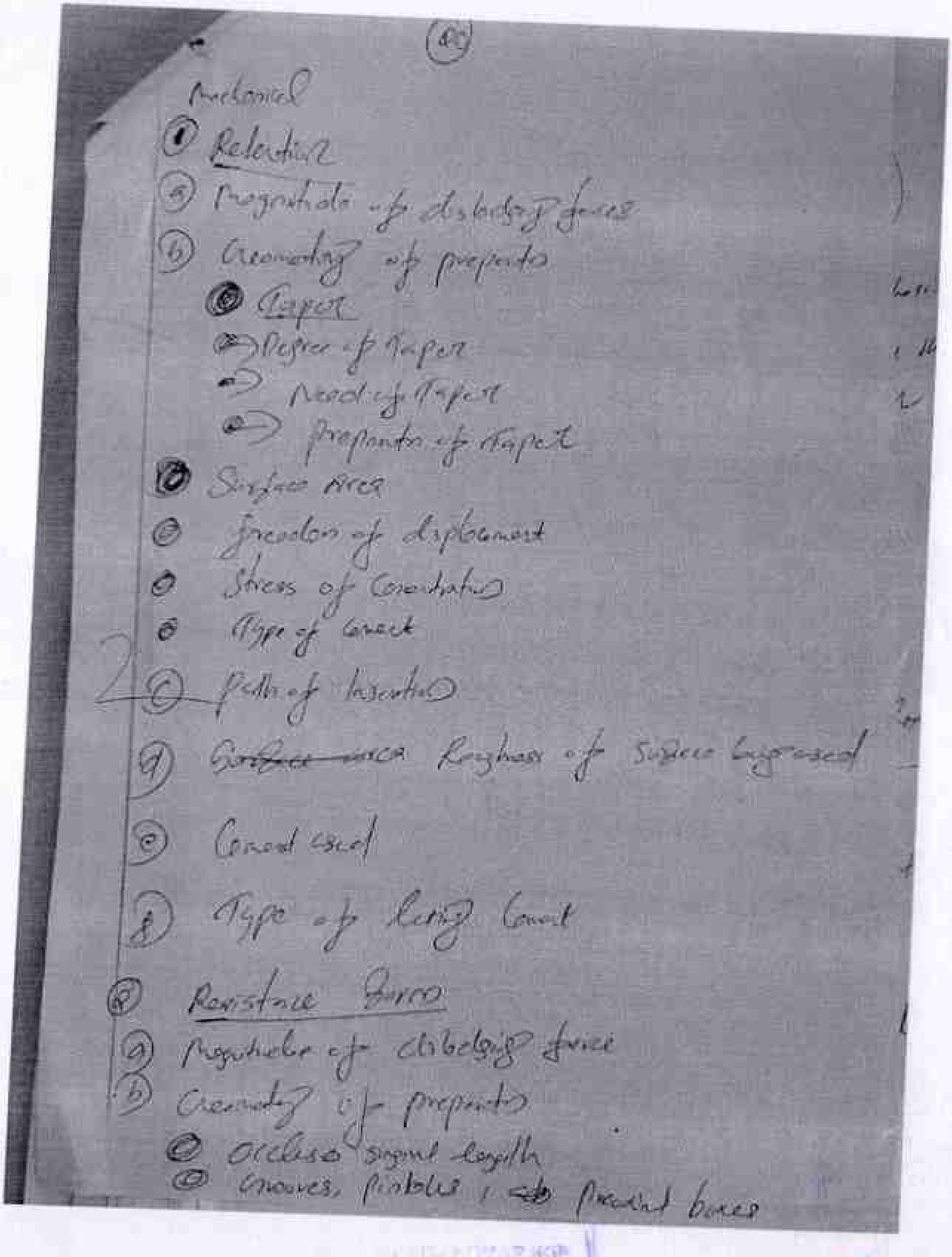

(86)

Mechanical

① Retention

ⓐ Magnitude of dislodging forces

ⓑ Geometry of preparation

© Taper

→ Degree of taper

→ Need of taper

→ Preparation of taper

Ⓑ Surface area

© freedom of displacement

© Stress of concentration

© Type of cement

2 ⓒ Path of insertion

ⓓ ~~Surface area~~ Roughness of surface engraved

ⓔ Cement used

(f) Type of luting cement

② Resistance form

ⓐ Magnitude of dislodging force

ⓑ Geometry of preparation

© Occluso gingival length

© Grooves, pinholes, & proximal boxes

Acts by force elimination
Eg. Frankel's appliance

ACTIVATOR

Synonyms

- Monobloc
- Norwegian appliance
- Andresen-Haupl appliance

Mode of Action

Muscle contraction
↓
Myotatic Reflex activity
↓
[illegible]
↓
Restoring effect on muscle
↓
forward movement of mandible

Myofunctional appliance causes muscle contraction which leads to myotatic reflex activity [illegible] reflex on muscle [illegible] produces kinetic energy for restoring effect

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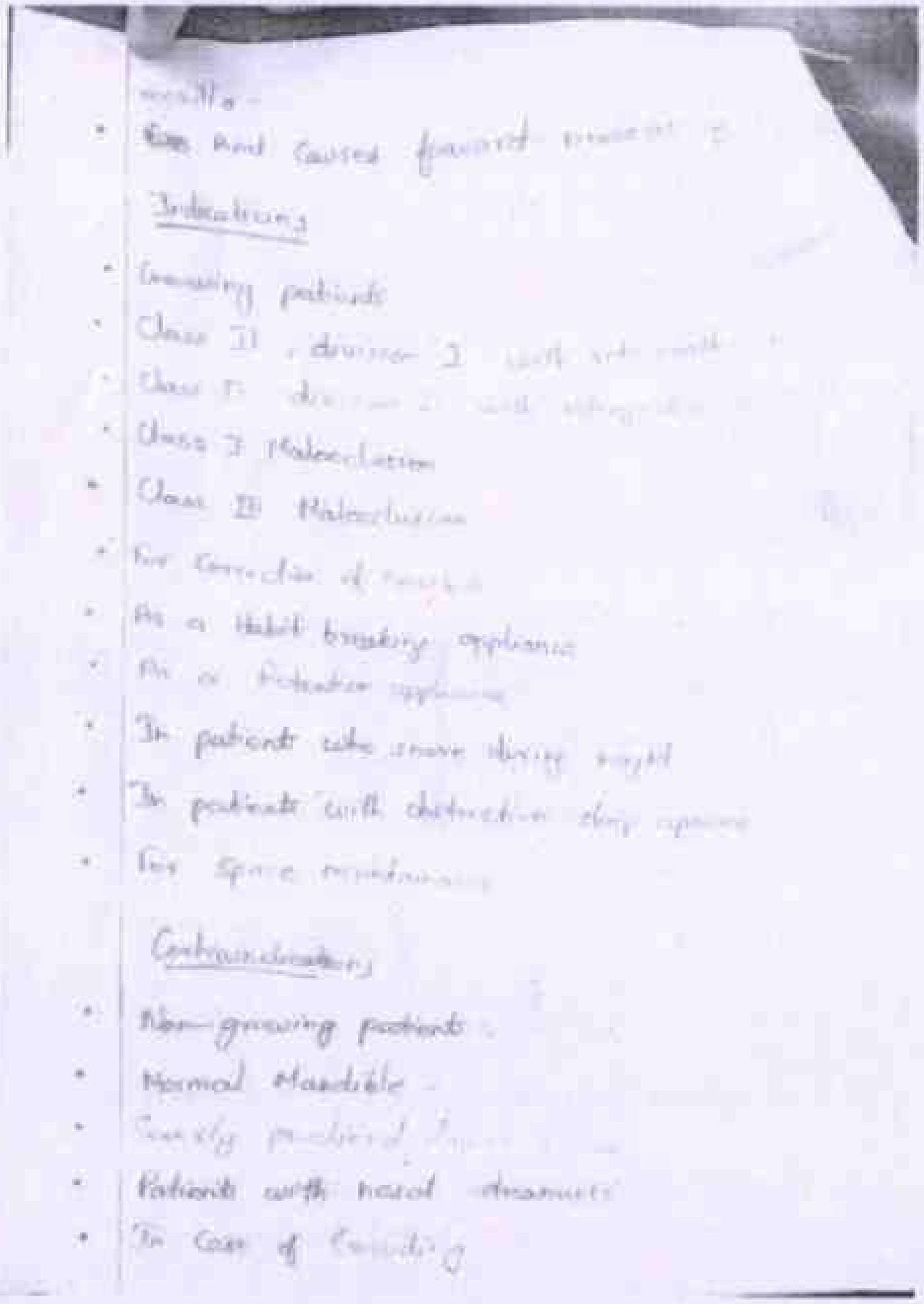


maxilla.

- And causes forward movement [illegible]

Indications

- Growing patients
- Class II, division I with [illegible]
- Class II division II with [illegible]
- Class I Malocclusion
- Class III Malocclusion
- For correction of [illegible]
- As a Habit breaking appliance
- As a Retention appliance
- In patients who snore during night
- In patients with obstructive sleep apnoea
- For space maintenance

Contraindications

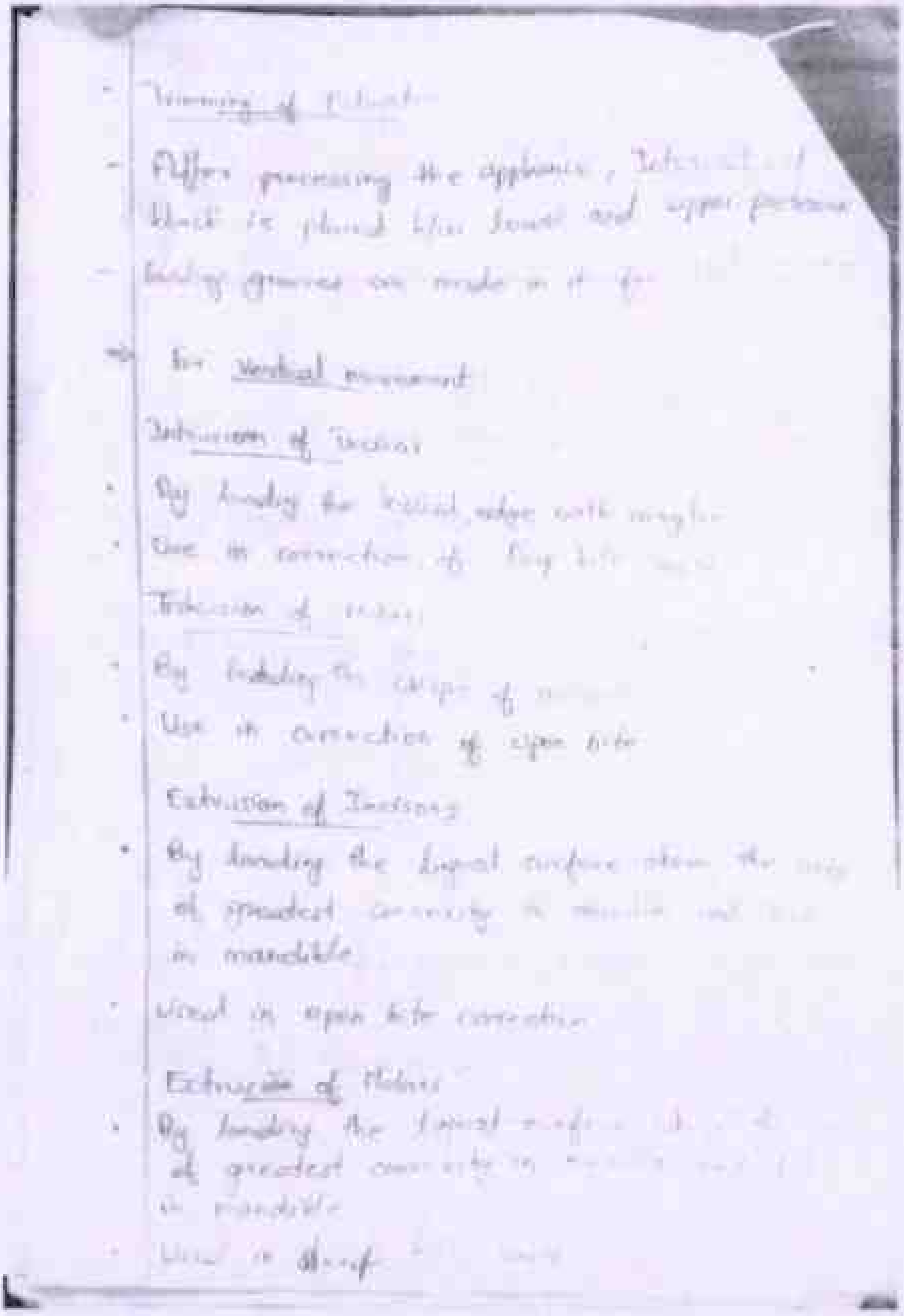
- Non-growing patients.
- Normal Mandible.
- Severely proclined [illegible]
- Patients with nasal obstruction
- In case of Crowding

Construction of Activator Appliance

- Impression taking
- Preparation of Study model and working model
- Registration of Construction bite
  - Horizontal bite
  - Vertical bite

- Horizontal bite (H-activator) → Mandible advanced by [illegible]
  Vertical opening by 3 [illegible]
- Vertical bite (V-activator) → Mandible advanced by 3-5 mm
  Vertical opening by [illegible]
- Vertical opening → Deep bite case
- Retrusive bite → Class III case

- Articulation of model
- Wax up and Wire bending
  - Labial bow is made using 21 gauge stainless steel wire as an active component
- Dewaxing
- Processing of Appliance



- Trimming of [illegible]
- After processing the appliance, Interocclusal block is placed b/w lower and upper posterior
- Guiding grooves are made in it for

⇒ For Vertical movement

Intrusion of Incisor

- By loading the incisal edge with single [illegible]
- Use in correction of deep bite [illegible]

Intrusion of molars

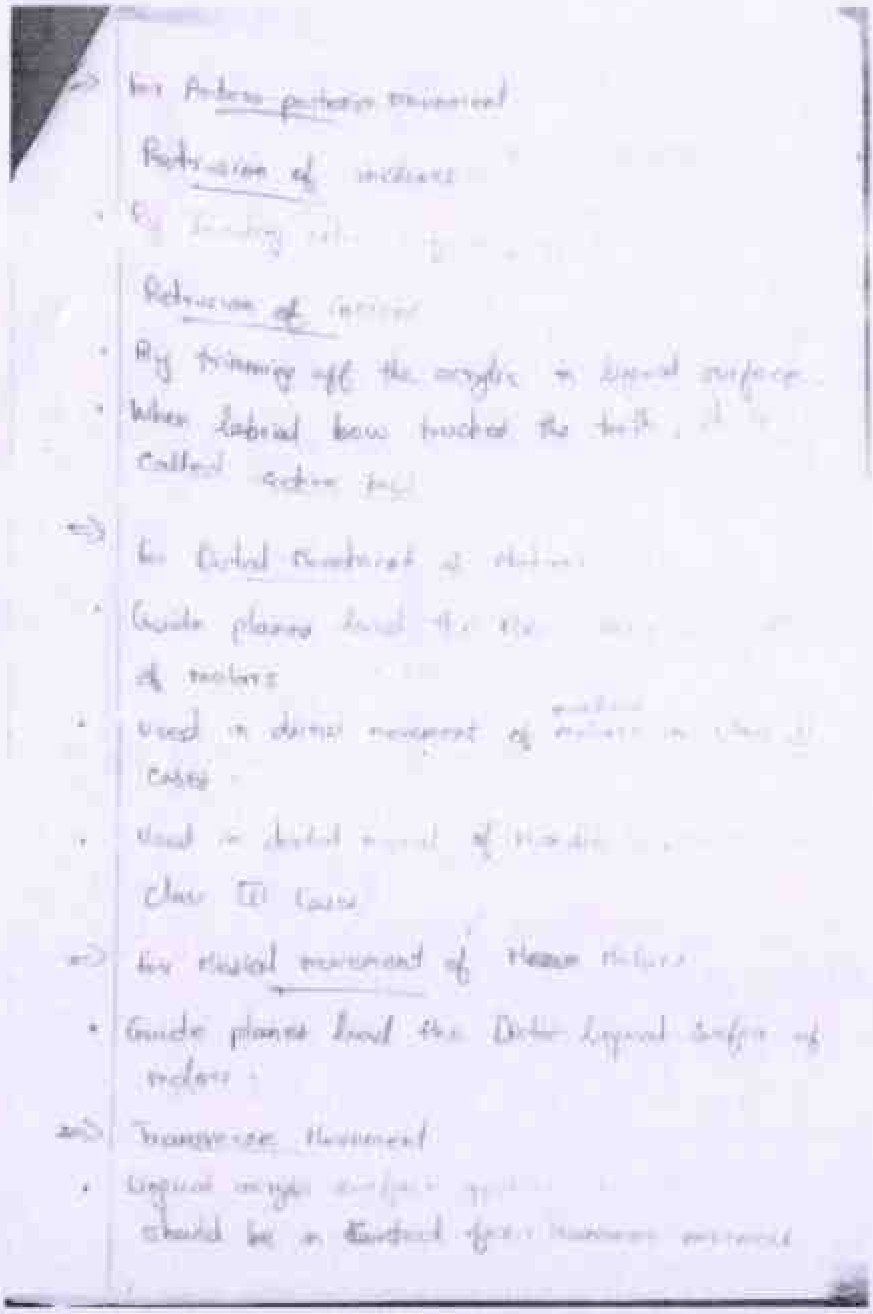
- By loading the cusps of molars
- Use in correction of open bite

Extrusion of Incisors

- By loading the lingual surface above the area of greatest convexity in maxilla and [illegible] in mandible
- Used in open bite correction

Extrusion of Molars

- By loading the [illegible] surface [illegible] of greatest convexity in [illegible] in mandible
- Used in deep [illegible]



=> For Antero-posterior movement

Retrusion of incisors

- By [illegible]

Retrusion of incisor

- By trimming off the acrylic in lingual surface.
- When labial bow touches the teeth, it is called active [illegible]

=> For Distal movement of Molars

- Guide planes [illegible] the [illegible] of molars
- Used in distal movement of [illegible] molars in class II cases.
- Used in distal [illegible] of [illegible] Class III cases

=> For mesial movement of [illegible] molars

- Guide planes [illegible] the Disto lingual surface of molars.

