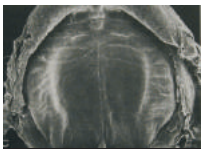
Indian Dental Association
Gujarat State Branch

ISSN 0976 - 8424 DENTIMEDIA
VOLUME -17 (ISSUE : 3 - JULY, AUGUST,SEPTEMBER - 2012)

DENTIMEDIA

JOURNAL OF DENTISTRY



ISSN 0976 - 8424 DENTIMEDIA VOLUME -17 (ISSUE : 3 - JULY, AUGUST, SEPTEMBER - 2012)

DENTIMEDIA : JOURNAL OF DENTISTRY

Office : 124/131, Panorama, R.C. Dutt Road, Vadodara- 390007 I (C) 0265- 2331135/ 2334806/ (M) +91 98240 30762 I Email : amishmehta67@gmail.com

Indian Dental Association Gujarat State Branch

Office :
Dr. Nitin Parikh
51-B, Chandramani Society,
Udhna Magdalla Road,
Althan, Surat- 395017
(R) 2261474 (M) 98251 45676
email : Pnitin53@hotmail.com, idagsb@gmail.com

President	Dr. Hemant I. Patel
Immediate Past President	Dr. Tejas Trivedi
President Elect	Dr. Rajendra Desai
Vice-Presidents	Dr. Sudha Nawathe Dr. Bimal Vasani Dr. Saurav Mistry
Hon. Editor	Dr. Amish Mehta
Hon. Secretary	Dr. Nitin Parikh
Hon. Jt. Secretary	Dr. Paresh Moradia
Hon. Asst. Secretary	Dr. Hiral Savani
Hon. Treasurer	Dr. I.K. Patel
Convener, CDH	Dr. Yogesh Chandarana
Convener, CDE	Dr. Gautam Madan
Chairman, Social Security Schceme	Dr. Dilip Vora

LOCAL BRANCHES OF IDA, GSB

	Branch	President	Hon. Secretary
1	Ahmedabad	Dr. Tejas Patel	Dr. Jay Mehta
2	Baroda	Dr. Pankaj Shah	Dr. Sudha Nawathe
3	Bhavnagar	Dr. Jatin Rajpura	Dr. Kartik Jani
4	Bharuch	Dr. R.C. Jain	Dr. Amit Sethi
5	Dahod	Dr. Munira Dhilawala	Dr. Dharmesh Mahajan
6	Jamnagar	Dr. Sanjay Umrania	Dr. Vashishtha Vyas
7	Junagadh	Dr. J.D. Rathod	Dr. Nirav Maradiya
8	Kheda	Dr. Ronak Panchal	Dr. Sonal Patel
9	Navsari	Dr. Hiral Parikh	Dr. Anand Chauhan
10	North-Guj	Dr. Ankur B. Patel	Dr. Gaurav Patel
11	Rajkot	Dr. Nigam Buch	Dr. Meeta Patel
12	Surendranagar	Dr. Ankur Shah	Dr. Mayur Chauhan
13	Surat	Dr. Murli Sastri	Dr. Nitin Parikh
14	Valsad-Vapi	Dr. Limkesh Ashra	Dr. Manish Modi

Printed & Published by : **Dr. Amish Mehta** on behalf of Indian Dental Association Gujarat State Branch
Designed & Typesetting by **X GRAPHICS, PUSHP ENTERPRISE,** Ahmedabad.
Phone : 079 25324002, M. : 9925159908
e.mail : x.graphics2010@gmail.com I web : www.xgraphics.co.in

Editorial

Is the Heir really Apparent?

Dentistry in this country is at crossroads. I am sure you've heard this numerous times already. Complaints that there are so many dentists and the competition is tight, no jobs, no opportunities, no post graduates, the education standard has become low, and so forth. The list is endless.

And then the eternal question. Who is to be blamed? There is really no answer to that. But we do know who the key players are. At crossroads, there are two roads. Here, we have one road that is of senior dentists and another of junior dentists. Senior dentists, if are the rulers, the juniors are heir apparent in waiting.

Have senior dentists done enough ground work to leave behind a legacy for the juniors? And are the juniors worthy enough to carry that legacy, if any, forward, to leave it behind for their successors? What is that Legacy that we are talking about?

The legacy that leaves behind an example of conduct, morals, scientific progression, constant up liftment of self and subject, duty towards the furtherance of awareness amongst the public, a number and lastly but nevertheless not the least, adequate number of good academic and clinical situations for others to emulate. If we don't strive to establish that Legacy, we have dug our profession's grave and will give birth to commerce driven quackery. The beneficiaries of that Legacy have to prove their worthiness to inherit and reap harvest from the bequeathals. Every scion is worried whether his hard work and name will be carried positively by his heirs or whether they will wither it all away into oblivion. And that worry breeds cynicism, unless that apprehension is put to rest by the bequeathed.

