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Editorial

In today's technology-conscious world, Dental Science is progressing rapidly due to the society's urgent need for a dental practice that offers an astute and circumspect service as well as a painless and lifetime period of successful treatment. To achieve these goals of continuously improving the different procedures in dental practice, there is a compelling need for much research, the responsibility of which lies with the professionals in various disciplines that belong to this community.

A journal is an appropriate and effective mode for exchange of scientific ideas and innovations. The motive of this journal is to give the readers the best of the quality Original researches, Reviews, Case reports which would help the readers to keep the pace with the updates so as to augment the information and to stimulate interest, debate, discussion and interaction among dentists and specialists of all disciplines within the field of dentistry.

I am extremely grateful to the Authors for considering this Journal for their submissions. The editorial policy of Dental Bites is to disseminate among its readers factual information on research, clinical practice and cases of interests in Dentistry. The board is dynamic; it will offer a platform to the contributors to address the evolution and new areas of interest in the specialty.

Yours ,

Sd/-

Dr. Kunjamma Thomas
Chief Editor

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A NEW SIMPLE APPLIANCE NAMED AS “KMCT APPLIANCE” FOR CORRECTION OF CLASS II DIVISION 1 MALOCCLUSION IN CHILDREN

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Abstract

Class II division 1 malocclusions in children are treated best with myofunctional appliances. The complicated and bulky myofunctional appliances receive poor co-operation from children giving poor result. Here a simple single arch removable appliance named as KMCT appliance is being introduced. The design of the appliance, advantages of the appliance and our experience during the last 7 years are communicated here.

Keywords: Class II Div 1 malocclusion, Inclined plane appliance, Myofunctional appliance.

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Introduction

According to a European study by Brigit Thilander et al, the prevalence of Class II div 1 malocclusion among children is 14.9%.¹ An Indian study at Nalgonda by Reddy E R et al showed 13.9% prevalence of Class II div 1 malocclusion among children.² Though different studies show different prevalence at various places, there is an average prevalence of around 15%(Fig 1). This is the most common skeletal malocclusion in children than Class II div 2 and Class III malocclusions.

The different treatment modalities for Class II div 1 malocclusion can be grouped under three headings:

1. Myofunctional appliances used in children

2. Camouflage treatment in young adults and adults, extracting two premolars in upper arch
3. Orthognathic surgery combined with fixed appliance therapy

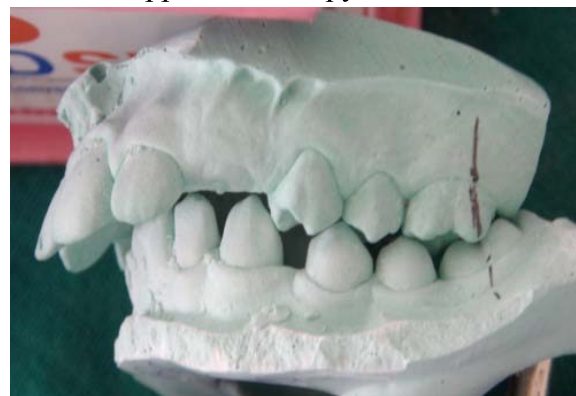


Fig 1: Characteristics of Class II division 1 malocclusion

The myofunctional appliances are used in children and are very successful if

properly worn by the child. The myofunctional appliance therapy in young children of pre pubertal stage excludes the necessity of further treatment at later ages.

The various removable myofunctional appliances used to treat Class II div 1 malocclusion in children are (1) Twin block appliance, (2) Activator (3) Bionator (4) Frankels appliances (FR II), (5) pre orthodontic aligner, and (6) inclined plane appliances. Fixed myofunctional appliances are (1) Herbst appliances (2) Jasper Jumper (3) Fors FRD, and (4) MARA (mandibular anterior repositioning appliance). Among all these fixed and removable appliances, twin block appliances gained popularity because of its success rate. All the above mentioned removable functional appliances have the disadvantage of poor patient co operation due to the bulkiness of the appliance, extending to both arches. Fixed functional appliances are more time consuming to fabricate and fix and requires imported components. Hence they become expensive appliances.

Inclined plane appliances are relatively simple involving only the upper arch and are well accepted by the children. Here a new modified inclined plane appliance is presented. This appliance has been used successfully during the last 7 years in the Paediatric Dentistry Department of KMCT Dental College, Manaserry, Kozhikode, Kerala. Hence the appliance is given the name “KMCT appliance”.

The KMCT Dental College is situated in a rural area of Kerala. The people belonging

to the villages around the college are simple and of low and medium socio-economic status. The treatments suitable for them are simple inexpensive appliances which are efficient to give good results. The present appliance is designed to suit the majority of the patient population of this hospital.

Review of literature

On searching the literature we found two studies conducted on inclined plane appliances. Emami Meiboidi Shahin et al studied on 25 children in early mixed dentition period (Fig 2), and found that it is effective as an alternative to complicated functional appliances in the treatment of Class II div 1 malocclusion.³ A modified anterior inclined plane incorporating a double cantilever spring was used by Roa S.A et al to treat a Class II div 2 patient⁴(Fig 3). The inclined planes used by these two authors are similar in design.

KMCT appliance

The new inclined plane used by us is different from these inclined planes in that it does not extend laterally towards canine and premolars. It slopes towards canine and premolars also, so that there is least bite interference. It allows sliding of lower jaw forward. The photograph of new inclined plane is given in Fig 4.

Design and construction of the new inclined bite plane - KMCT appliance

The upper and lower Impression for study models and an upper impression for working model are made.