=> Transverse movement

- Lingual acrylic surface [illegible] should be in contact for transverse movement

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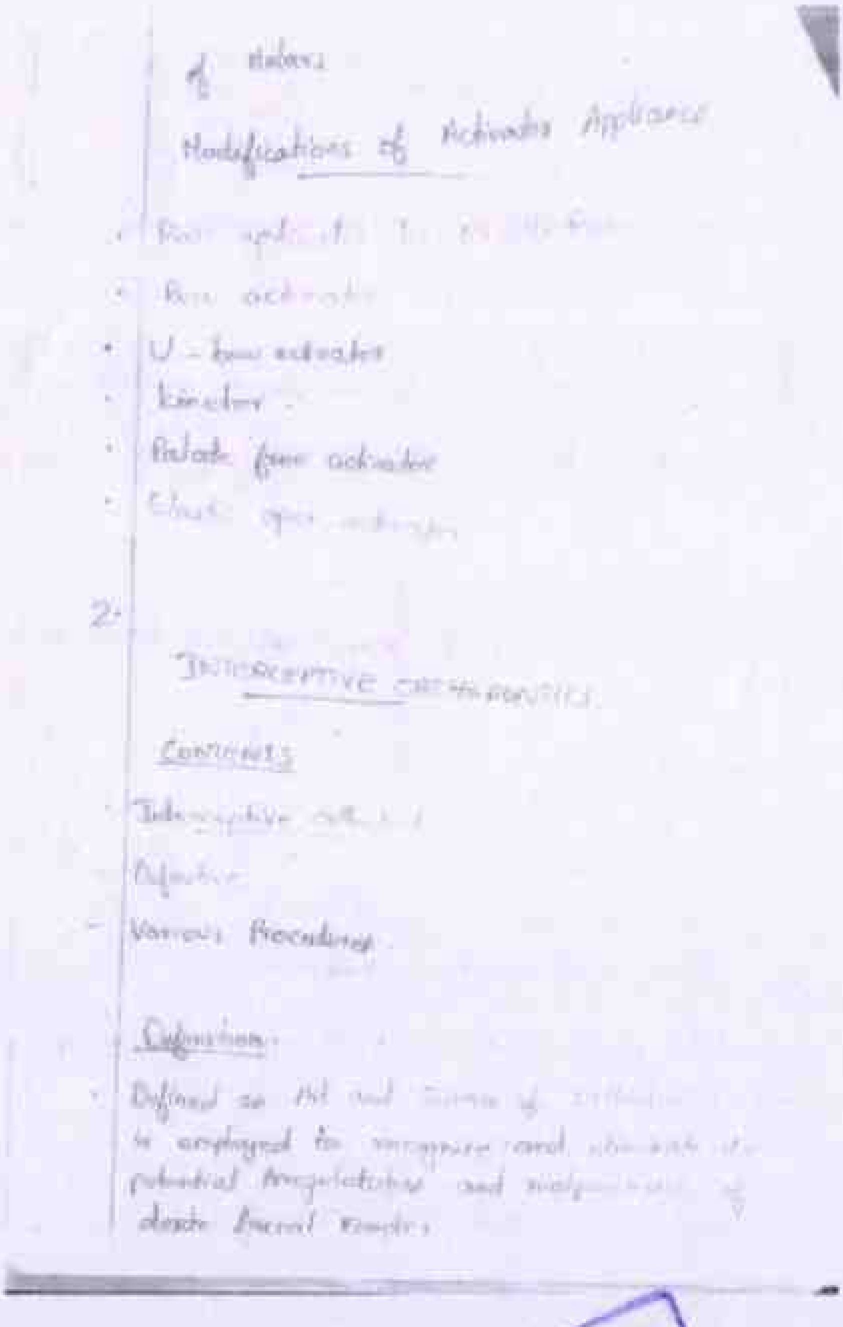

of Habits

Modifications of Activator Appliance

- [illegible]
- Bow activator
- U - bow activator
- Kinetor
- Palate free activator
- Elastic open activator

2.

INTERCEPTIVE ORTHODONTICS

CONTENTS

- Interceptive ortho[illegible]
- Definition
- Various Procedures

Definition:

- Defined as the art and science of orthodontics [illegible] is employed to recognize and eliminate the potential irregularities and malpositions of dento facial complex

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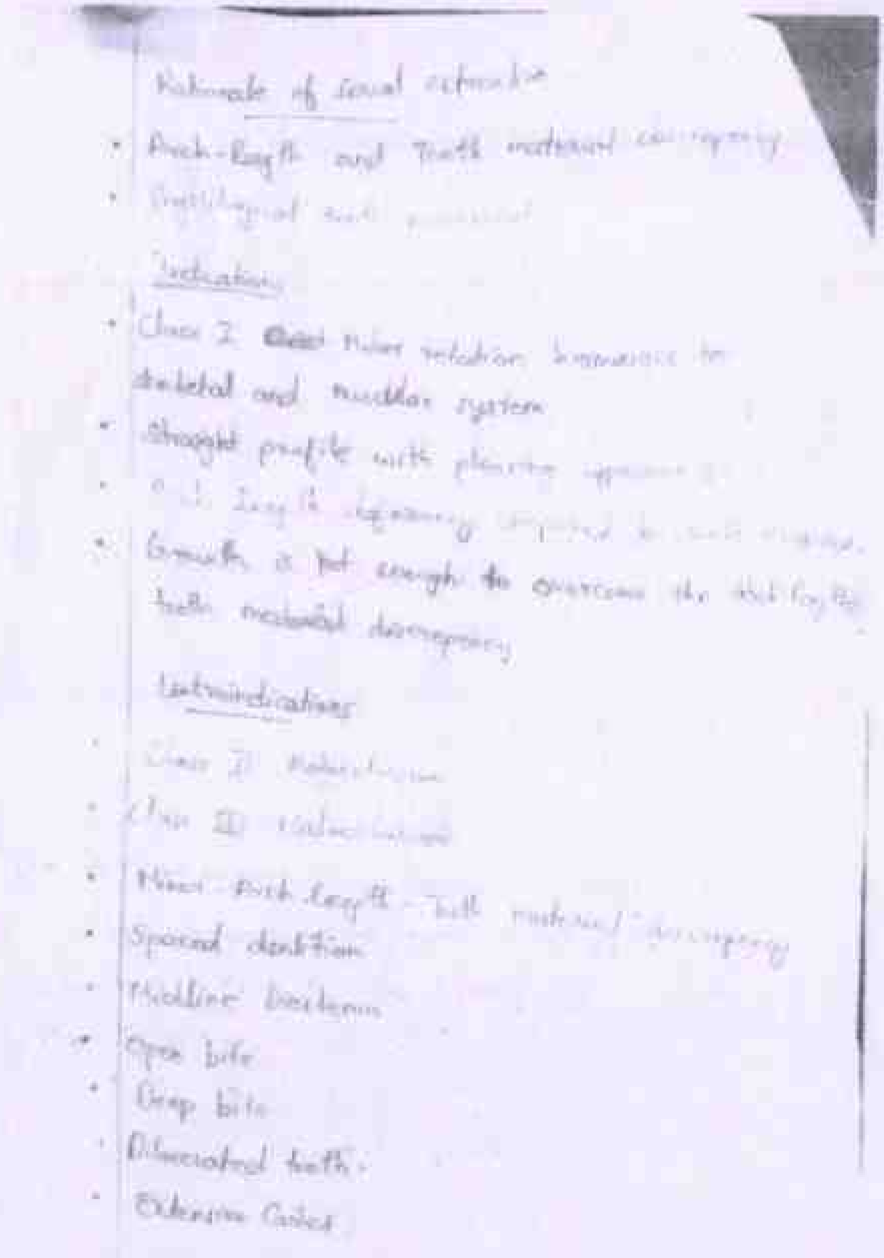
Procedures

- Serial Extraction
- Correction of developing Crossbite
- Control of abnormal Habit
- Space Regainer
- Muscle exercise
- [illegible] of occlusal [illegible]
- Removal of soft tissue and bony barriers to facilitate the eruption of teeth

- Serial Extraction

- Defined as interceptive orthodontic procedure which is instituted at early mixed dentition period when we can recognize potential irregularity and malposition in developmental stages and correction by planned and sequential extraction of first deciduous teeth [illegible] to guide the eruption of permanent [illegible] to more favourable position.



Rationale of serial extraction

- Arch-length and Tooth material discrepancy
- Physiological tooth [illegible]

Indications

- Class I molar relation harmonious to skeletal and muscular system
- Straight profile with pleasing appearance
- Arch length deficiency expected to [illegible]
- Growth is not enough to overcome the arch length tooth material discrepancy

Contraindications

- Class II Malocclusion
- Class III Malocclusion
- Minor arch length - tooth material discrepancy
- Spaced dentition
- Midline diastema
- Open bite
- Deep bite
- Dilacerated teeth
- Extensive caries

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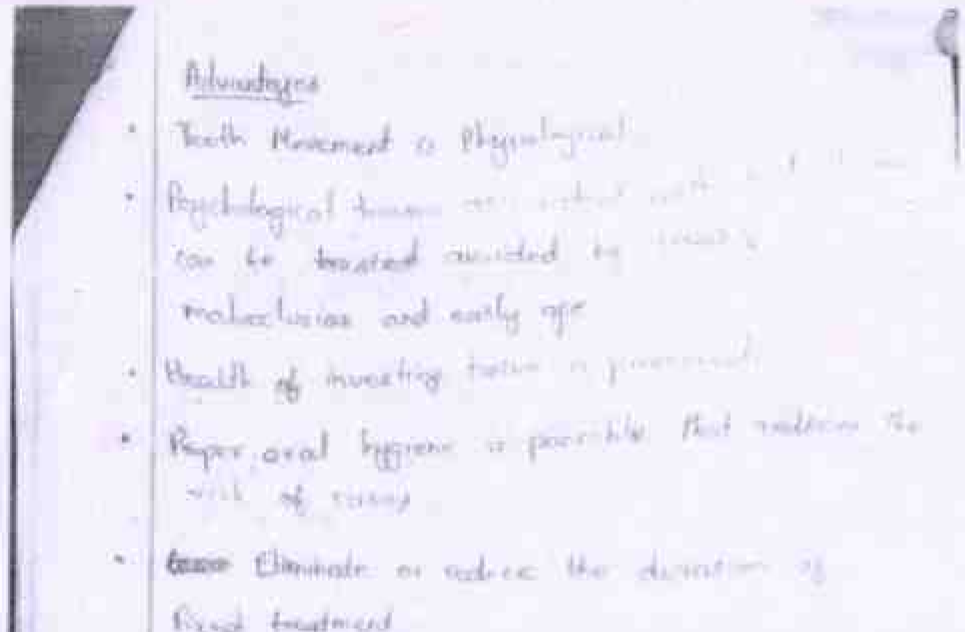

Advantages

- Teeth Movement is Physiological
- Psychological trauma associated with [illegible] can be treated avoided by [illegible] malocclusion and early age
- Health of investing tissue is preserved.
- Proper oral hygiene is possible that reduces the risk of caries
- ~~[illegible]~~ Eliminate or reduce the duration of fixed treatment

Disadvantages

- ~~[illegible]~~ Prolonged treatment
- Ditch / space b/w Canine and [illegible]
- Extraction of buccal teeth results in deepening of bite
- Extraction causes open bite tongue thrusting habit.
- Axial inclination of teeth

[illegible]
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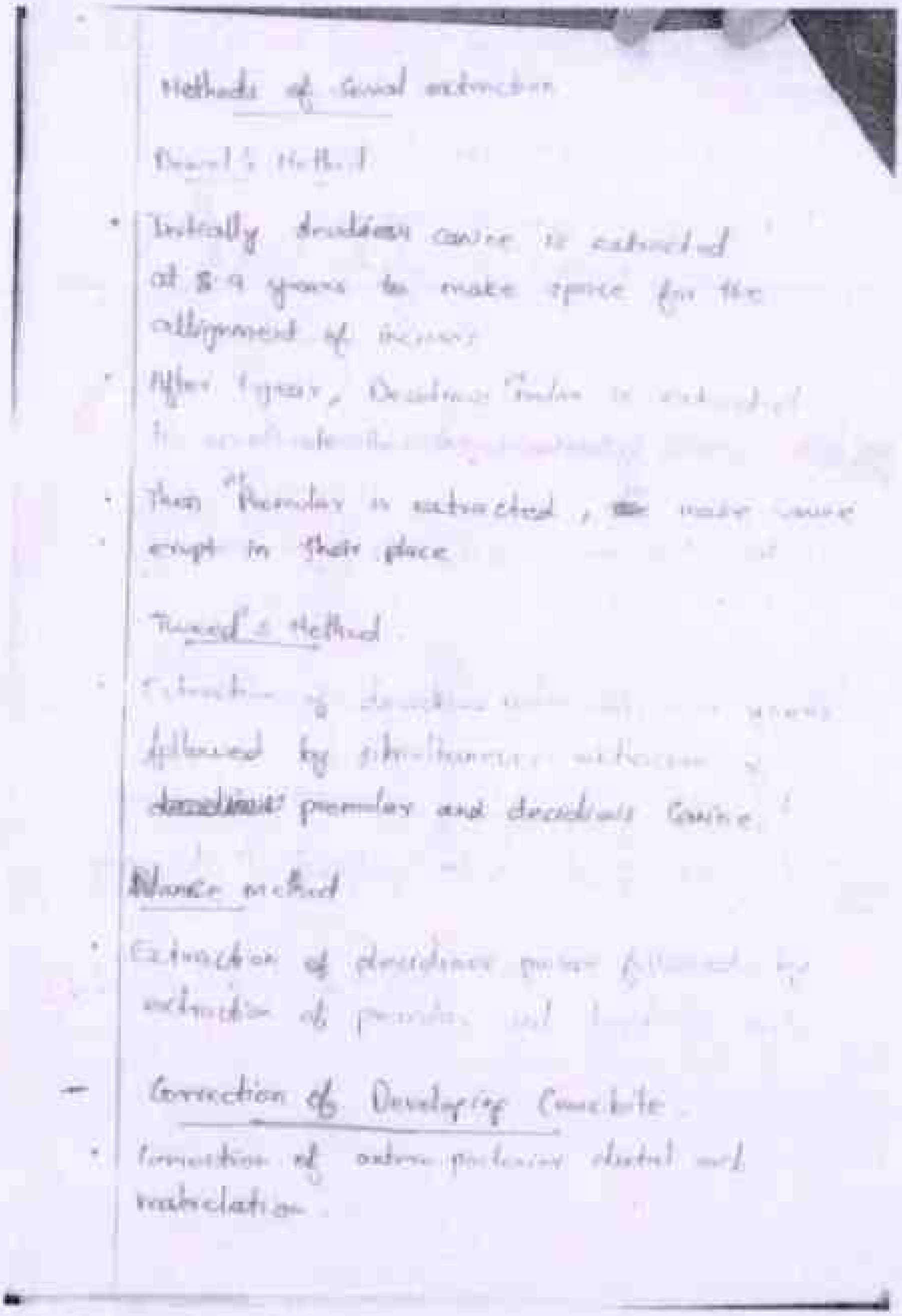