All is not that gloomy though. The 21st century has witnessed a total turn around in the way Dentistry is preached and practiced. Never before, it has been so accurate and precise, so result oriented with prophetic predictability.

With this food for your thoughts, I am sure you will enjoy and get enriched with the contents of this issue.

Dr. Amish Mehta
Hon. Editor

Greetings from IDA GUJARAT STATE BRANCH

Dear peers in profession,

We are half way into our tenure but it seems like a beginning. Not withstanding the gratitude that you have showered on us since the last 6 months we both cannot help the feeling that there is still a lot to be done.

One of the foremost challenge to us that is poised to our association is to match our membership strength with the ever increasing population of new dental graduates.

We both feel the answers lie in increasing the domain of our reach. So, we have decided to recommend to the executive committee of the state branch to increase the number of local branches. We seek your support to that equation of polarising the new graduates to become members of IDA.

Signing off on a very positive note in anticipation of your support to our constant endeavour of furthering our efforts to yield and absorb the pressures of the ever increasing expectations from the profession.

Jai Hind. Jai IDA.

Yours in fraternity,

Dr. Hemant I. Patel
President

Dr. Nitin Parikh
Hon. State Secretary

CONTENTS

ORIGINAL ARTICLE

Splinting of Traumatized and Mobile Teeth *52*

- *Dr. Mahendra H. Patel,Dr. Dipti Choksi, Dr. Barkha Idnani, Dr. Amit Bhatt*

ORIGINAL ARTICLE

Twin Block as an Option for Orthodontic Treatment *57*

- *Dr Parul Gupta, Dr. Asheesh Gupta, Dr Ganesh.S*

ORIGINAL ARTICLE

ROBOTICS IN DENTISTRY *61*

- *Dr. Harpreet Singh Cheema, Dr. Puneet Kaur Dhillon*

ORIGINAL ARTICLE

DENTAL ARCH FORM- From Genetics to Mechanics *64*

- *Dr. Romina Kapadia*

CASE REPORT

CHURRO JUMPER: CLASS II CORRECTORS *67*

- *Dr. Bhavik Thakkar, Dr. Kalyani Trivedi, Dr. Pooja Thakkar*

Contact Hon. Editor for future correspondence

Dr. Amish Mehta

F/F=24/31, Panorama, R.C. Dutt Road, BARODA - 390 007.

Phone : 0265 - 2334806, 2331135

Email : amishmehta67@gmail.com, amish.mehta@aaomembers.org

Splinting of Traumatized and Mobile Teeth

Dr. Mahendra H. Patel[a], Dr. Dipti Choksi[b], Dr. Barkha Idnani[c], Dr. Amit Bhatt[d]

Abstract :

Advances in dentistry as well as the increased desire of saving the natural teeth once they have been traumatized, it required secure periodontal support, since gingival fibers are heals during initial period of time. This article gives review of recommended splinting time for displaced and avulsed teeth, also review for results of different splinting methods.

Key Words : Periodontal Support, Gingival Fibers, Avulsed Teeth

INTRODUCTION

It has been pointed out by Andreasen that 1 week is sufficient to secure adequate periodontal support, since gingival fibers are healed during this time. The recommended splinting time for displaced and avulsed tooth is 7 to 10 days. Recent studies have shown that rigid splinting of replanted teeth increase resorption and ankylosis. Therefore replanted teeth should be splinted for a minimum length of time. The optimum time for leaving a splint in place for displaced or avulsed teeth in combination with alveolar fracture has not been determined. We suggest 14 to 21 days. More extensive bone fractures may require longer splinting times. The ideal requirements for an acceptable splint are it should be easy to fabricate directly in the mouth without lengthy laboratory procedure, should be placed passively without causing forces on the teeth, not be in contact with gingival tissues, causing gingival irritation, it should not interfere with normal occlusion, should be easily cleansable, allow for proper oral hygiene, not traumatize the teeth or gingival during application, allow approach for endodontic therapy and should be easily removable.[4]

The following text summarizes all the splinting techniques and their philosophies:

a. M.D.S.
Reader, Dept of Conservative Dentistry,
Karnavati School of Dentistry, Uvarsad, Gandhinagar, Gujarat
b. M.D.S.
Prof. and Head, Dept. of conservative dentistry and endodontics,
c. M.D.S.
Professor Dept. of conservative dentistry and endodontics, DDU, Nadiad, Gujarat
DDU, Nadiad, Gujarat
d. M.D.S.
Reader, Dept. of conservative dentistry and endodontics,
Nootan Dental College,Visnagar,

The authors report no commercial, proprietary, or financial interest in the products or companies described in this article.