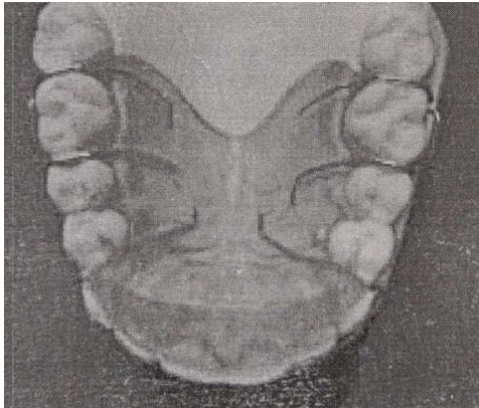


Fig 2: Inclined plane used by Emami Meiboidi Shahin et al³

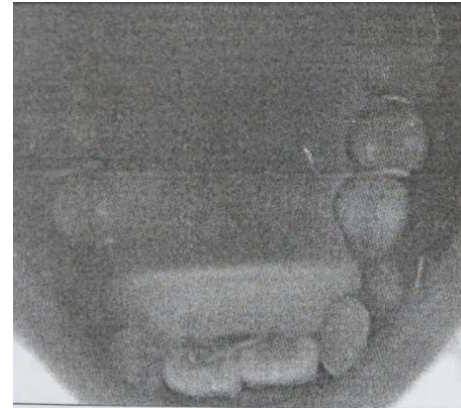


Fig 3: Inclined plane used by Roa S.A et al⁴

Examination of the study model show the extent of deep bite, over bite, over jet and the position of incisal tips on the palatal side. On a working model of the upper arch Adam's clasps are made on the 1st permanent molars and a long labial bow is also made. A Hawley's appliance is first made in self cure acrylic. A small amount of self cure clear acrylic powder is mixed with monomer in a dappen dish and allowed to reach dough stage. At that stage about 1 cubic centimetre of the acrylic is taken and added to the palatal side of the appliance and shaped with fingers or a spatula to form an inclined plane and the lower cast is placed on the upper cast and checked if the incisal tip of the lower arch is touching the slope of the inclined plane and can slide forward.

Care is taken to see that the inclined plane slopes laterally also so that there is no bite interference for canines and premolars. Also see that the inclined plane does not touch the gum on lingual surface of the lower incisors. The appliance is immersed in water and is allowed to cure. After curing it is checked on the cast to see that the mandibular incisors could slide forward in to

a class I position. There is minimal bite interference and minimal bite opening in the posterior area so that posterior teeth can rapidly erupt and settle in to new position. The child is instructed to wear the appliance 24 hrs except during eating and brushing.

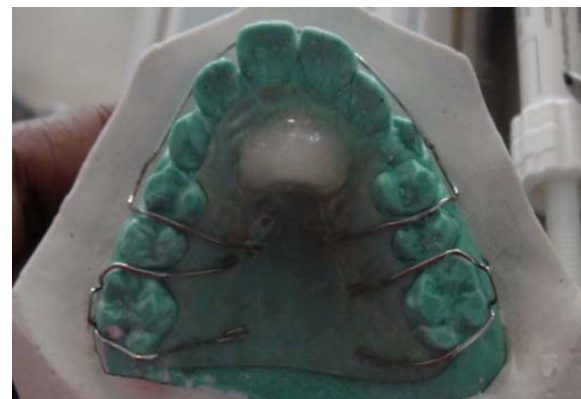


Fig 4: KMCT appliance (modified inclined plane appliance)

Treatment cost

KMCT appliance is an improved and modified inclined plane appliance. It is an inexpensive appliance as compared to all other removable and fixed myofunctional appliances. This college being run by a charitable trust, Kunjithervai Memorial Charitable Trust (KMCT) charges only Rs.

500.00 for a removable corrective appliance. One appliance may be enough for completion of treatment in many cases.



Fig 5: Frontal view of a patient with Class II Division 1 malocclusion



Fig 6: Profile view of a patient with Class II Division 1 malocclusion

Sometimes a second appliance may be required if the 1st one becomes distorted or when there is interference due to erupting permanent teeth.

The treatment duration is usually 8 months to 12 months during which good results are obtained. Since it is a non extraction therapy and because of the simplicity and inexpensive nature of appliance it is well accepted by the children and the parents. This has been our experience during the past 7 years. The

success of the treatment is well appreciated and satisfied by the parents on seeing the improved aesthetic appearance of the child.



Fig 7: Intraoral view before treatment

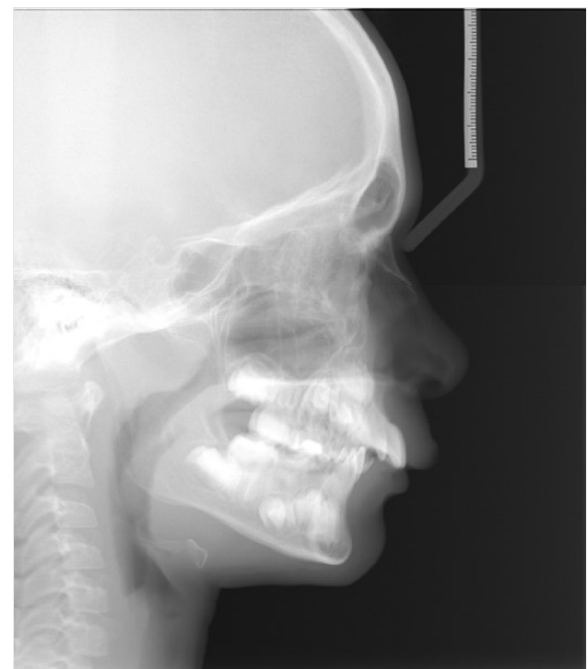


Fig 8: Lateral cephalogram of a Class II div 1 malocclusion before treatment

In a private clinic a dentist may have to charge more than this but it could be much lower than that of the other complicated removable or fixed functional appliances mentioned earlier(Figs. 5 to 10).