Methods of serial extraction

Dewel's Method

- Initially deciduous canine is extracted at 8-9 years to make space for the alignment of incisors
- After 1 year, Deciduous 1st molar is extracted
  [illegible]
- Then 1st Premolar is extracted, ~~the~~ now canine erupt in their place

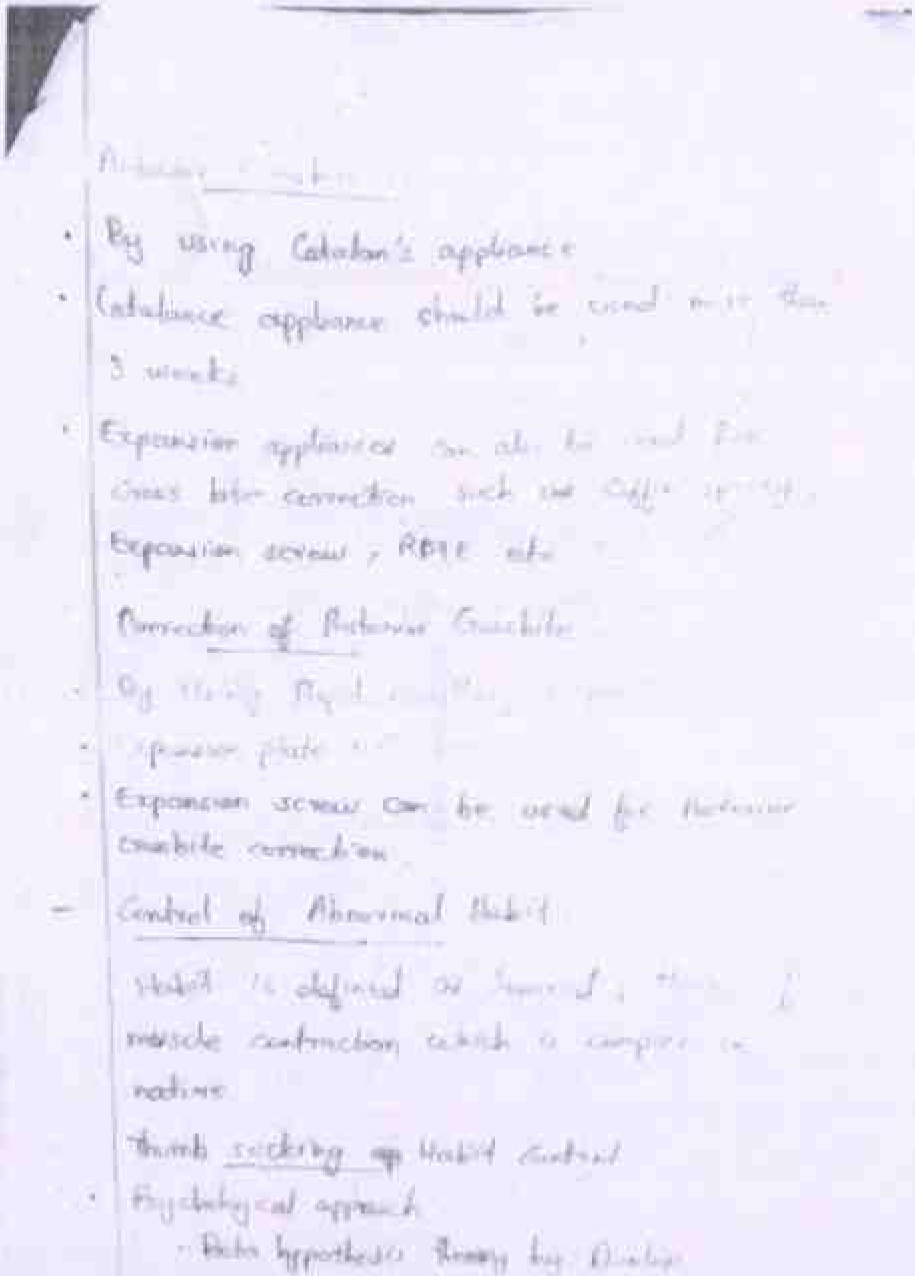
Tweed's Method

- Extraction of deciduous [illegible] years followed by simultaneous extraction of ~~deciduous~~ premolar and deciduous canine.

Nance method

- Extraction of deciduous molar followed by extraction of premolar and [illegible]

- Correction of Developing Crossbite
- Correction of antero-posterior skeletal and malrelation.



Anterior Crossbite

- By using Catalan's appliance
- Catalance appliance should be used not more than 3 weeks
- Expansion appliances can also be used for cross bite correction such as Coffin spring, Expansion screw, RME etc

Correction of Posterior Crossbite

- By using [illegible]
- Expansion plate [illegible]
- Expansion screw can be used for posterior crossbite correction

- Control of Abnormal Habit

Habit is defined as learned [illegible] of muscle contraction which is complex in nature

thumb sucking ~~ap~~ Habit Control

- Psychological approach
  - Beta hypothesis theory by Dunlap

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- Reminding aids like thumb guard or bandaging of elbow to prevent [illegible] hand
- Mechanical aids
  - Removal / fixed
  - Flat crib thumb sucking appliance
  - Vertical crib thumb sucking [illegible]
  - Vertical habit appliance

Control of Mouth breathing habit

- By use of oral screen

Control of Tongue thrusting habit

- By use of tongue crib

— Space Regainers

- Interceptive orthodontics [illegible] regaining of space
- Fixed gear which is a orthopaedic appliance regains space which is given using early childhood
- Twin block ~~[illegible]~~ which is a functional appliance can also be used to regain

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Interception of Skeletal Malrelation

- Skeletal Class II
- Due to maxillary Prognathism - Head Cap [illegible]
- Due to mandibular Retrognathism - [illegible]
- Skeletal Class III
- Due to Mandibular Prognathism - [illegible]
- Maxillary Retrognathism - [illegible]

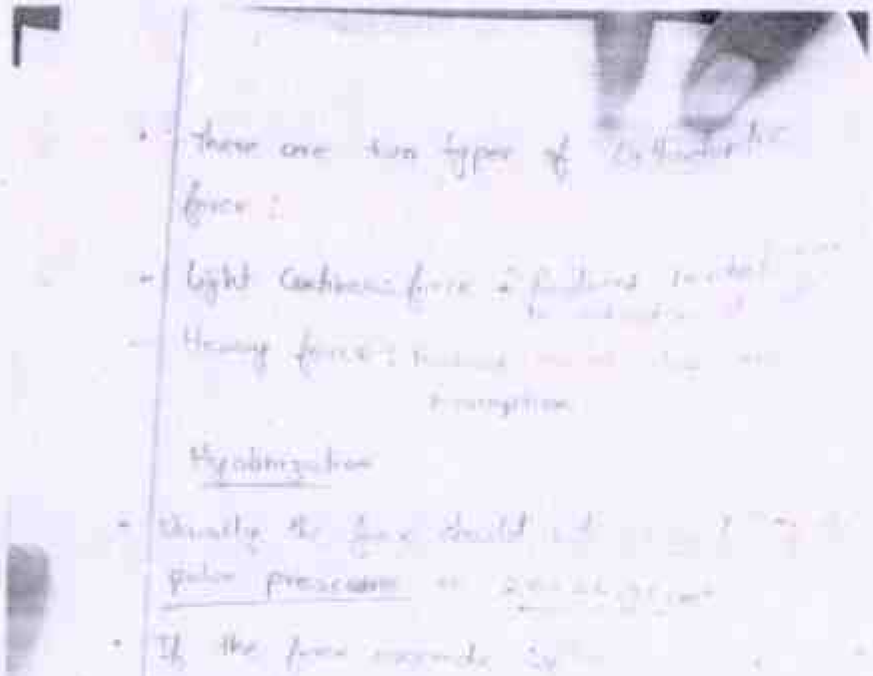
8½

Removal of Bony barrier and [illegible]

- For the facilitating the eruption of teeth
- Removing the obstruction that may have [illegible] the tooth movement
- To facilitate [illegible]

5. Hyalinization

- Tissue changes to hyalinised [illegible] at Pressure zone



- There are two types of orthodontic force :
- Light Continuous force → frontal resorption
- Heavy force : [illegible] undermining resorption

Hyalinization

- Usually the force should not [illegible] capillary pressure ie 20-26 g/cm²
- If the force exceeds [illegible]
- It results in the Compression of PDL and blood vessels
- So there will be no blood supply to Compressed PDL
- There will be [illegible] necrosis [illegible]
- It is seen as area of sterile necrosis
- ie. Area with no cells
- In microscopy, it is seen as glass like with no cells. Hence it is called hyalinization [illegible] and the [illegible] hyalinization

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H

[illegible] are two types of orthodontic [illegible]

ie :

light continuous force : Produces frontal [illegible] by [illegible]

heavy force : Produces Undermining [illegible] Resorption

Hyalinization

Ideally the force should not exceed [illegible] pulse pressure [illegible]

If the force exceeds capillary pulse pressure it results in the compression of PDL and blood vessels

So there will be no blood supply [illegible] compressed PDL

There will be no ~~area~~ activation of cells,

It is seen as area of [illegible]

ie. Area with no cells

[illegible]

no cells - Hence it is called Hyalinized area and the process is called Hyalinization

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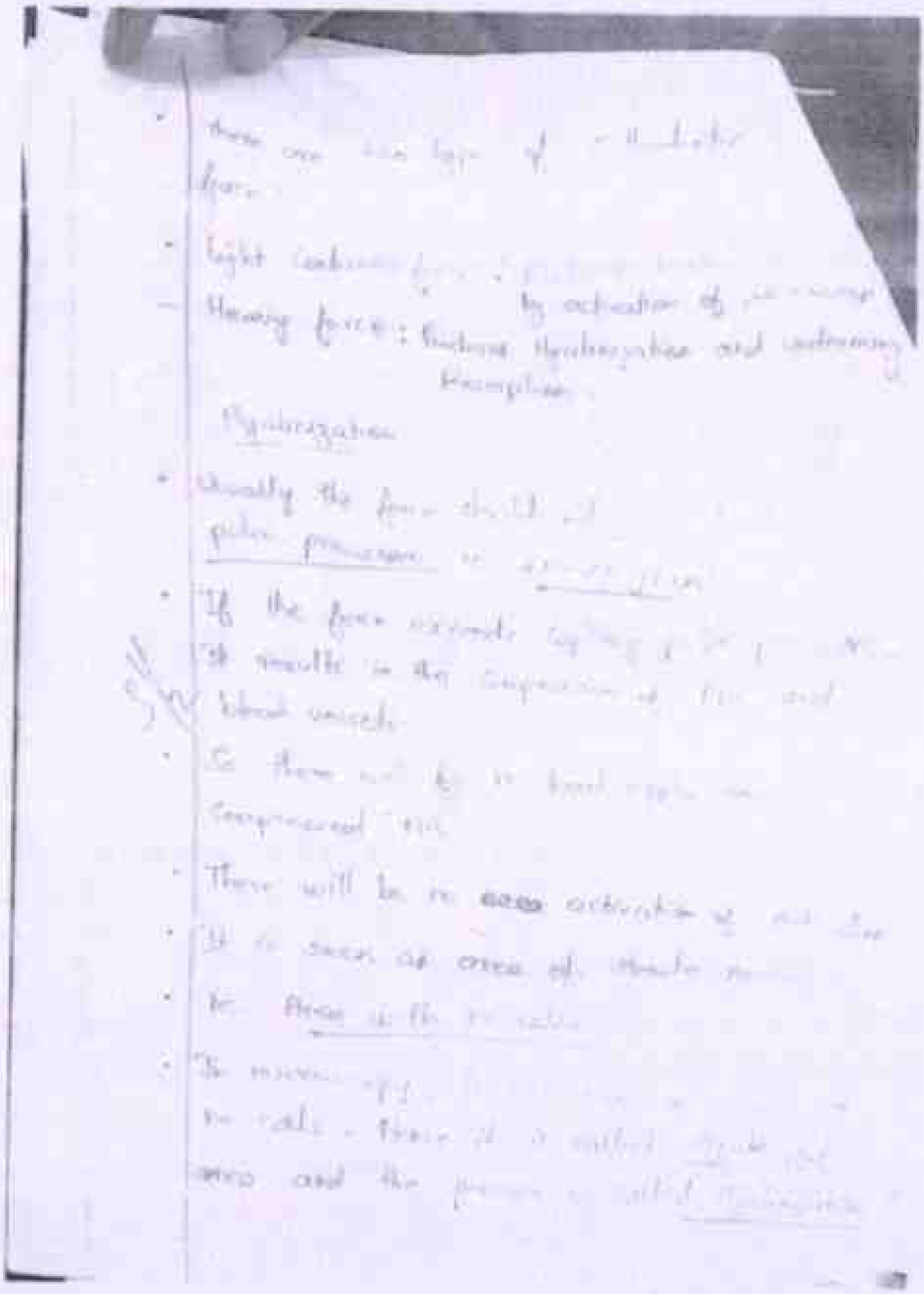

- there are two types of [illegible] force.
- light continuous force : [illegible]
- Heavy force : [illegible] by activation of [illegible]
  frontal Hyalinization and undermining Resorption.

Hyalinization

- Usually the force should [illegible] pulp pressure [illegible]
- If the force exceeds capillary [illegible] it results in the compression of PDL and blood vessels
- So there will be no blood supply in compressed PDL
- There will be no activation of [illegible]
- It is seen as area of [illegible]
- i.e. Area with no cells
- In microscope [illegible] no cells. There it is called hyaline area and the process is called Hyalinization

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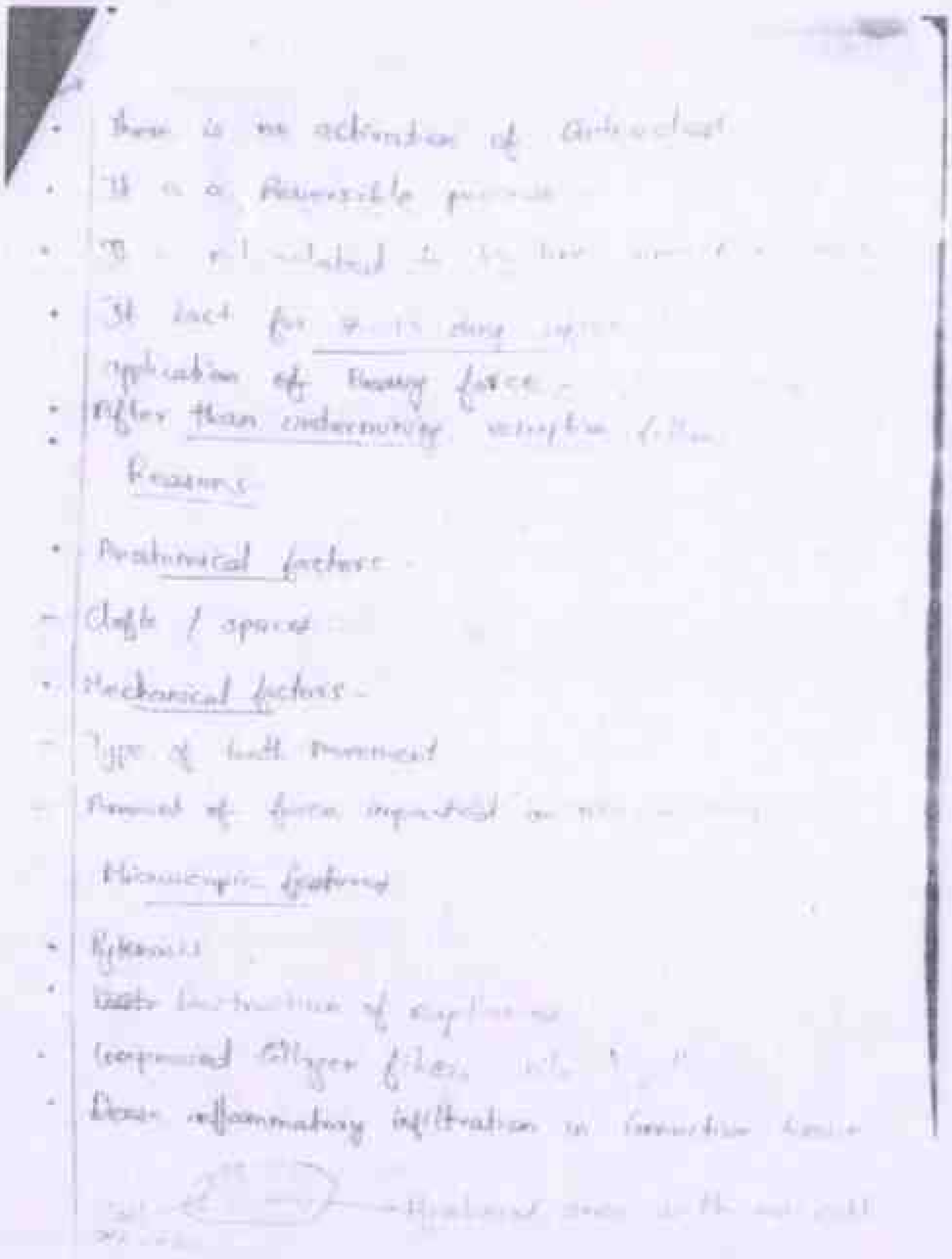


- There is no activation of osteoclast
- It is a reversible process
- It is not related to the [illegible]
- It last for [illegible] days upon application of heavy force.
- After than undermining resorption follow

Reasons

- Anatomical factors
- Clefts / spaces
- Mechanical factors
- Type of tooth movement
- Amount of force imparted on [illegible]

Microscopic features

- Pyknosis
- ~~Loss~~ Destruction of cytoplasm
- Compressed collagen fibres [illegible]
- Dense inflammatory infiltration in connective tissue

Hyalinised zone with no cell

Retest

Deitha B.S
Roll no : 11

34½ / 70

Oral Pathology

1. Mucocutaneous lesions.

- → Oral Lichen Planus
- → Pemphigus Vulgaris
- → Pemphigus foliaceous
- → Erythema multiforme
- → Psoriasis
- → Sjogrens syndrome
- → Epithelial dysplasia.