Submitted, June, 2012 ; revised and accepted, July, 2012.

Discussion

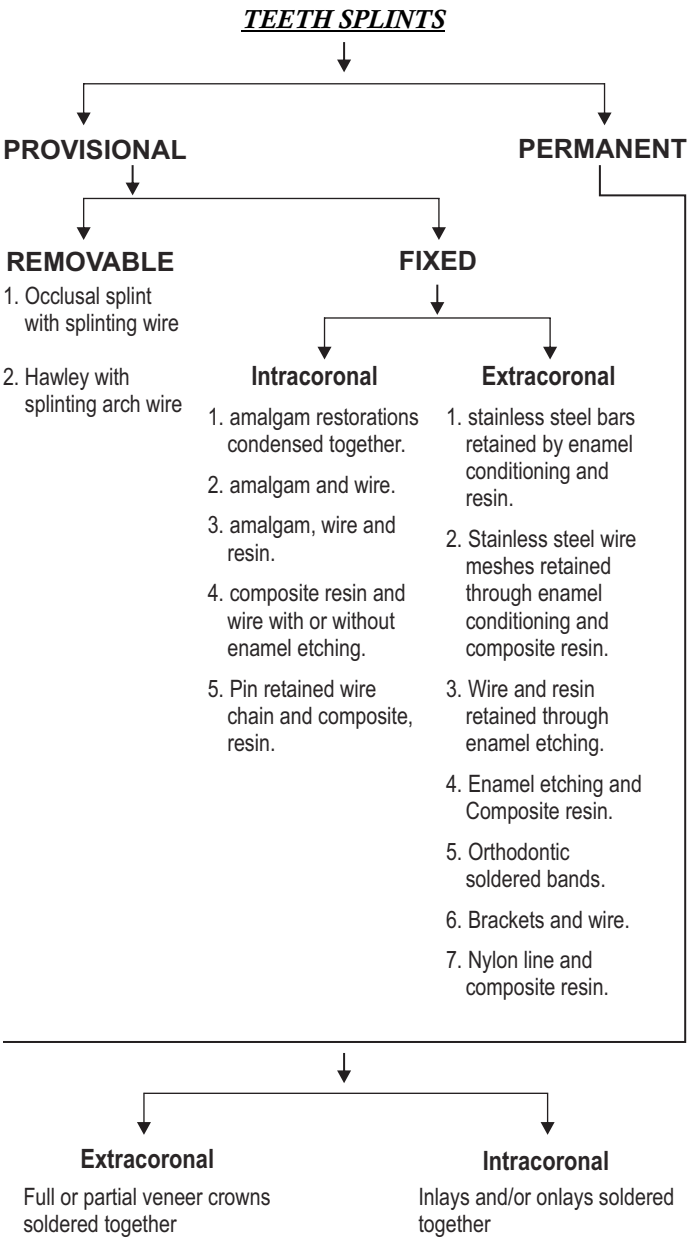
Principles of Splinting

The main objective of splinting is to decrease movement three-dimensionally. This objective often can be met with the proper placement of a cross-arch splint. Conversely, unilateral splints that do not cross the midline tend to permit the affected teeth to rotate in a faciolingual direction about a mesio-distal linear axis. If splinting is to achieve any measure of success, the center of rotation of the affected teeth must be located in the remaining supporting bone. In this way, the affected teeth are able to resist tooth movement. Otherwise, the prognosis for any splint will be unfavorable if the occlusal or masticatory forces exceed the resistance provided by the splinted teeth.

Thus, the ideal splint should reorient and redirect all occlusal and functional forces along the long axis of teeth, prevent tooth migration and extrusion, and stabilize periodontally weakened teeth.[3]

Flores et al even mentioned the splinting guidelines according to which ideal duration for splinting for various conditions was enumerated, Subluxation 2 weeks, Extrusive luxation, 2 weeks, Avulsion 2 weeks, Lateral luxation 4 weeks, Root fracture (middle third) 4 weeks, Alveolar fracture 4 weeks and Root fracture (cervical third) 4 months.[7]

Types of Splints



Occlusal splints can be classified as provisional or definitive depending on the type of materials used and the intended duration the splint will be in place.

The Provisional Splint

As the name alone implies, the objective of a provisional splint is to absorb occlusal forces and stabilize the teeth for a limited amount of time. They provide insight into whether or not stabilization of the teeth provides any benefit before any irreversible definitive treatment is even initiated.

Provisional splints can either be placed externally or internally. External splints typically are fabricated using ligature wires, nightguards, interim fixed prostheses, and composite resin restorative materials. Internal splints, on the other hand, are fabricated using composite resin restorative material with or without wire or fiber inserts. Most provisional splints are made using some form of external support in their design

Definitive splints are placed only after the completion of periodontal therapy and once occlusal stability has been achieved in order to eliminate or prevent occlusal trauma, increase functional stability, and improve esthetics on a long-term basis.