Oral Lichen Planus

Most common mucocutaneous lesion

Affects both skin and mucous membrane.

Described as bilateral white striations / patches on either side of oral mucosa mediated by circulating autoantibodies.

Etiopathogenesis

It is T cell mediated.

Cytotoxic ~~CB~~ CD8+ T cells trigger the apoptosis of oral epithelial cells

This may affect adjacent cells

Attract them into the developing lesion.

Clinical Features

Age : All racial groups are affected

Sex : Females are predominantly affected
(3.4 :1) ratio

Site : Buccal mucosa, tongue, lip, gingiva, palate.
Extra orally : Flexor surface of wrist, arms
Inner aspect of knee and thigh.

Skin lesions are small flat-topped papules, which is angular.
They may diffuse or coalase to form discrete lesions
It is surrounded by fine glistening scale.
Centre of the papule may be slightly umbilicated.
~~Re~~ At the periphery it is surrounded by a greyish white line
known as 'WICKHAM'S STRIAE'

Oral Lesions :-

Oral lesions appears just before cutaneous lesion.

If there is only oral lesion & there is no any other finding anywhere in the body it is known as Isolated lichen planus.

They may be appear as radiating white or greyish/ velvety lines in an reticular or annular arrangement to form reticular patches or streaks.

Oral lesion is of 3 types =
- Reticular
- Erythematous
- Atrophy.

The ~~keratinization~~ seen in between two intersecting lines is in reticular form is known as
'STRIAE OF WICKHAM'

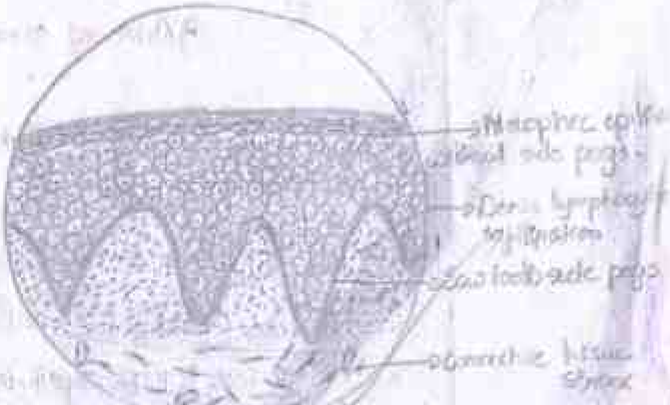
Erythematous

The lesion appears as red.

It is surrounded by a erythematous zone.

Histopathology

- → Atrophic epithelium with mild or no rete ridges
- → Saw tooth rete pegs is one of the characteristic feature of lichen planus.
- → Dense lyphocyte infiltration in connect tissue (It is thick)
- → Civatte bodies are present.
- → No lymphocyt inflammatory cells in fibrous tissue.
- → Seperation of hained epithelium from fibrous sen seen.



2 Salivary Gland Tumors

A. Benign
B. Malignant

Benign ⟹ ① Adenomas

- Pleomorphic Adenoma
- Adenolymphoma (Warthin's tumor)

② Carcinoma

- Acinic cell carcinoma
- Mucoepidermoid carcinoma
- Adenoid cystic carcinoma
- Adenoid carcinoma

Malignant ⟹ Adenoid lymphomas.

Pleomorphic adenoma

→ mixed tumor

→ Contain both myoepithelial and ductal reserve cells

~~→ 2#~~ → It shows various morphological diversities, hence the name pleomorphic adenoma

→ Most common benign tumor affect the oral cavity.

Histogenesis

Hebner :- myoepithelial cells are responsible for morphological diversity of the pleomorphic adenoma.

Regezi & Batsakis :- Contain both myoepithelial cells and intercalated duct reserve cells, which are responsible for it.

Dardick :- Neoplastically altered epithelial cells shows multiple differentiation capacity.

Clinical Feature

Age :- 30-50 years of age.

Sex :- Female predilection (10:1)

Site :- ~~Buc~~ Intraorally - palate is commonly affected also lip, tongue, gingiva floor of mouth.

Extraorally - ~~Parotid~~

- It is painless slow growing lesion.
- Quiescent nodule formation is characteristic feature.
- This nodule ~~is~~ shows no fixation
- Not fixed to underlying ~~mu~~ skin or mucous membrane.
- Ultimately nodule become ulcerated due to infection.
- Pain in the jaw is the presenting complaint.
- Erosions are present

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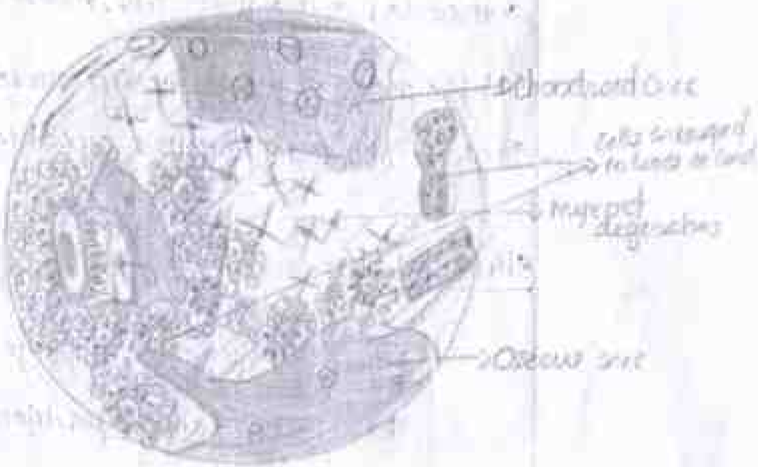
Histopathology of pleomorphic adenoma

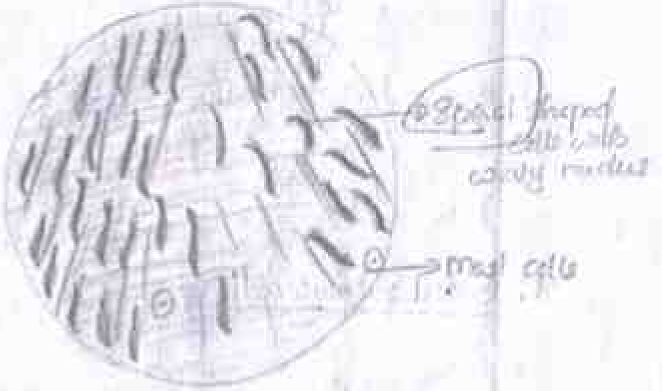


6

- → Cells shows various properties
- → Chondroblastic area
- → Osteoblastic area
- → Myxoid degeneration
- → Polyhedral epithelial cells are arranged in tubules or strands.

7) Neurofibroma and Neurilemmoma

Neurofibroma :



1½

→ Also known Von Recklinghausen disease

→ Types – Pigmented : contain melanin.
Erythematous (?)
Plexiform

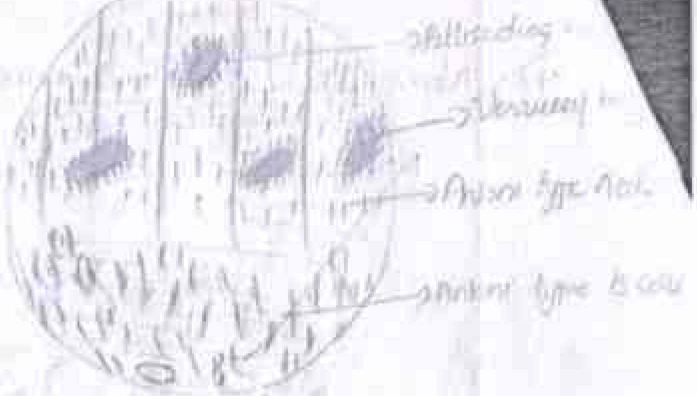
→ Commonly ~~s~~ in children & young adults.
→ Seen in head & neck regions.
→

Another one type describes as a bag of worms appearance.

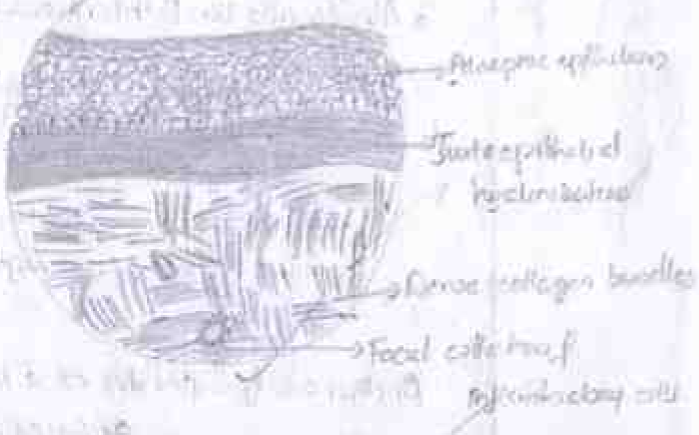
Neurilemmoma :

Arises from schwann cells.
Also known as schwannoma
Histologically 2 type of cells Antoni type A & Antoni type B.

[redacted]



8. Oral Submucous Fibrosis


Atrophic epithelium
Juxta epithelial hyalinisation
Dense collagen bundles
Focal collection of inflammatory cells

2

- → Atrophic epithelium - Stratified squamous
- → Below the epithelium, a layer of hyalinisation is seen, that is juxta epithelial hyalinisation
- → Connective tissue contain dense collagen bundles
- → Focal collection of inflammatory cells.
- → No lymphocytic or inflammatory infiltration CT
- → Separation b/w epithelial cells &

11. Lip Print

→ It is also known as chilloscopy

→ The grooves and wrinkles in the lip known as 'Sulci labrorus suyopisus' which produce lip prints.

→ Use of lip print technology is crucial in forensic odontology ~~in~~ ~~is~~

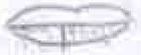
→ Used in sex crimes, child abuse etc.

→ Traditionally lipsticks are used.

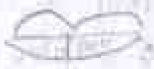
→ For colour visualization, other materials used are Aluminium powder
Cobalt oxide
Nile red.

1½

Classification :- ① clear cut vertical orientation of entire lip

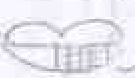


② Same as that of type I but not entire lip.



③ Intersected type.

④ Branched type

⑤ Reticular type 

⑥ Undifferentiated.

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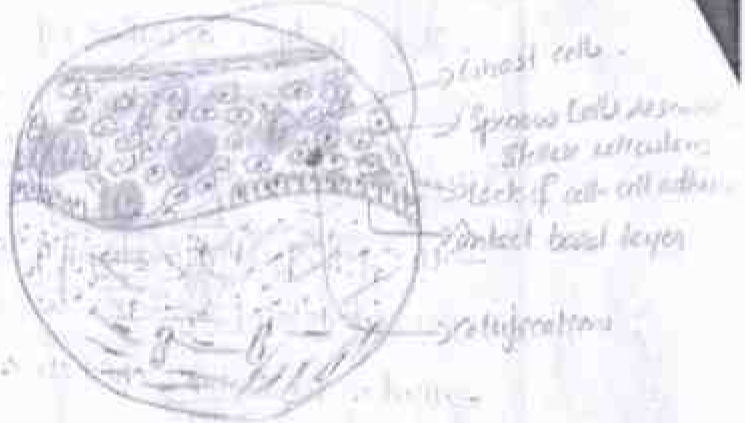
13. Histopathology of Calcifying Odontogenic Cyst


Ghost cells.
Spinous cells resembling stellate reticulum
Lack of cell-cell adhesion
Intact basal layer
Calcifications

→ Intact basal cell layer consisting of ameloblast like cells.

→ There is no cell to cell adhesions

→ Spinous cells are resembling stellate reticulum

→ Spinous cells shows discrete projections.

→ Ghost cells are characteristic feature,

They are altered epithelial cells
Eosinophilic in nature.
Ovoid or round in shape.
Arised from coagulative necrosis of odontogenic epithelium

→ Calcifications are seen.

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5. Age Estimation

Classified into 3

① Prenatal, natal & Early postnatal
② children and adolescents.
③ Adults.

Age estimation in ~~children and ea~~ prenatal stages

It is done through the calcification checking

Time of calcification for each tooth is different.

In children and adolescents

- Gustafson's method.

~~Ap essl~~ He classified some features for age estimation

Attrition of occlusal or incisal surface due to mastication (A)
Periodontitis (P)
2° dentin formation (S)
Cementum apposition (C)
~~Root~~ Translucency of root (T)
Root resorption (R)

ie $P_n + S_n + C_n + R_n + T_n = X$

X is the age.

$\boxed{Age = 11.43 + 4.56X}$ X = Stages

± 1.43 years is the age is correction.

In Adults age estimation is done by Mustafon's theory.

He assigned calcification process of tooth from 0 to 9

0 → Calcification yet to begin

1 → Tooth calcification

2 → Calcification complete (tooth)

Stages are given

Dentin Translucency method

It is used for age determination by using dentin translucency.

~~12. Paget's~~

4. Paget's disease

Chronic progressive disease of the bone characterised by an abnormal & excessive remodelling of bone, with initially increased osteoclastic activity.

⟹ Accelerated but abnormal bone growth with increased vascularity to the bone

As a result, bone becomes enlarged, weaker and produces deformity with complications

Etiology

Exact cause is not known
SQSTM1 gene (mutation)
Viral or other infections

Clinical features

Age – Above 50 years with increased incidence of with age. Rare below 40 years

Sex – Both male & female equally affected

→ It is usually asymptomatic but sometimes symptoms like bone pain, bone deformity, cardiovascular & neurologic are shown.

→ Presenting complaint is bone pain which worsens at night
→ Enlargement of skull
→ Frontal bossing.
→ Platybasia – soft bones at base of skull show
→ Incd vascularity.

Oral manifestations

- →Enlargement of Jaw,
- →widening of alveolar ridge
- →maxillary bone are most affected than mandible
- →flattening of soft palate.
- →Tooth gross movement
- →malposition & tipping of tooth
- →Discolored [illegible]

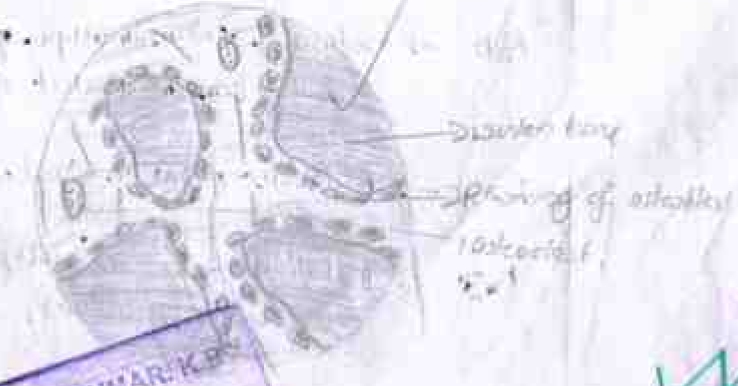
good.

Radiography

Shows cotton wool appearance
Hypercementosis
Loss of lamina dura is seen.

Histopathology

Basophilic reversal lines for jigsaw or 'mosaic' pattern.
Osteoblastic rimming present
Osteoclast are present
Irregular woven bone.



6. TNM staging

T (size of primary tumor)

T_x → size of 1° tumor
cannot assessed

T_0 → No evidence of 1° tumor

T_{is} → Carcinoma insitu

T_1 → size of 1° tumor less than 2cm in greatest dia

T_2 → size of 1° tumor greater than 4 in greatest dia

T_{4a} → Lip : resectable.

T_{4a} → oral cavity

T_{4b} → Unresectable.

N (lymph node)

N_x → LN metastasis cannot be assessed

N_0 → No evidence of LN metastasis

N_1 → metastasis of LN in single ipsilateral node, less than 3cm in dia

N_{2a} → metastasis of LN in single ipsilateral node, >3cm but <6cm

N_{2b} → metastasis of LN in multiple ipsilateral nodes >6cm in greatest diameter

N_{2c} → metastasis of LN in single bilateral node >6cm

N_3 → metastasis of LN in multiple nodes greater than 6cm in greater dia.

⑥

M (distant metastasis)

M_x → Distant metastasis cannot be cased.
M_0 → No involvement of distant metastasis
M_1 → Presence of distant metastasis

Staging

A

Stage 0 → T_0 N_0 M_0
Stage I → T_1 N_0 M_0
Stage II → T_2 N_0 M_0
Stage III → T_3 N_0
Stage IVa → T_1, T_2/T_3/T_{4a} N_2 M_0
Stage IV b → Any T N_3 M_0
Stage IV c → Any T Any N M_0

2. Oral disturbance affected tongue

C

① Fissured tongue.
② Median rhomboid glossitis.
③ Aglossia
④ macroglossia.

Aglossia → Absence of tongue.
macroglossia → Size of tongue is smaller than normal.
Fissured tongue → Fissures are seen.

12. Odontoma

It is a ~~do~~ ~~inflammation to bone tumor~~ in bone.
Commonly seen in children.

clinical features

Age :- 2nd - 3rd decade of life.
Sex :- Females are commonly affected
Site :- mandible > maxilla.

~~12~~ → Painful lesion.
→ Rapidly progressing.
→ Bone pain is the common symptom
→ Patient is unable to eat & drink properly.
→ Tooth ache is also seen.
→ ~~Ex~~ Swelling of jaw in affected side.

Radiographic features

Multilocular radiolucency.
Thick and well defined corticated margin.

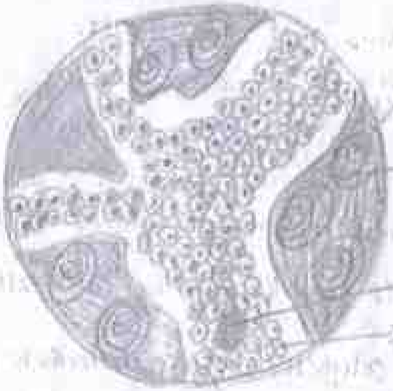
Treatment
Enucleation
Surgical correction.

10. Reed sternberg cells

They are specialised cells.

15. Pindborg's tumor

Also known as Calcifying epithelial odontogenic tumor.



2

→ ~~Lies~~ Ring like structure called Liesegang cells are seen.

→ Amyloid like material is seen.

→ Polyhedral cells with hyperchromatism.

→ Prominent nucleus.

17

16. Tic douloureux

{It is trigeminal neuralgia.

Affects the 7th cranial nerve. 5th

Classi: Two types — Central trigeminal neuralgia
— Peripheral trigeminal neuralgia

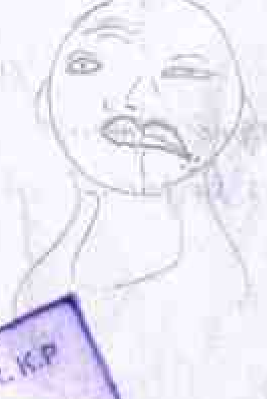
Central : Affects the upper motor neuron lesion.

Paralysis of lower part of face.

Peripheral :- Lower motor neuron lesion.

Clinical features - Bell's palsy is the LMN lesion.

- Frontal bossing
- Drooling of saliva
- Drooping of mouth
- Absence of frontal wrinkles.
- Nasolabial fold absent.
- Inability to close eyes.



Trigeminal neuralgia – clinical features

is extremely painful

Pain last for few seconds to 1 one ~~one~~ hour may.

Pain is severe

Patient cannot tolerate

~~Flushed p~~ Patient becomes flushed.

The pain increases while trigger zones get activated.

Trigger zones are seen in face where facial trigeminal nerve supplies.

Triggering zones gets activated when they are stimulated.

- Slight breeze
- Shaving
- Crying
- Smiling
- Touch in trigger zones
- Applying ~~water~~ face wash

2

These will lead to stimulate the trigeminal neuralgia. and cause severe pain.

Treatment

Carbamazepine is given.

Analgesics for pain.

KMCT DENTAL COLLEGE

FINAL YEAR BDS (PART II) MODEL EXAM- RETEST 2022

Pedodontics and Preventive Dentistry (2016 SCHEME)

- *Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers • Indicate the question number correctly for the answer in the margin space*
- *Answer all parts of a single question together • Leave sufficient space between answers*
- *Draw Diagrams wherever necessary.*

Long essay **2 X 10= 20**

1. Classify Handicapped children. Discuss the clinical presentation and special consideration in the management of children with Cerebral Palsy.

2. Discuss the Ellis and Davey classification of dental trauma. Explain the management aspects of Ellis class III fracture of tooth 11 in a 10 years old child.

Short essay **4X 5 = 20**

3. Classify theories of child psychology. Explain in detail about Freud's theory.

4. Define and classify ECC. Write in detail about its stages and management.

5. Classify oral habits. Explain in detail about the Thumb sucking Habit.

6. Define pulp capping. Mention indication and describe briefly the medicaments.

Short notes. **3 X 10 = 30**

7.Gum Pads.

8. Diet counselling

9. Battered child syndrome

10. Apexification VS Apexogenesis

11. Rampant caries

12. Nitrous oxide inhalation sedation

13. Dental Home

14. Contingency management

15. Modifications of GIC

16. Oral Screen.

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Pedodontics - Retest

Sreenandana.k
47

30½
15

Classification

I - Convulsions - epileptic
- hematological disorders - leukemia

I - Blind or partially blinded
deaf or partially deaf
mentally disabled child
physically disabled child

Cerebral palsy

Clinical features

1) head reclined and wide mouth open
2) tongue finger shaped, protruded
3) Drooling of saliva
4) Anterior open bite
5) proclination of maxillary anteriors → Trauma results
6) overjet more
7) wave like movement of tongue

Dental management

1) Appointment schedule

→ schedule appointments in short period.

→ first dental visit

→ ~~Intern~~ meet the entire dental team and done family tour at dental office → to enhance good relationship with child

→ ~~Bring~~ Inform patient to bring electronic devices or playboard of child with them

→ Brings toys of child to reduce his/her anxiety

→ ~~Bring medical~~ Inform parents to bring medical records, files about child health, underlying disease six ...dank

→ start with simple procedures, later are complex procedure.

→ wheel chair, dental treatment can start at wheel ch... or can be done in dental chair by a lift process

→ Aft seating dental chair, head supported with Assistant at midline. If upper part is going to bend, then use strap or If lower part is going to bend use ~~soft~~, ~~red~~ hip reclining angle 120° in relation to trunk, and place soft foam rolls

→ use ~~while taking radiogr~~ mouthprops canbeused

→ while taking radiograph procedures, head titled at obtuse angle and reverse bitewing radiograph taken

→ 38% SDF, Atraumatic restorative techniques areused

→ Removable ~~de~~, fixed dental prosthesis are not done for CP patients

→ Extraction ~~done~~ ~~is~~ prefered over pulp therapy

→ ~~parents~~ To communicate with child, parents are used as assistants

Oral preventive care

→ Inform the patient to clean patients teeth with soft cloth

→ And also done fluoride application biannually

→ use pin pointed fluoride paste to clean teeth toothbrush

→ Avoid frequent snack b/w meals, can cause caries

→

Classification of Anterior teeth fractures

Ellis and Davey classification

Class I :- ~~a~~ fractures involving enamel
Class II :- fractures involving enamel, dentin
Class III :- fracture involving enamel, dentin, pulp
Class IV :- Traumatized [illegible] tooth become nonvital
Class V :- ~~Avl~~ Avulsion
Class VI :- Root fractures with or without crown fracture
Class VII :- Displacement of tooth neither crown or root fracture
Class VIII :- fracture of crown en masse
Class IX :- Fracture of primary teeth
According to Cohen :- Cracked tooth
According to Mathewson :- Cyclic dislocation of tooth

WHO classification

Class I :- fracture of enamel
Class II :- fracture of enamel, dentin
Class III :- fracture of enamel, dentin, pulp
Class IV :- Traumatized tooth
Class V :- Avulsion

~~Ad~~ Andreasen classification

1) Hard tissue
⇒ complicated crown fracture
→ uncomplicated crown fracture
⇒ complicated crown root fracture
→ uncomplicated crown root fracture

2) soft tissue
⇒ laceration
→ contusion

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Luxation and
Associated fractures

- → Luxation
- → Subluxation
- → Lateral luxation
- → Extrusion
- → Intrusion

Crown fracture management

→ Involve enamel, dentin, and also there is pulp involvement

Clinical feature → mobility

→ bleeding

→ tenderness, pain

→ pulp capping can done / pulpotomy

→ pulp after isolating the tooth, clean with saline and haemostasis achieved

→ pulp capping done with $Ca(OH)_2$ and TF is given (with crown [illegible]

→ If any laceration occur of gingiva near the tooth, suture

→ Tetanus prophylaxis given to prevent infection

→ pulpotomy done with removal of coronal portion of pulp and for regeneration of radicular pulp

Isolate and anesthetize
↓
Remove debris
↓
Remove coronal pulp, irrigate pulp chamber
↓
radiograph taken
↓
Restoring and [illegible] done
↓
Permanent restoration, TB

6

Theories of child psychology

1) Freudian / physcoanalytical theory / psychosexual theory
2) physico social theory
3) Cognitive theory
4) classical conditioning
5) operative conditioning

1) Freudian's or psychoanalytical or psychosexual theory

⇒ The Freudian says that human mind compared to iceberg which has upper visible compared to conscious mind and below invisible compared to unconscious mind

⇒ 2 Components of : - phi (sensitive of emotion) and psi (storage of emotion)

when emotion achieved at a level, a discharge occur. called archaic discharge

⇒ And there is preconscious , which indicates available memory

⇒ Conscious mind indicates present thought, memories

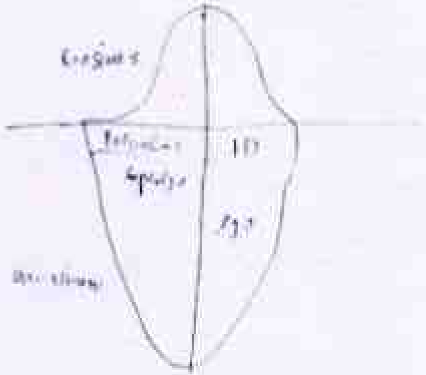
⇒ Unconscious ⇒ a simple desires of stupid, motives of artist and scientist

→ physchic triad

(1) Biologic drive ⇒ ID (pleasure principle)

(2) Superego :- parents teaches the values and morals of society to child. and they judge as correct or wrong

3) Ego :- It is between ID and ego and it makes pain & guilty feeling.



Stages

(1) Oral stage

Age :- 1-1.5 years

~~A~~ Erogenous Zone :- mouth

Activities :- sucking, eating

⇒ ~~m~~ It's not about food only but also mother love for infants

⇒ If forcefully or pressurized ~~breast~~feeding can result in fixation in child

Fixation :- smoking, sarcasm, drinking

2) Anal stage

Age :- 1.5-3 yrs

Zone :- Anus

Activities :- Bowel movement

→ Toilet training → ~~both~~ parents teach how to use toilets

2 Components

(3) Anti expulsion effect

→ If parents are fail to teach or train the children, he or she become ~~a~~ reckless, ~~dirt~~ sloppy, carelessness

4) Anti retention effect

→ If parents are too ~~strict~~ strict or pressurizing child

• Can result in clean, stubbornness in others

3) Urethral stage
Age :- 3-4yrs
Zone :- urethral region
Activities :- micturation
→ children (boys) micturate as and like father while urinating

4) Phallic stage
Age :- 4-5yrs
Zone :- genitals

These 2 names are :- oedipus complex and electracomplex

⇒ In case of boys They have attraction towards his mother and they ~~to~~ behave like father called oedipus complex

⇒ But they have fear of father (castration fear)

⇒ In case girls, they have attraction towards father and they compete with mother, and she thinks that she has no genitals has father and ~~son~~ brothers and she has anger towards mother (penis envy)

Fixation
In boys :- Anxiety ~~towards~~ fear towards sex
In boys :- envy and inferiority

5) Latency
Age :- 5-11
Zone :- genitals
→ They start to find same gender attraction, friendships, ~~for~~ peer
→ Engage in sports

pre

Pubertal stage

Age : [illegible]

Sex : [illegible]

→ relationships, love, partnerships

→ depend on hormones, glands

Method Applicable

4) ECC → Early childhood caries

→ They are caries involving first maxillary incisors ~~and~~ following it spreads other dentition

Classification

Type 1 :- mild to moderate
- → involve molars, incisors
- → due to sugar items, lack of hygiene
- → 2-3 years

Type 2 → moderate to severe
- → labiolingual surface of incisors
- → prolonged breastfeeding, lack of hygiene
- → birth

Type 3 → Severe
- → lack of hygiene

Stages

Stage 1 → Initial reversible stage
- → 10-18 months
- → cervically, interproximally chalky white discolorations
- → no pain

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- Stage 2 :- Damaged incisor stage
  - → 18-24 months
  - → maxillary incisors, posterior labial, yellow colour discolouration
  - → pain on cold items

Stage 3 :- Deep carious stage
- → 24-32 months
- → It can direct chew into 16-24 months
- → molars are affected
- → pulp involvement of maxillary incisors

Stage 4 : Traumatic stage
- → 32-45 months
- → pulp involvement of molars
- → Trauma loss of incisors

Management

→ oral hygiene instructions :- Brushing techniques, methods of cleaning

→ Diet counselling
- Inform parent to avoid sticky foods, use sugar substitutes
- After ~~night feeding~~ rate diet, frequency, duration
- Avoid in between snacks b/w meals can cause caries

→ Fluoride treatments
- → use pea-sized fluoride paste for children
- → Application of fluoride varnish to teeth and sealants
- fluoride treated drinking water

Pedodontics

Then restorative treatment is good for existing caries

→ 85% [illegible] will not

→ 9% preferred for children

5 Habit:
→ It is an action or act, becomes progressively repeated performance, fixed, constant and automatic (3marks)

II Classification
1) compulsive and noncompulsive
2) physiological and pathological
3) normal and Abnormal habit
4) meaningless and emptyful habit

II) 1) pernonpressure habit ⇒ mouthbreathing
2) pressure habit lip sucking ⇒ lip, thumb
biting ⇒ nail, lip

Thumb sucking

→ Classification
Type I :- placement of Thumb against palate, contacting maxillary and mandibular anterior teeth
(pad of)

Type II :- placement of thumb in mouth against palate, contacting maxillary and mandibular teeth

Type III :- placement of thumb beyond first joint against palate contacting maxillary teeth not mandibular teeth

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Type III - placement of type of thumb applied in maxil

Theories

(1) Freudian theory : states, ~~oral~~ mouth is erogenous zone, in babies taken everything into mouth

(2) oral drive theory : Naturally the prolonged breastfeeding but Also → not only the weaning of feeding but also prolonged nursing can cause thumb sucking

(3) If anything that touches babies cheek, they have tendency to suckling it

Etiological factors

- Socioeconomic status
  - → high socioeconomic status, more nutritious to mother, more milk
  - → low socioeconomic class, donot get proper nutrition, hence less milk,
- working mother
  - → babies are taken care by caretakers
- order of birth
  - → Recent child get more milk
- No of siblings

Clinical features

In maxilla

→ Increased maxillary anterior proclination
→ Increased maxillary arch length
→ Anterior placement of Apical base of maxilla
→ high palatal arch
→ Increased ~~the~~ clinical crown length

medicament [illegible] [illegible] [illegible]

(a) Direct pulp capping

→ Removal of all carious dentin and placement of medicament
over exposed or uninfected pulp to help healing of pulp

Indications of indirect pulp capping

1) Teeth with no pain
2) no mobility
3) on clinical examination :- carious lesion [illegible]
Radiographic examination :- normal radiographic appearance
normal PDL and lamina dura
no radiolucency are seen

Contraindications

→ teeth with spontaneous pain
⇒ mobility
⇒ radiograph showing periapical lesions

Procedure

Isolate, Anaesthetize
↓
Remove carious dentin with slow speed bur
↓
Irrigate with saline
↓
$Ca(OH)_2$ placed or can placed - 6-8 weeks
↓
Recall after 6-8 weeks, if radiograph showing dentin
bridge formation then restoration

iii) Control
Indication of Direct pulp capping

→ Small carious exposure with little bleeding
→ No pain

Isolate and Anesthize
↓
Remove all carious dentin with slow speed round bur
↓
Irrigate with saline, haemostasis achieved
↓
ZOE placed, TF given
↓
Recall after 6 weeks, final restoration

pulp capping agents

1) Zinc oxide eugenol
2) ~~Ca~~ calcium hydroxide
→ It is at high alkalinity (pH-11) cause antibacterial effect and hard tissue formation
→ necrotic zone form adjacent to dentin bridge, later this zone resorbed and replaced by dentin bridge
→ It has 2 forms :- setting and non setting
→ white crystalline structure
→ Available as :- Dycal, pulpdent, hydrex
→ Antibacterial effect due to release of OH⁻ ions