Other ways to classify splinting are

I Rigid Splinting:

Arch wire splinting, Interarch wiring.

A rigid splinting of replanted teeth increase the amount of resorption. Rigid splinting after replantation is a determent rather than asset. Poor formation of collagen fibers have been found with prolonged & rigid splinting and the postulation advanced that since little tension can be transmitted during rigid fixation this may cause atrophy & increased susceptibility to ankylosis.

Cast metal Splints:

Extensive injuries in which tissue seepage prevents drying of the teeth may require fabrication of cast metal splints that are cemented or held by interdental wiring. However, these types are reserved for situation in which direct bonding techniques are impossible or impractical. Some degree of mobility is desirable for proper regeneration, functional orientation & development after the initial attachment occurs.[3]

II Semi rigid Splinting:

Composite splint with Arch Wire:

A 0.3 mm wire composite splint has been shown to act as a functional fixation while allowing slight vertical movement of teeth during immobilization. The acid etch composite & arch wire splint as advocated by Heiman & associates, usually satisfy all the above requirement. The flexible wire-composite splint has been shown to provide horizontal support while

allowing greater vertical flexibility than other splints. Restoration of vertical movements of luxated teeth has been reported both clinically & experimentally to promote healing & may remove small ankylotic areas on the root.

Technique: An orthodontic 0.3 mm wire is bent to passively conform to the facial surface of the teeth, encompassing at least one sound tooth on each side of the injured tooth or teeth. Any shape of the wire is acceptable as long as it is between 0.015 & 0.030 in size. The middle third of the facial surface of the crowns is etched with phosphoric acid for 1 minute. The arch wire is attached to the facial surfaces with resin. Any form of resin or composite is acceptable for attaching the wire to the teeth. The wire is attached to the uninjured teeth first & the resin allowed to cure. The injured teeth are then attached to the wire with resin, care being taken to ensure that they are in the proper position. A radiograph is taken for verification. The use of the acid etch resin and arch wire splint does not interfere with the occlusion, therefore mastication on the posterior teeth is possible. On the mandibular anterior splints, where the wire on the facial would interfere with occlusion, the arch wire is placed on the lingual surface.

Removal of Splint :

A high speed diamond with copious water supply is used to grind through the resin to expose and free the wire. It is not necessary or advisable to remove all fragments of the resin at the time of splint removal since complete healing of the periodontal tissue has not occurred at week, excessive manipulation may cause displacement of the teeth. When the wire is removed, the remaining resin is smoothed and left in place for several weeks. After healing is complete, the resin can be removed with scaler or carver. The patient is instructed not to bite on the injured tooth for several weeks. Food should be cut into bite-sized pieces & placed in the mouth rather than incised.

Orthodontic Brackets :

An alternative to this technique is the use of direct bonded orthodontic brackets & the application of arch wire. However, this is more time consuming & requires measure to ensure that the arch wire is totally passive.

Suture Splint

Problems may be encountered in very young or retarded patients who will not tolerate foreign materials such as a splint in the mouth. Occasionally in the primary or early mixed dentition these are no adjacent teeth or not enough exposed tooth structure on which to attach acid-etch resin. In these cases a suture splint is easily applied and provides good stabilization. After the injured tooth is repositioned, its facial surface is acid etched. Next a suture is passed through the gingiva above the facial surface, carried over the incisal edge of the tooth and into the lingual gingival tissue, and over the incisal edge and again into the facial gingival tissue, where it is drawn tight and tied. A small amount of resin is cured over the facial surface and the suture, to assure retention of the suture on the incisal edge.

A monofilament Nylon line & acid etched resin splinting

The use of a Monofilament Nylon Line as a substitute for the arch wire has been advocated since this would allow a degree of physiologic movement; however, no difference in resorption was noted when compared with use of a wire. The number of the teeth included will determine the length of the nylon line used. The splint consists of a single strand of nylon if physiologic movement is desired, as in the case of an avulsed or extruded tooth. If tooth or bone fractures are evident or if multiple teeth have to be splinted, a double strand of nylon is necessary to make the splint more rigid.