3) MTA → mineral trioxide Aggregate
→ It is tricalcium silicate, tricalcium phosphate, tetracalcium aluminate, ~~tet~~ Bismuth oxide, titanium oxide

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→ In mandible
→ Retrognathic mandible
→ Retroclined mandibular teeth

Others

→ hypotonic upper lip
→ hyperactive mentalis lip
→ long narrow face
→ callus formation of thumb

Management

→ 1) Tongue blade
1) Thumb guard
2) Dunlop hypothesis :- Ask patient to deliberate action of minor child
This will prevent child from thumb sucking
3) Three alarm system
1st alarm :- wrap tape finger with ~~guard~~ sock, when child start to place finger in mouth, and he get alarmed due to sock in mouth
4) chemicals rubbed on fingers :- Acceptable

---

6) Pulp capping
1) Direct
2) Indirect

Indirect pulp capping
→ It is procedure involving removal of carious dentin and retain small amount of carious adjacent to pulp to avoid exposure of pulp and placement of

→ Titanium oxide in MTA ~~ab~~ contact with tissue fluid and form CaoH
→ Induce hard tissue and dentin bridge formation

4) Corticosteroids and antibiotics
→ hydrocortisone, penicillin
5) Isobutyl cyanoacrylate
6) Bone morphogenetic proteins
7) Collagen fibers
8) Denatured albumin

Short notes

Gum pads

→ Alveolar process of infants called gum pads
→ ~~B~~ It is horse shoe shaped, firm, pink and covered by dense layer of periosteum
→ It is divided into labiobuccal and lingual by dental groove
→ lateral sulcus :- at canine and molars regions, It is formed by transverse groove. each segment represents developing tooth sac.
This determines interarch relation

→ maxillary gum ~~pads~~ pade is wider than mandibular gumpad
→ When 2 are approximated, there is contact in posterior region and open in Anterior region result in infantile open bite which helps in suckling

Diet couns

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Nitrous oxide conscious sedation

→ Indication :- cooperative child with lengthy procedure
fear, apprehensive child
Anxiety child

Contraindication :- child ~~with minimal~~ mouthbreathing
child who has cobalamine deficiency
child who has immunosuppression
upper respiratory tract infection
Asthma.

objectives

- To eliminate avoidance behaviour
→ To eliminate fear and anxiety
⇒ To deliver quality dental treatment

procedure

place mask over the nose
↓
Deliver 100% O_2 for 2-3 min through nose
↓
Ask patient to breathe through nose
↓
Deliver nitrous oxide
↓
note self sensations felt ie, gibbing, tingling of thumbs lips
↓
Adjust 30% nitrous oxide and 70% oxygen
↓
Deliver oxygen then through mask

Side effects

→ vomiting
→ nausea

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modifications of GIC

1) Cermet :- powder :- sintered silver powder - glass powder - 5% titanium oxide
liquid :- glass ionomer liquid

2) ~~silver~~ silver sintered silver alloy with glass powder → miracle mix

3) Resin modified GIC

Contingency management

a) Tell show do

→ First tell patient, what you are going to do and second Demonstrate how you are going to do and third do the procedure in demonstrated ways

→ Always speak with firm, soft, confident voice, while you are doing it, before you do it, after doing it

b) modelling

⇒ Audiovisual modelling

⇒ visual modelling

Distraction

i) Distraction

ii) Hand over mouth

iii) use of second language

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SILPA.P
Roll No: 45
Part II

26/5/2023

MODEL EXAMINATION - RETEST

PEDODONTICS & PREVENTIVE DENTISTRY

---

1. Classification of Special Healthcare Needs

33/70

1. Syetemic disorders - Hemophilia
2. Mental disorders - Retardation
3. Physically handicapped - Polio
4. Osseous disorders
5. Nutritional disorders
6. Psychological disorders
7. Hypomotive patients.

Another clasification
- Blind or partially blind
- Deaf or partially deaf
- Mute
- Mental retardation
- Physically handicapped
- Bone defects.

CEREBRAL PALSY

~~Re~~ Classification

- Epiotatic
- Tremor
- Kinetic
-

→ Dental management

- Schedule the appointment for a non busy working day (non-crowded atmosphere)
- Familiarize the dental clinic atmosphere to the family and child.
- Make a good rapport between the receptionist, staffs of the clinic with the child, that will reduce the anxiety towards dental treatment.
- If the child uses pictures or any electric devices to commentate ~~say~~ then dentist should try to communicate to the same method.
- Give instructions to the child slowly and clearly
- Make the child familirize with the equipments.
- Some patients may exhibits gagging during dental radiography
- Modifications of the regular radiographic technique should be carried out.

  45° angulation

- Fluoride therapy – by using silver sodium fluoride

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→ Oral preventive care

* Oral manifestations

- Occurrence of nursing bottle caries
- Rampant caries
- Poor oral hygiene
- Gingivitis, periodontitis
- Calculus deposition
- Gingival bleeding
- High caries index
- Halitosis
- Malocclusion
- Speech problems
- Lip biting
- Biting of buccal mucosa

→ Oral preventive care

- Educate the parent about the maintenance of good oral hygiene
- Diet counselling
- Ask the parent to bring the child for routine dental checkup for every 6 months.
- Do non-invasive dental procedures
- Prescribe fluoridated toothpaste and customized tiny toothbrush according to the patient
- Educate the patient about toothbrushing techniques.

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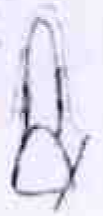
- Restore the carious tooth with glassionomer cement
- Perform ~~fluor~~ topical fluoride application
- Use silver calcium fluoride
- Use of mouthrinse ~~in case of~~ loss of mechanical ~~manual~~ dexterity

2. ## ANTERIOR TEETH FRACTURES

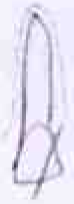
→ Classification

Ellis and Davey's classification of Teeth fracture

Class I — Fracture of teeth involving enamel only
Class II — Fracture of teeth with enamel and dentin without pulp exposure
Class III — Fracture of teeth with pulp exposure
Class IV — Traumatic tooth which is non-vital without any root or crown fracture.
Class V — Complete loss of tooth (Avulsion)
Class VI — Trauma of ~~tooth without~~ root with or without crown fracture.
Class VII — Displacement of tooth with or without crown fracture
Class VIII — Loss of crown en masse
Class IX — Fracture of ~~per~~ deciduous teeth



Class I



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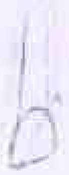
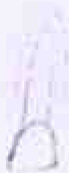


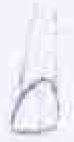
Class III



Class IV

Clas V

Class VI



Class VII

Class VIII

→ Management of Ellis Class III fracture

Ellis Class III fracture → Tooth fracture involving enamel, dentin and pulp.

Management options → Pulp capping
Pulpotomy
Pulpectomy
RCT.

* ~~[illegible]~~

* Pulp capping

- Indicated in Ellis' class III fracture with ~~p~~ small pulp exposure or pin-point bleeding on the cavity floor.

- Apply pressure to the bleeding site using cotton and stop bleeding.
- Application of calcium hydroxide on the floor and restore the cavity with zinc oxide eugenol.
- Recall the patient after 1 week and take diagnostic radiographs.
- Remove the temporary restoration and replace it with a permanent restorative material.

* Pulpotomy

- If the pulp exposure is more, pulpotomy is performed.
- Its a vital pulp therapy procedure.
- Removal of the coronal portion of pulp tissue and filling the pulp chamber with medicated or non medicated material.
- Steps:

Removal of the carious tooth structure and debris
↓
Deroofing of the pulp chamber
↓
Removal of the coronal pulp with excavator
↓
Application of cotton pellet on the pulp chamber to arrest the bleeding
↓
Apply ~~for~~ cotton pellet dipped in formocresol into the pulp chamber
↓
~~the~~ Place a dry cotton over it to prevent the tissue exposure with formocresol

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↓

Remove the cotton pellet and check for fixity (brownish color on the pulp)

↓

Place calcium hydroxide paste on the pulp chamber

↓

Restore the cavity with zinc oxide eugenol and recall the patient after 1 week

↓

Restore the cavity with permanent restoration

↓

Stainless steel crown is placed.

* Pulpectomy

- Indicated in non vital tooth
- Extensive, uncontrollable pulpal hemorrhage
- Pain, abscess

- Steps:

Administration of local anesthetics

↓

Isolation of tooth

↓

Removal of carious tooth structure and debris

↓

Deroofing of the pulp chamber with fissured bur

↓

Removal of pulp tissue with excavator

↓

Removal of radicular pulp with

↓

Filing of the root canals

↓

Irrigate the canals with saline

↓

Dry the canals

↓

Place a slurry of calciumhydroxide into the root canals

↓

Place the thick mix of calcium hydroxide in pulpchamber

↓

Cavity is restored with temporary restoration.

↓

After reviewing

↓

Restore the cavity with permanent restoration

↓

Place stainless steel crown.

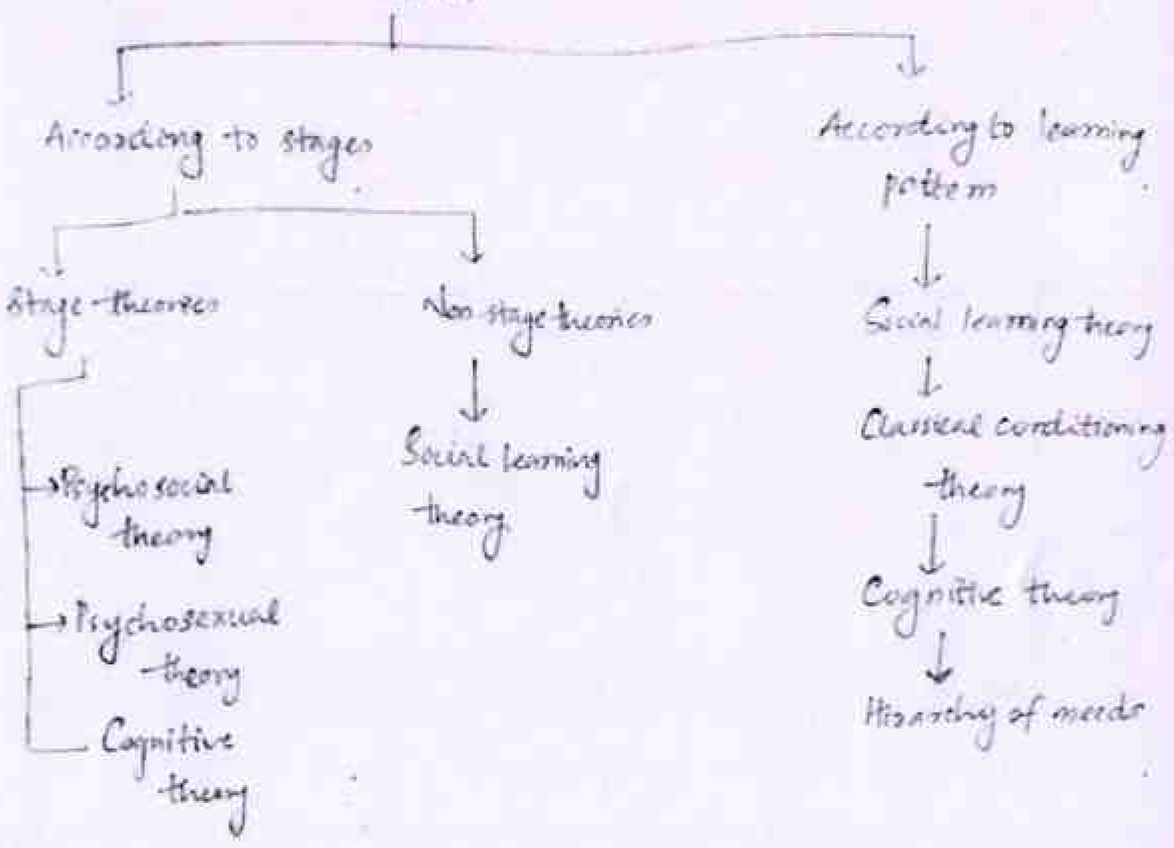
* Apexogenesis

- If the tooth apex is not closed and incomplete root formation, then apexogenesis is performed in vital teeth.
- Application of medicaments which induce the root formation

* Apexification

- In non vital teeth, root formation is incomplete and open root apex, apexification is carried out.

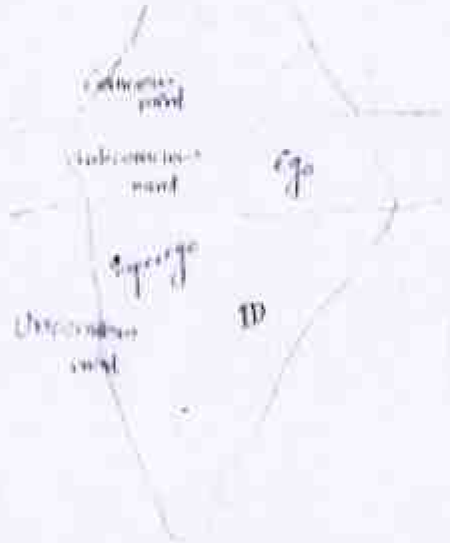
THEORIES OF CHILD PSYCHOLOGY



FREUDIAN THEORY

- Also called psychoanalytical theory.
- Proposed by Freud
- He stated that there is 2 types of neurons
  - a) Phi neurons
  - b) Psi neurons

- Freud compares the human psychology with an Iceberg



- The exposed small part of the Iceberg resembles to the conscious mind
- Below the conscious mind, a narrow subconscious level is present. It relates with the previous memories but which is not in the present situation but it comes in mind during certain situations
- The large submerged portion is the unconscious mind. It relates with the previous experiences, memories etc.
- There are 3 main concepts by Freud
    a) ID
    b) Ego
    c) Super ego

ID → related to the pleasure gratification.
For example : need of food or drink
'I want it'

Ego → related to the restriction of ID due to the influence of society.
'I want it, but its not right'

Superego → Change in the need of the child according to society.
"'I want it, I need to change the plan'.

Stages

1. Oral stage
2. Anal stage
3. Urethral stage
4. Phallic stage
6. Latency
7. Genital stage

1. Oral stage (1–1.5 years)

Area of focus – oral cavity / Mouth.

Gratifying Activity – Eating, drinking, sucking, biting

Positive outcome — If the child is

Dental management – Children show [illegible] with parents So dental treatments should be carried out in presence of parents

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2. Anal stage

Age - 1.5 - 3 yrs

Area / Organ of focus - Anus

Gratifying activity — Fecal expulsion and retention

- Children develop pleasure in withholding and expulsive activities of feces.
- Important role in toilet training.
- If the parents do not train the child about society's rules on fecal withholding or expulsion, the child will become untidy, less confident, low self esteem, narcissistic behaviour.
- If the parents are too strict and develop retentive habit in child, the child will develop an organized, clean ~~and~~ behaviour. Irritates on other with untidy behaviour.

3. Urethral stage

- Age — 3 - 5 years
- Organ - It's a transition stage between anal and phallic stage. So it shows characteristics of both.
- Gratifying activity — Pleasure in urination.
- It is almost similar to anal stage.
- Here the child develop pleasure in urination

4. Phallic stage

- Age 4 - 7 years
- Area or organ - None
- In this stage, child develops attraction towards the parent of opposite sex.
- Electra complex
- Oedipus complex
- Male child develops attraction towards mother and at the same time fear and anger towards father.
- Female child develops sexual attraction towards father and anger towards mother. But imitate the activities of mother to be like her and tries to impress father

-

5. ~~Genital~~ Latency

4

- In this stage, the childs area of activities changes.
- It changes into school and friends
- Child develops the interaction between same age group and make friendships.

6. Genital Stage

- Puberty stage
- Area or organs - Genitals
- Gratifying activity - relationship with opposite sex.
- In this stage, development of sexual attraction towards opposite sex

4. ECC [Early Childhood Caries]

→ Definition

According to AAPD (2004), the early childhood caries is defined as the presence of one or more filled, decayed or missing tooth surfaces ~~to~~ under the age of 6 years

→ Classification

Type I - Mild
Caries confined to the maxillary anterior teeth.
Discoloration of teeth

Type II - Mild to moderate
Caries in maxillary anteriors, canines and sometimes molars

Type III - Severe
Caries present in all the teeth
Loss of toothsupport due to extensive caries
Pulp exposures

▽ Management of ECC

First Visit

- Educate the parent about the situation
- Ask the parent about the feeding habits of the child especially at night
- Ask the parent to avoid night time bottle feeding
- Instruct parent to change the bottle feeding if it is difficult ask to use plane water as the content
- Wash and clean the child's mouth after each feeding

- Do excavation of the caries
- Do restoration of caries with restorative material like GIC
- Application of topical fluorides.
- Ask the parent to make a diet record for 1 week. It should include time, frequency, type of food, consistency of food and sugar exposure.

Second Visit

- On second visit, evaluate the diet record of the child.
- If diet counselling required, counsel the parent and child about proper diet to avoid further incidence of caries

- Perform pulp therapy procedures if needed.
- Extraction of grossly decayed teeth and advice for space maintainer based on the missing teeth.

PULP CAPPING

→ Definition
→ Indications
→ Medicaments used in pulp capping.

→ Definition

- Pulp capping is defined as the pulp therapy procedure in which retaining the small amount of dentin thickness to avoid pulp exposure and placement of medicated or non medicated material on it.

→ Indications

- Pin point hemorrhage
- Asymptomatic tooth
- Absence of abscess or cyst
- Non mobile tooth
-

→Medicaments used in pulp capping

* Calciumhydroxide
  - · Commercially available form - Vitapex, Metapex
  - Exhibits antimicrobial property
  - Act as a barrier between the restorative material and pulp
  - Prevent ingress of ~~microbacte~~ micro organisms into the pulp
  - Promotes secondary dentin formation.
  -

2½

* Zinc oxide eugenol
  - It is one of the commonly used pulp capping material
  - Posses obtudent, activity
  - Reduces the pain.
  - Shows bactericidal activity.

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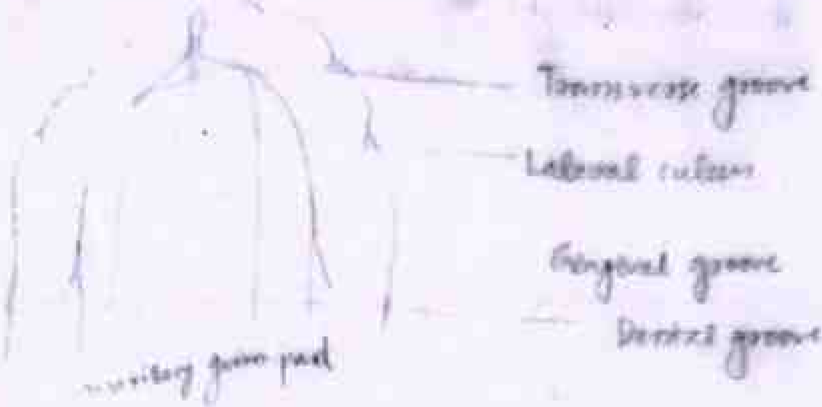
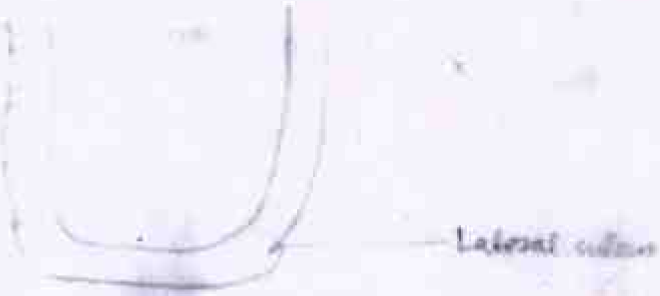
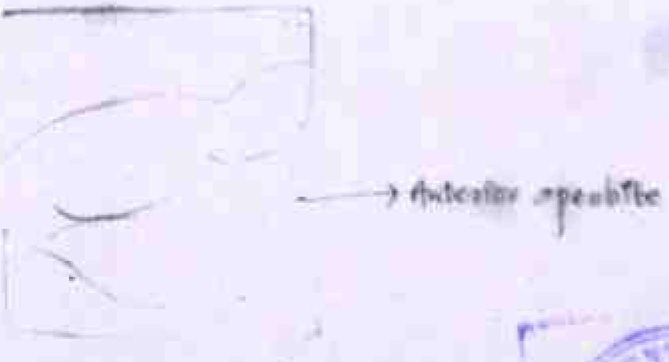
7. GUM PADS



Maxillary gum pad



Mandibular gum pad



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- Gum pads are present in the predentate period 5
- They are ~~mucous~~ mucosa lining the alveolar process
- They are horse-shoe shaped structures
- The mucosa is soft, firm, pink in color
- Shows gingival groove which separates the buccal gum pad ~~with~~ from lingual part
- There are 10 ~~lateral~~ transverse grooves it separates 10 areas of the gum pad and consists of tooth bud
- The transverse groove present between canine and molar is called lateral sulcus which is a demarcation of the gum pads.

2

- The upper and lower gum pads contacts only in the posterior region. and open in anterior region
- Openbite due to the position of gum pad helps in sucking.

8. DIET COUNSELLING

- It is a part of preventive dental treatment.
- The incidence of caries are due to the type of food intake of the child.
- Proper diet counselling can help in the prevention of caries incidence.

1½

- The diet chart includes time of intake, type of food, frequency, amount of food, consistency of food and sugar exposure.
- Record the diet chart → Calculate the diet score
- Dental diet score = (Food score + Nutrient score) – (Sweet score)

- Sugar score:

  Solid – 10 (chocolates, candy, biscuits)
  Liquid – 5 (fruit juices)
  Semisolid, sticky – 15

- Inference

  Sugar score 5 – Good
  10 – Fair
  >15 – Watchout zone.

Watchout zone requires diet counselling.

10.

Apexification	Apexogenesis
- Severely necrosed tooth - Non vital pulp therapy performed incase of open apex and incomplete root formation. - Young permanent teeth	- Necrosed tooth. - Pulp therapy in which closure of apex is induced using medicaments

½

11. RAMPANT CARIES

- Extensive caries in oral cavity.
- Commonly affected in maxillary anteriors
- Mandibular anteriors are less commonly affected due to the action of saliva.
- Severe destructure of tooth and causes loss of ~~tooth~~ structure.
- Appear as ~~brow~~ brown - black colored caries on the labial surfaces and occlusal surfaces.

½

12 NITROUS OXIDE SEDATION

- It is the commonly used chemical for conscious sedation.
- In conscious sedation, the patient can follow the instructions of the dentist without loss of consciousness.
- Nitrous oxide is a fruit smelled gas which is highly volatile on exposure.

- Step.

Administer 100% oxygen to the patient through nose.

↓

Slowly administer nitrous oxide to the nose

↓

Apply nitrous oxide ~~upto~~ until it reaches 30% nitrous oxide and 70% oxygen

↓

Ask the patient about how she/he feel and confirm the sedation effect

↓

Do the dental procedure

↓

Monitor the vitals during the procedure

↓

After completion ~~the~~ of dental procedure

Administer 100% oxygen to prevent diffusion hypoxia

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→ Indication

- Mild to moderate anxious patients

→ Contraindication

- Patients with breathing difficulties, nasal blockage.

→ Diffusion hypoxia

- After the removal of nitrous oxide administration, there will be disturbance in the oxygen - carbondioxide balance in alveoli and causes hypoxia ⇒ Diffusion hypoxia.
- To prevent this, 100% oxygen is given for 5 minutes for the patient at the end of the treatment.

DENTAL HOME.

- Hand Over Mouth Technique
- ~~It is one of the non-pharmacological near behavior management in dental office.~~
- ~~Performed to patients who are not listening to the dentist and keep on crying or shouting.~~
  - ~~A tissue or towel is placed on the patients mouth, sometimes covering the nose also.~~
  - ~~This will reduce the anxiety of the child and dentist can communicate with the child~~

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→ Contraindication

- Should not perform in patients with breathing problem
- Dentist who is emotionally attached to the child.

- HOME should be performed with parents concern
- ~~Tell~~ Remove the towel from the patients mouth when the child agree to cooperate otherwise repeat the technique

14 CONTIGENCY MANAGEMENT

- It's a type of non-pharmacological behaviour management.
- In this technique, the child ~~is~~ gets rewards for their performance.
- Positive reinforcement → Give toys, balloons or stickers for the cooperation and appreciate them.
- Negative reinforcement → Avoid parents presence ~~for~~ during dental treatment

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16

ORAL SCREEN

- It is used in the treatment of mouthbreathing

- It consists of an acrylic part which covers both upper and lower teeth and extends upto the vestibule
- A metal ring is attached to the centre of this appliance
- Small holes are drilled in the acrylic portion and the number of holes are reduced by filling them with acrylic as the treatment progresses.

15 Modifications of GIC

* Compomers

- It exhibits the properties of both composite resin and glass ionomer cement
- Possess good strength, wear resistance, superior esthetics, dimensional stability

* Resin modified GICs

- Improved strength and wear resistance

Fathimathu Jeshana
Roll no - 18
①

PAEDIATRIC DENTISTRY - RATESH

44½ / 70

1 SPECIAL HEALTH CARE NEEDS

Classification

i Fonda and Winter classification

Physically differently abled
Maladjusted
Blind or partially sighted
Deaf or partially deaf
Educational subnormal
Epileptic
Defective speech
Semi

ii Nowak classification

Medically compromised - Hemophilia
Osteogenic - Rickets
Mentally differently abled - Down Syndrome
Systemic diseases - Hypothyroidism
Physically differently abled - Cerebral palsy
Malignant - Leukemia, Rabdomyosarcoma
Convulsive - Epilepsy

iii Classification of Cerebral palsy

Static - Hemiplegic
Quadriplegic
Diplegic
Dyskinetic - Athetosis
Dystonic
Atonic

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4 Mental retardation

Mild - Communication

Moderate - Basic communication

Severe / Profound - Less or no communication, eg: Mute or grunt communication

CEREBRAL PALSY

It is a combination of disturbances in motor senses due to impairment in nerve pathways to m

Etiology

- Prenatal - Infection
  Teratogenic drugs
- Natal - Traumatic delivery.
- Postnatal - Cerebrovascular disease
  Cerebral anoxia
  Cerebral trauma

Oral manifestation

- Poor oral hygiene
- Dental caries
- Periodontally weak tooth
- Hypotonic lips
- Malocclusion
- Injuries to oral structures
- Oral ulcers

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Management

→ First visit

Don't do any procedure during first visit.
- It is a breakthrough
- Introduction the dentist of child with dentist and dental assist
- Diagnosis and plan for treatment.
- Take radiographs if necessary.
  ~~2 positions~~ - Oblique 45° head plate.
  Reverse bite wing.

- ~~Later~~ Caries excavation ~~done~~ and restored with GIC.
- If pulp is exposed due pulp therapy procedures.
- Advice single visit endodontic procedures.
- If the tooth is with poor prognosis and non restorable. Adv for extraction
- Head position is done properly.
- If patient is in wheel chair try to do the procedure in itself.
- If not transfer the patient to dental chair with the help of a assistant.
- Use non-pharmacological behavioural management techniques like physical restraints.
- Before using physical restraints take a consent from the parent.
- Conscious sedation and general anesthesia can be also admin
- Removable appliances are contraindicated in the patient char of aspiration of metal components and cause injury.
-

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ORAL PREVENTIVE CARE

- ~~Patient~~ Parent should assist patient for brushing teeth
- Fluoridated toothpaste should be used
- Avoid sucrose containing food
- Avoid sticky food
- Systemic fluoride application
- Pit and fissure sealant application.
- Try for atraumatic restorative technique.
- Fluoride varnish application
- Acidulated phosphate fluoride biannually.

2.

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2 Classifications of Anterior teeth fractures

I Ellis and Davey's classification

Class I - Enamel fracture with little dentin involvement
Class II - Enamel and dentin fracture without pulp exposure
Class III - Enamel and dentin fracture with pulp exposure
Class IV - Non vital tooth with or without crown involvement
Class V - Avulsion
Class VI - Root fracture with or without crown involvement
Class VII - Displacement of ~~roo~~ tooth
Class VIII - Crown en masse
Class IX - Fracture in primary dentition

II Andreasen classification

Enamel infraction
Enamel fracture
Uncomplicated ~~fr~~ Crown fracture
Complicated crown fracture
Uncomplicated ~~Crown~~ root fracture
Complicated root fracture
Luxations - Concussion - Loosening without displacement
~~La~~ Subluxation - Loosening with displacement of tooth
Lateral luxation - tooth displaced laterally
Intrusive luxation - Inward displacement of ~~socket~~ tooth into the ~~tooth~~ socket
Extrusive luxation - Outward displacement of tooth out of socket
Avulsion - Complete removal of tooth from socket

Ellis Class iii

Complicated fracture

Fracture involving enamel, dentine with pulp exposure

Clinical features

- Bleeding
- Sensitive to electric pulp testing
- Pain

Management

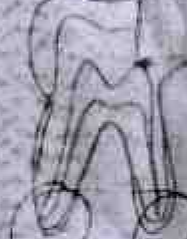
- If the fractured ~~occurs extention~~ site exposed to 0-5 mm :- Pulp capping, Apexogenesis
- If the fractured ~~occurs more~~ site exposed beyond 5 mm - pulpotomy, pulpectomy and Apexification.

Pulp capping

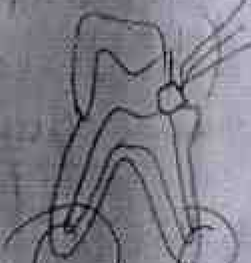
⇒ Indirect pulp capping - It is the process of removal of Carious ~~tooth~~ lesion by leaving the deep portions which will lead to exposure of pulp and use of biocompatible medicament to seal the cavity.

Indication : No history of pain and night pain.
No tender on percussion
No periapical radiolucency.
No thickening of periodontal ligament.

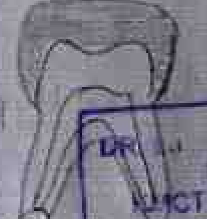
Contraindication : History of sharp, shooting pain
Night pain
No reaction to electric pulp testing.
Periapical radiolucency.



Caries excavated



Ca(OH)$_2$ placed



Permanent restoration given

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Single step

LA given

↓

Isolation with rubber dam

↓

Caries removed using low speed handpiece [only infected dentin]

↓

Avoid exposure of pulp

↓

Ca(OH)$_2$ is given ~~as[illegible]~~

↓ Temporary restoration placed

Filled with permanent restoration

↓

Recall after 2-3 weeks

↓

Look of dentin bridge formation

↓

Remove temporary restoration

↓

Now the carious dentine become dry and flaky

↓

Remove that dentin

↓

Avoid touching predentin

↓

~~Temporary~~ Permanent restoration is given

↓

Restored with stainless steel crown

Two visit approach

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→ Direct pulp capping

Removal of all carious lesion and exposed pulp is sealed with a suitable medicament →

Indication. ~~no pain~~ True pin point exposure, Controlled bleeding
~~no radiolucency~~ Presence of sound dentin around

Contraindication : Mobility
Resorption
Excessive hemorrhage
Pus discharge
Swelling.
& Periapical radiolucency

Agents used - $Ca(OH)_2$
ZnO

→ ~~Apexific~~ Apexogenesis

. It is vital pulp capping or pulpotomy to induce the development of root development

. Done using $Ca(OH)_2$.

After completion of root development RCT is done

→ Pulpotomy.

. It is the complete removal of coronal pulp and helps to promote the healing process

. Material used - Formocresol
Glutaraldehyde
Ferric sulphate
Cvek pulpotomy
Propolis
Bone morphogenic protein
Freeze dried plasma
Laser pulpotomy

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→ Structural model. It consist of ID, Superego and ego.

1) ID (pleasure principle)

It is the primitive response

~~Have~~ Immediate response

Pleasure and gratification

Eg: If a child is hunger he or she want food immediately without considering the environment. They will do anything for their immediate pleasure "I want it now"

2) Superego (Morality principle)

- It is composed of rules and moral values
- Eg: If the child is hungry he will wait until the ~~appropriate~~ lunch time is come

3) Ego (Reality principle).

- "I want it but a little planning is needed"

⇒ Stages of Psychosexual theory

1) Oral stage

Age - birth - 1.5 years.