Technique :

First, condition the enamel surfaces of the avulsed tooth and the abutment teeth. Apply the acid-etch conditioning solution with a small cotton brush or pellet. Condition the labial surfaces only; the proximal surfaces are specifically excluded. Apply the solution to a rectangular area approximately 3 x 5 mm in size in the middle third of crowns. To limit areas of acid-etching, cover all but the rectangular area of the acid treatment. Area should be rinsed thoroughly with a stream of water & then dried with air. Apply a thin coat of the composite resin to the etched areas. Using a hemostat hold the nylon line in place against the teeth. Attach one end of the nylon line to the etched area of the first abutment tooth with a creamy bead of resin. Allow the resin to set and then attach the other end of the line to the remaining abutment tooth with a bead of resin. Check the occlusion, adjust it if necessary. Trim the protruding ends of the nylon line at both ends of the splint. Smooth and polish the splint with suitable burs, stones or sand paper disks, taking care not to nick or cut the nylon line.

Removal :-

The nylon line is cut between each tooth and the bulk of the resin can be removed with a high-speed bur, diamond or disk and stone. Alternative methods of removing the material would be the use of an ultrasonic scaler or any of the sharp hand instruments.

Massler hypothesized that teeth repositioned and rigidly immobilized within the alveolar socket for longer than the optimum time of stabilization tend to develop an attachment apparatus that is unorganized and the tooth becomes ankylosed. He concluded that evidence to date indicates that teeth receiving physiologic movement during healing often reattaches with periodontal ligament fibers that are properly positioned in a functional relationship. Andreasen concluded that functional stimulation may depress osteogenesis and enhance fibrous healing, a phenomenon known to occur in insufficiently splinted bone fractures. The mono filament nylon splint stabilizes the tooth in position in the dental arch. The flexibility of the nylon line, however, allows a degree of physiologic movement. It is hoped that such movement will prevent replacement resorption and ankylosis.

TTS splint

Experimental studies in non-human primates have demonstrated that rigid splinting, i.e. immobilization, or a prolonged splinting period may lead to extensive PDL healing complications, such as dentoalveolar ankylosis or external root resorption (replacement resorption). Therefore, maintaining a certain degree of tooth mobility appears to be beneficial to periodontal healing of traumatized teeth.

The main objective of developing a new device was to optimize current splinting techniques. The TTS is made of pure titanium and is only 0.2 mm thick. Pliers or bending instruments are not necessary, since the TTS can be bent with the fingers. The TTS is available in two lengths, 52 mm and 100 mm. The TTS can be cut to the desired length with any cutting instrument, or preferably with the specially designed scissor-instrument. The unique design of the TTS with its rhomboid mesh structure makes it flexible in all dimensions, thus allowing physiologic tooth mobility without transferring orthodontic forces to the splinted teeth. Another advantage of the TTS are the rhomboid openings of the splint which facilitate its fixation. The size of the rhomboid openings (1.8À2.8 mm) clearly defines only a small area of bonding, thereby reducing the amount of composite to be used. A thin layer of a (fluid) composite can be simply applied to fill the rhomboid openings with subsequent light-curing.[4]

In a recent study done by Von arx et al for comparison of four dental trauma splints wire-composite splint (WCS), a button-bracket splint (BS), a resin splint (RS), and the newly developed titanium trauma splint (TTS) it was concluded that TTS and WCS are recommended for splinting of traumatized teeth both splints only minimally irritate the soft tissues and are well tolerated by the patients. In addition, the TTS is characterized by shorter application and removal working times[5]. In one another study done by Von arx et al for comparison of a wire-composite splint (WCS), a button-bracket splint (BS), a resin splint (RS), and a new device Titanium Trauma Splint (TTS) it was found that all tested splints appeared to maintain physiologic vertical and horizontal tooth mobility.[6]

Fiber reinforced splinting

Currently there are a number of fiber reinforcement materials available on the market. Fiber reinforcement materials affect the physical properties and behaviors of composite materials. Glass fibers are treated with silane to allow them to be bondable to dental resins while polyethylene fibers are plasma treated to enhance their chemical bondability. One problem with the fiber reinforcement materials that have been available is their inherent thickness when embedded within composite resin in a splint. To overcome this problem, a lock stitched cross-linked weave of thinner strands of polyethylene fibers, Ribbond® THM Reinforcement Ribbona was introduced.

Technique The thinner material still incorporated the ease of use of the original ribbon's lock stitch weave. The cut ribbon to be impregnated with adhesive resin (4th generation).Opacifier is used for the esthetic translucency. The ribbon is blotted to remove excess material with a napkin. The ribbon to be put aside and cover covered to block any light until it could be embedded in the composite resin on the teeth. teeth to be etched for 30 seconds with a 32% phosphoric acid gel, followed by rinsing for 10secs with air water spray, for prevention of excess mercury a newer technique is used : Placement Medium viscosity polysiloxane impression material in gingival embrasure after etching, and drying(in past wedges were used). The elastomeric impression material assures a passive placement of the blackout. A resin adhesive

is applied to the interproximal surfaces and facial interproximal areas using a disposable brush. The adhesive should not be light cured until the composite resin is applied.[8]

Conclusion

The treatment of traumatized mobile tooth requires immediate attention and reliable method of immobilization of the involved teeth. The aforementioned methods provide a comprehensive methodology for treating such cases and further research in this area could provide better techniques in future.