Focus of Erogenous zone - Mouth

- Gratifying activities : Sucking, nursing, biting
- ~~Relationship~~ Interaction with environment: Primitive stage. Mainly involves feeding. Mother's breast milk is not only their food but also a symbol of love and care. Forceful feeding and early weaning leads to fixation
- Symptoms of fixation: Smoking, drinking, sarcastic behaviour

2) Anal stage

- Age - 1.5 - 3 years
- Focus of erogenous zone - Anus
- Gratifying activities - Bowel movement and its retention

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3. THEORIES OF CHILD PSYCHOLOGY

Classification

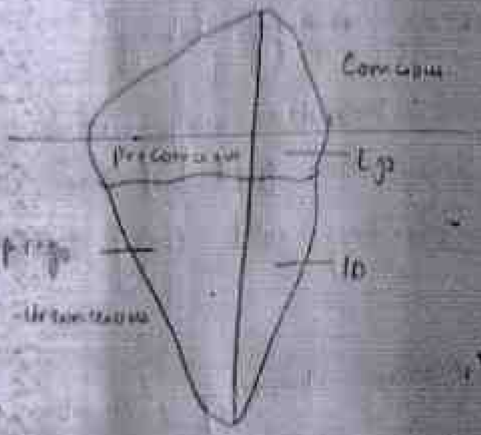
- Psychodynamic theory
  - Psychosexual / Psychoanalytical theory by Sigmund Freud
  - Psychosocial theory by Erik Erikson
  - Cognitive theory by Jean Piaget
- Theory of Social and behaviour learning.
  - Classical conditioning by Ivan Pavlov
  - Operant conditioning by BF skinner
  - Hierarchy of needs by Maslow
  - Observational learning by Albert Bandura

FREUDIAN THEORY

- Also known as psychosexual / psychoanalytical theory.
- Proposed by Sigmund Freud

→ Setting

- Our mind is composed of Conscious, preconscious and Unconscious.



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Relationship with environment: Bowel expulsive and retentive feature stage of toilet training. Child notice the pleasure of expulsion.

~~Anal exp~~

- Symptoms of fixation

- Anal expulsive - Parent is too lenient during toilet training. Child will be disorganized, messy etc.

Anal retentive - Parent is too strict and punishment is given during toilet training. Child will feel a anxiety during bowel movement and become a clean, orderly and can't tolerate them if the are not clean.

3) Urethral stage

Age - 3-4 year

Erogenous Zone - Urethra

Gratifying activity - It is a between stage of Anal and Phallic.

Relationship with environment - pleasure in urination

4) Phallic stage

Age - 4-6 year

Erogenous Zone - Genital.

Gratifying activity

Interaction with environment: Attraction for opposite sex parent

~~Electra~~ Oedipus complex: Boy will feel a attraction towards their mother. They will imitate like their father. These type of boy will feel a castration anxiety i.e the fear of been castrated by their father

Electra complex: Girl will have a attraction toward her father. Try to be with her mother. She also notice that she is not having the sexual organ like their father and brother and they will feel that the mother has castrated it. This will leads to Penis envy. This kind of child will be having a anger toward her mother

b) Latency stage

Age - 12 to puberty
Erogenous Zone - [illegible]
(b) Interaction with environment - Sexual desires are depressed and their energies are channeled for new activities like sports, making friends with same sex etc. In this period the child will come out from their home and interact with society

c) Genital stage

Age - Puberty onwards
Zone - Genital
Interaction with environment : Heterosexual attraction
~~Symp~~ This stage itself doesn't have any fixation. If they are not fully recovered from oedipus & electra complex will feel a anxiety on talking with opposite sex individual.

Dental office adaptation

- Oral stage - Dental treatment should be done with the presence of parents. Usually do the procedure placing them in parents lap
- ~~Genital~~ Anal and Urethral - Allow them to play with toys during treatment
- Phallic - More concern with esthetic Orthodontic treatment.
- Genital - More concern about the cost of treatment. Not giving much importance to aesthetics.

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8 (3)

• ECC Early childhood Caries

Definition: It is the early type of dental caries one [illegible] before during first 3 year of life

Classification

Type 1 - Mild

Age 1-2 year

Involved teeth - maxillary incisor

More cariogenic food intake

Type 2 - ~~Mod~~ Moderate to severe

Age - eruption of molars

Mandibular (lower) incisor are not involving

Due to bottle feeding

Type 3 - Severe

Age - 3-5 year

Rampant

Depends on ~~duration~~ amount of cariogenic substrate

Involving mandibular lower incisors

Management

Objective

- Isolate the carious process
- Preventive measure
- Avoid pulp exposure

2

Factors affecting

- Age of patient
- Behaviour pattern
- Stage of progression

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First visit

Caries excavation and restoration
- Fluoride varnish application
- Diet counselling - 24hour or 6hour diet chart
- Parental counselling - Add fluoride content in paste & drinking water.
- Behavioural modification Avoid night bottle feeding, Brushing techniques.

Second visit

One week after first visit
- Evaluation
- Modification of diet

Second and Subsequent visit
- Pulp capping procedures
- Extraction if needed
- Space maintenance and fixed prosthesis given

5 ORAL HABITS

Definition

It is a act of doing a activity ~~[illegible]~~ repetitively.

Classification

1) Meaningful habits - deep rooted psychological
   Empty habits - No psychological root

2) Useful habits - needed for physiological functioning like swallowing etc
   Harmful habits - No needed caused harmful effects on oral structure
   eg:- Mouth breathing

3) Compulsive -
   Non Compulsive -

4) Primary
secondary

5) ~~Anatomic~~ Physiologic - eg- Swallowing
Pathologic - due to any pathologies like obstruction and deviation of nasal septum
eg- Mouth breathing

6) Anatomic - due to anatomic defect like large tongue leads to tongue thrusting
Non anatomic - Absence of any anatomic defects.

7) Pressure habits - Tongue thrusting
Non pressure habits - Mouth breathing
Postural habits - Chin propping
Pillowing.
} Graber's classification.

THUMB SUCKING

Introduction of thumb into mouth to varying depth.

Classification

1) Physical
Psychological

2) Nutritive
Non nutritive

3) Subtelny classification.
Type A - Thumb is placed inside touching it to the upper palatal region
Contact between maxilla and mandible
Type B - Thumb rest against hard palate. Contact is present
Type C - Thumb is placed in such a way that first joint is inside the mouth. No contact between maxilla and mandible
Type D - Only little portion of thumb is inside mouth. No contact

Theories

- Freudian theory
- Oral drive theory
- Root reflex theory.
- Learning theory

Clinical features

- Maxilla : Proclination of anterior teeth
  Increased length of maxillary arch
- Mandible - Retrognathic mandible
  Retroclination mandibular teeth
- Interarch relation - Anterior openbite
  Increased overjet.
  Decreased overbite
  Posterior crossbite
- Lip - Hypotonic upper lip
  Hyperactive lower lip
  Lip incompetence
  Injury of lip
- Tongue - Tongue placed lower Collapsed arch
- Finger - Callus formation
  Clean nail.
  Keratotic lesions

Management

1 Preventive treatment

- Proper feeding.
- Allow the child to ~~fee~~ ~~dn~~ suck as much milk as they want
- If thumb sucking is noticed try to ~~imple~~ eliminate it at home
- Can be done using - Dummy pacifier

ii Chemical

[illegible], Quinine, Asafoetida.
Less effective method

iii Reminder therapy

- Three alarm system
- Long sleeves
- Bunt Home technique
- Analcom watch
- Thumb puppets
- Ace bandage
- Elbow bandage
- Thumb guard - most effective

Psychological

iv Mechanotherapy.

3½

Tongue crib appliance
Fingurake appliance
Blue grass appliance.
Modified blue grass appliance
Oral screen

Fixed ~~[illegible]~~ appliances.

Recent advance :- Light emitting diode appliance - Here when patient put the finger inside mouth a light will appears then ~~alarm~~ remind the patient

6 Pulp capping

Definition : Sealing the pulp with suitable medicament

2 types

1) ~~Dir~~ Indirect pulp capping

Procedure: Remove caries lesion wherein a small portion of deep caries is not removed as it result in pulp exposure. Seal with a suitable medicament and maintain the vitality of pulp

Indication : No history of pain
No night pain
Absence of tender on percussion
Vital pulp
No periapical pathology
No widening of PDL
No break in lamina dura
No interradicular radiolucency.

2 2) Direct pulp capping

Removal of all carious ~~too~~ lesion and exposed pulp is sealed with a suitable medicament & maintains the vitality.

Indication : Small true pin point exposure
Presence of sound dentin around the exposure
~~Thn~~ Hemorrhage that can be controlled by applying finger pressure

Medicaments used in pulp capping

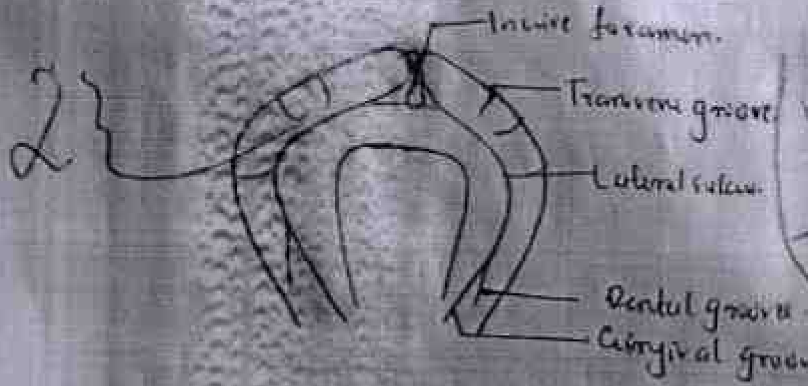
- $Ca(OH)_2$
- ZnO
- Biodentine
- Propolis
- MTA

7

Gum pads

- Seen in pre dentate stage
- Pink firm structure covered by periosteum
- Dental groove: It separates gum pad into labiobuccal and lingual parts. It moves from the incisive foramen and runs backwards and reaches a canine relation. From there runs laterally to molar region.
- Gingival groove: Separates the ~~b~~ gum pad from palate
- ~~Ga~~ Transverse groove: Divides the gum into 10 segments. Each segment containing each tooth sac.
- Lateral sulcus: Running at the canine region. Importante in maintaining the interarch relation
- Maxillary gum pad is horseshoe shaped and wider.
- Mandibular gum pad is ~~[illegible]~~ U shaped.

2



Maxilla

Mandible

Importance

- Maintaining interarch relation
- ~~B~~ Lateral sulcus of maxilla is always a head of lateral sulcus of mandible

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8. Diet counselling

- It is done to be look for their Carbohydrate intake.
- Diet score = Food score + Nutrient – Sweet score

Diet Excellent – Counselling not needed.
Adequate – Diet modification
Barely adequate – Diet counselling
Poor – Diet counselling + Diet modification

Sweet score

×5 – ~~Art~~ Liquid - Juice
×10 – Solid sticky food – Cake, Chocolate
×15 – Hard Solid, Slowly dissolving – Breath mint, Candy.

Steps

2½

1) Patient selection – Cooperative patient
2) ~~[illegible]~~ Food diary.
3) Diet chart
4) Assessment of sweet score.
5)
6) Interview
7) Teaching.
8) Counselling
9) Motivation

a. BATTERED CHILD SYNDROME

- Introduced by Dr [illegible]
- Multiple fracture and soft tissue injuries in child
- soft ~~tissue~~ fracture injuries are always followed by soft tissue
- ~~[illegible]~~ Metaphyseal fracture is more ~~common~~ commonly

b.

Apexogenesis	Apexification
Vital tooth	Non vital tooth
Vital pulp capping or pulpotomy procedure done for development of root formation	Inducing root formation of a immature pulpless tooth by formation of osteocementum.
Primary & young permanent teeth	Blunderbuss canal with open apex
Revascularization possible	Not possible
Root developed	Not formed
Materials used - Ca(OH)₂	Materials used - Ca(OH)₂, MTA, Biodentin, Bioceramics
Physiologic process	Not a physiologic process

2

c. RAMPANT CARIES

- It is acute widely spreading burrowing type of caries involving teeth that are immune to decay.
- Teeth involved - All teeth including mandibular lower incisors.
- Both primary and permanent teeth are involved.

Clinical features

- Initially white appearance over the cervical portion of tooth
- later progresses into yellowish to brownish discoloration.
- Finally will leads to fracture of entire crown.
- Teeth with pulp exposure

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Etiology
- High carbohydrate diet
- Improper oral hygiene
- Bottle feeding at night

~~[illegible]~~ Management.

1½
- Restoration
- Preventive treatment like fluoride application, ART & pit and fissure Sealant application
- Extraction along with space maintainence
- Pulp therapy.

13. NITROUS OXIDE / Laughing gas
- Odourless, colourless, non inflammable gas.

Technique

Inspect the equipment
↓
Deliver 100% O2 through the equipment
↓
After 2-3 min give nitrous oxide slowly
↓
Reduce oxygen to ~~100%~~ 70% and 30% ~~N2O~~ Nitrous oxide.
↓
After the procedure Nitrous oxide is removed and 100% O2 is given for 5 min.

2½

Objective symp

- Open mouth
- Open or closed fingers
- Tear coming from eyes

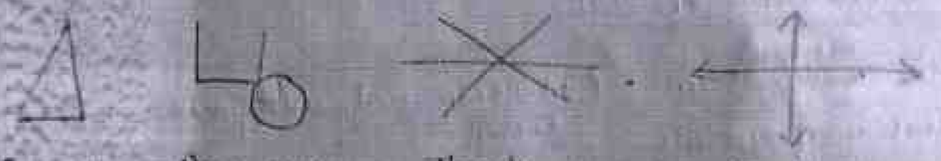
Subjective symptoms

Ask the patient ~~[illegible]~~ about the feeling

Psychomotor effect

Perform motor visual motor Gestalt test

Ask the patient to draw open square circle, triangle, directional arrow, three line cross.



Indication

- Mild to moderate anxiety
- Uncooperative patient

Contraindication

- Any systemic illness

14. CONTINGENCY MANAGEMENT

~~Introduced by~~ based on BF Skinner's operant conditioning theory

- 4 types

1) Positive reinforcement - ~~intro~~ ~~Dental~~ ~~presents~~ pleasant stimuli
eg. giving toys, stickers etc.

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2) Negative reinforcement - ~~[illegible]~~ Withdrawal of unpleasant stimuli
eg. - Stop the dental treatment
withdrawal of handpiece

3) Transient Omission - Withdrawal of pleasant stimuli like mothers ~~i.e. pleas~~ parent eg:- ~~withdrawal~~ Removal of toys.
not confused with punishment.

4) Punishment - Presentation of unpleasant stimulation
eg:- HOME, physical restraints, voice control.

Advantage : Bringing a appropriate behaviour
Elimination of inappropriate behaviour

2½

Disadvantage: Fear generation
sometime become more ~~violet~~ violent.

15 MODIFICATIONS OF GIC

- Resin ~~modified~~ reinforced GIC. - Add HEMA ~~and~~ methylmethacrylate and Chemical & Photoinitiator
- Metal reinforced GIC — Cermet / Miracle mix
- Silver mix
- High viscosity GIC
- Low viscosity GIC
- ~~powder~~ paste paste GIC
- Modified powder liquid GIC

{2+1}

17

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DEPARTMENT OF ORTHODONTICS AND DENTOFACIAL ORTHOPAEDICS

RE-TEST QUESTION PAPER FINAL YEAR PART I REGULAR BATCH

29.11.23

ESSAY

1. Classify Myofunctional appliances. Write in detail on Activator
2. Define interceptive orthodontics. Write in detail on various interceptive procedures

10X2=20

SHORT ESSAY

3. FR 2
4. Facemask
5. Hyalinization
6. Adenoid facies

5X4=20

SHORT NOTES

7. Late mesial shift
8. Diagnostic setup
9. NAM
10. Sved bite plane
11. Brodie bite
12. Benninghoff lines
13. Buccinator mechanism
14. Pitch roll yaw
15. Modifications of Oral screen
16. Safety valve mechanism

10x3=30

30/11/23
Wednesday

Orthodontics

Name: [illegible]
Roll no: 43

I.

Myofunctional Appliance

CONTENTS

- Myofunctional Appliance
- Classification
- Activator

Myofunctional appliance

Definition

Defined as Appliance that alter the [illegible] of mandible keeping it open or [illegible] forward or backward
(Rufi)

Classification

I
- Tooth borne passive : Activator [illegible]
- Tooth borne active : Activator modification
- Tissue borne : Fraenkel appliance

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sn

II)

- Group I: Transmit the entire force on teeth
  Eg: Oral screen, Vestibular screen
- Group II: Transmit the force on teeth and other structures.
  Eg: Activator, Bionator, Twin block
- Group III: operate from vestibule
  Eg Frankel's appliance
  Frankel

III)

- Myotonic appliance: Rely on muscle mass for action
  Eg: Activator, Bionator, Twin block, Herbst appliance
- Myodynamic appliance: Rely on muscle movement for action
  Eg: Frankel appliance

IV)

- Removable
  Eg Activator, Bionator, Twin block, Frankel appliance, Bite planes
- Fixed
  Eg Herbst appliance, Jasper Jumper

V)

- Acts by force application
  Eg: Activator, Bionator, Twin block, Herbst appliance, Bite planes

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