Reference -

(1) Antrim DD & Ostrowski Is: A functional splint for traumatized teeth, J Endodontics 1982: Vol.8:328.

(2) Stephen Cohen & Richards C. Burns: Traumatic injuries. Pathways of pulp. (6th edition) page no. 470-476.

(3) Guillermo Bernal, Juan C. Carvajal, Carlos A. Munoz A Review of the Clinical Management of Mobile Teeth The Journal of Contemporary Dental Practice, Volume 3, No. 4, November 15, 2002

(4) Thomas von Arx, Andreas Filippi, Daniel Buser Splinting of traumatized teeth with a new device: TTS (Titanium Trauma Splint) Dental Traumatology 2001; 17: 180184

(5) Andreas Filippi, Thomas von Arx, Adrian Lussi Comfort and discomfort of dental trauma splints a comparison of a new device (TTS) with three commonly used splinting techniques Dental Traumatology 2002; 18: 275280

(6) Thomas von Arx, Andreas Filippi, Adrian Lussi Comparison of a new dental trauma splint device (TTS) with three commonly used splinting techniques Dental Traumatology 2001; 17: 266274

(7) Flores MT, Andersson L, Andreasen JO, Bakland LK, Malmgren B, Barnett F, Bourguignon C, DiAngelis A, Hicks L, Sigurdsson A, Trope M, Tsukiboshi M, von Arx T Guidelines for the management of traumatic dental injuries. I. Fractures and luxations of permanent teeth. Dent Traumatol. 2007 Apr;23(2):66-71

(8) Strassler H. E, Brown C. Periodontal splinting with a thin high-modulus polyethylene ribbon Compendium of continuing education 2001;22(8):610-620

Twin Block as an option for Orthodontic treatment

Dr Parul Gupta[a], Dr. Asheesh Gupta[b], Dr Ganesh.S[c]

Abstract :

Twin Block are functional appliances designed to enhance forward mandibular growth in the treatment of distal occlusion by encouraging a functional displacement of mandibular condyles downwards and forwards in the glenoid fossa. Repositioning creates a positive proprioceptive response in the muscles of mastication. Twin Block appliance is efficient in the correction of skeletal class II div 1 malocclusion.



Key Words : Twin Block, Skeletal Class Ii Div 1 Malocclusion

INTRODUCTION

Early treatment and two phase treatment has emerged as a standard treatment protocol in orthodontic treatment

Orthodontics and Dentofacial Orthopedics consists of two terms both of which are important in order to describe the treatment given to improve the dental and orthopedic relationships in the stomatognathic system along with a aim to obtain a balanced facial form. An orthodontic approach only corrects the dental irregularity and is inappropriate in the treatment of what are essentially skeletal discrepancies. For significant skeletal malformations we need to combine the orthodontic treatment with, dentofacial orthopedics/ functional therapy or with orthognathic surgeries.

In 1977, Dr. W.J. Clarks developed Twin blocks[1]. The twin blocks represent a significant transition from one piece appliance that restricts the normal function to a twin appliance that promotes normal function.

a. MDS Orthodontist
b. MDS Prosthodontist
c. MDS Prosthodontist
The authors report no commercial, proprietary, or financial interest in the products or companies described in this article.

Submitted, June, 2012 ; revised and accepted, July, 2012.

CASE SELECTION

Ideal requisites for twin block appliance are [2,3,4]

- Class II div 1 malocclusion.
- Lower arch should not be crowded.
- Properly aligned upper arch.
- Overjet 10-12 mm and a deep bite.
- Patient should be growing actively preferably should be in pubertal growth spurt5.
- VTO positive.

STAGES OF TREATMENT

Stage 1 Active Phase 7-9 Months

1. *Insertion of Twin Block Appliance*

- Adjust Delta/Adams clasp if needed.
- Appliance should fit tightly without causing any discomfort for maximum cooperation and wear time from the patient.
- Check for and relieve any sore spots due to impingement by the acrylic, especially the lingual of the lower anteriors.
- The protrusive position must be comfortable for the patient to ensure maximum wear time of the appliance.
- When the patient is biting forward in the inclined plane of the upper and lower bite blocks, confirm that the facial appearance is significantly improved.
- The patient is instructed to wear the Twin Block at all times, especially when eating [6].

2. *Second Visit-7 Days later*

- The patient should be wearing the Twin Block comfortably and eating with the appliance.
- If maxillary expansion is required, instruct the patient how to adjust the midline screw.
- Most Class II malocclusions are present with a deep overbite. In these cases, to help correct the deep overbite problem, the upper bite block is trimmed approximately 1-2 mm from the lower molars will allow for an orthopedic correction of the deep overbite.

3 *Third Visit-* 30 Days Later Monitor and motivate. Measure and record the overjet. If the Twin Block has been worn 24 hours per day, there will be a reduction in overjet by at least 2mm after the first month of wear time. Measure and record the overbite. The overbite correction will be more gradual than the overjet correction since the sagital change is always first and more dramatic than the vertical change In the case of deep overbite, continue to trim 1-2 mm of acrylic from the upper bite block to allow eruption of the lower molars.

- After one month, improved facial balance will be evident.

4. *Fourth Visit - One Month Later*

- At this time there should be a significant decrease in the overjet. The mandible should have advanced at least 4 mm if the Twin Block was worn full time. If the patient had a large overjet at the beginning of treatment, it might be possible to activate the appliance by adding acrylic to the anterior incline of the upper bite block and thereby advance the mandible further forward. Ask the patient if their Twin Block is comfortable having the mandible moved 2-3 mm father forward . The anterior incline of the upper block is used rather than the posterior incline of the lower block so that the addition of acrylic will not interfere with the eruption of the lower molar.
- Check buccal occlusion. Check expansion of upper arch to avoid excessive expansion.
- Subsequent visits are usually at 6-week interval and a steady correction of buccal occlusion, reduction of overjet should occur with concurrent reduction of deep overbite.
- The active phase of Twin Block treatment is usually finished in 7-9 months. Treatment is complete earlier with good cooperating patients and horizontal growers in mixed dentition. Treatment takes longer with mouth-breather who do not keep the blocks together when sleeping, poor cooperators and vertical growers in permanent dentition.

CHECK LIST AT THE END OF ACTIVE PHASE 7

-Overjet should be normal with the incisors in contact when the patient occludes in centric occlusion.

-Overbite is partially corrected with the eruption of the lower first molars, which are contacting the upper first molars when the patient occludes in centric occlusion.

-There will be an open bite in the area of the bicuspids due to the intrusive forces of the bite blocks during treatment. Class I skeletal has been achieved with the maxilla and mandible ideally positioned. At the beginning of treatment, the patient had a skeletal Class II malocclusion with a normal maxilla and a retrognathic mandible.

-Original Class II molar relationship has been corrected to Class I molar.

Stage 2 For 6-10 Months

Objective

In order to maintain the mandible in the advanced position, it will be necessary to utilize an appliance that will encourage the mandible to stay forward while allowing for the eruption of the bicuspids. Removable orthodontic appliance can be fabricated with Adam's / delta Clasps on the first permanent molars for retention and have an anterior incisal ramp to assist at keeping the mandible forward.

Stage 3- Retention - 3-6 months

Rick-A-Nator Appliance -This fixed orthodontic appliance is the treatment of choice since it is fixed and virtually guarantees patient cooperation and treatment success. The Rick-A-Nator Appliance are utilized to hold the mandible in a forward position and also to help erupt the bicuspids to complete the orthopedic correction of the overbite. It is vital that the total treatment time for the active phase with the Twin Block and the support phase with the Rick-A-Nator be a minimum of 15 to 18 months to allow for permanent muscular, skeletal and dental changes to be accomplished. It is required after occlusion is fully established. During the retention period appliance wear can be gradually reduced to nighttime wear.

CASE REPORT

Patient named Srishti, aged 13years complained of forwardly placed upper front teeth.

CLINICAL EXAMINATION: EXTRA-ORAL FEATURES

Mesocephalic, mesofacial, convex profile, incompitent lips

Increased interlabial gap (6mm), Lower lip trap and upper lip strain, VTO positive

Maxillary arch:

V shaped, symmetrical, high arched palate. Spacing in the upper anteriors and [12,21,22] rotated mesiolabially

Mandibular arch:

U shaped symmetrical, [31,41] rotated distolabially, [33,45] rotated mesiolabially and 32 lingually errupted

The SNA value suggested that maxilla was orthognathic and mandible was retrognathic. The ANB value of 7 degrees suggested a Class II skeletal base. The upper incisors were proclined by 16 degrees. The lower incisors were upright in relation to mandibular plane. The incisors were proclined to each other by 19 degrees. Facial axis of 5 degrees and face height ratio of 67% suggested a horizontal growth pattern.

DIAGNOSTIC SUMMARY

Angle's Class II div 1 malocclusion on class II skeletal base with a horizontal growth pattern with increased overjet, overbite, crossbite in relation to (26,36), convex profile and incompetent lips.

PROBLEM LIST

Convex profile

Incompetent lips, lower lip trap

Increased overjet (13mm), overbite (75%)

Spacing in upper anteriors

Crossbite irt [26,36]

Rotations irt [12,21,22,31,33,41,45]

PRE TREATMENT INTRA ORAL PHOTOGRAPHS

TREATMENT PLAN

Appliances:

Phase I: Twin Block

Phase II: PEA mechanotherapy (0.022" MBT)

POST TREATMENT PHONOGRAPHS

INTERPRETATION

Both skeletal and dental changes were observed. The upper incisors were retroclined by 9 degree and 9mm in relation to maxillary plane. The lower incisors were retroclined by 8 degree and 1mm in relation to mandibular plane. Facial axis was reduced by 2 degree.

CRITICAL APPRAISAL

A satisfactory correction was achieved. Facial appearance was improved as a result of the dental and skeletal` changes with improved profile and lip competency.

In the mandible the crowding was alleviated and the arch form was established. The anteriors were retracted and the mandibular plane angle was maintained. A satisfactory occlusal result and a good intercuspation was achieved. The overall results of this case were very acceptable

CONCLUSION

Twin Block appliance is efficient in the correction of skeletal class II div 1 malocclusion9,10. Twin Block appliance should be used correctly and with the proper understanding of the philosophy behind it. It would be best if we apply the basis of all the appliances and combine them as needed and use it to our advantage.

Advantages of twin block over other functional appliances 8

1. Functional mechanism similar to natural dentition.
2. Occlusal inclined planes give greater freedom of movement in anterior and lateral excursions.
3. Less interference with normal function.
4. Improved appearance and function due to absence of lip, cheek and tongue pads.
5. Esthetically acceptable.
6. Can be worn 24 hrs.
7. Independent control over upper and lower arch width

REFERENCES

1. Broadbent JM Transitional Twin Block. Funct Orthod 1997: May-Jul; 14(3): 4-8, 10-6.
2. Caldwell S, Cook P. Predicting the outcome of twin block functional appliance treatment: a prospective study. Eur J Orthod. 1999: Oct; 21(5): 533-9.
3. Chintakanon K, Turker KS, Sampson W, Wilkinson T, Townsend G Effects of twin-block therapy on protrusive muscle functions. Am J Orthod Dentofacial Orthop; 2000: Oct. 118(4): 392-6.
4. Clark W The twin block technique Dent Today. 1991: Mar; 10(2):50-1.
5. Clark W. The twin block technique Funct Orthod 1991: Jan-Feb;8(l): 24-5, 27-8. 42:
6. Clark W.J. Twin Block Functional Therapy Application in Dentofacial Orthopedics: Mosby Wolfe; 1995.
7. Clark WJ More on the Clark Twin Block Am J Orthod Dentofacial Orthop 1990: Mar;97(3):30A.
8. Clark WJ The twin block technique Part 2 Funct Orthod 1992: Nov-Dec,9(6):45-9.
9. Clark WJ. The Twin Block technique. Part 1. Funct Orthod. 1992: Sep-0ct,9(5):32-4,36-7.
10. Duggal R. Maxillofacial Growth Regulation By Twin Block Appliance: An Update. New Delhi : AIIMS; 2002.
11. Jr. Treatment timing for Twin-block-therapy. Am J Orthod Dentofacial Orthop. 2000: Aug, 118(2): 159-70.
12. Lund DI, Sandier PJ The effects of Twin Blocks: a prospective controlled study Am J Orthod Dentofacial Orthop. 1998: Jan, 113(1); 104-10.
13. Mills CM, McCulloch K.J Post-treatment changes after successful correction of Class II malocclusions with the twin block appliance. Am J Orthod Dentofacial Orthop. 2000: Jul; 118(1): 24-33.

ROBOTICS IN DENTISTRY.

Dr. Harpreet Singh Cheema[a], Dr. Puneet Kaur Dhillon[b]

Abstract :

Robotics have pushed the limits of innovation in research and technology, as well as decreased the gap between engineering and technology. Robots have been used to automate the drilling of the tooth. Mouth opening and closing training apparatus using a computer controlled robot has been developed. Joysticks and virtual reality glasses to operate hand pieces and material syringes to prepare restoration and perform endodontic therapy have also been developed. This article summarises the best innovation in medico-dentistry either in past few years, currently underway or on drawing board.

Key Words : Simulators, Nano-robots, Linear actuators, Tele-healthcare, Anthropomorphic finger

INTRODUCTION:

The success of applying robotics to medical field has opened a new frontier with vast areas for expansion and exploration; more specifically robotics with dental application is relatively untravelled area to pursue.

The doors have been blown of their hinges in medicine. But hold on to your rubber gloves, because the era of "sci-fi-like" dentistry is dawning. This includes includes simulators, bionic jaws, Tele-robotics, and Bluetooth technology. Robots have been used in various areas of dentistry either as dentists or as patients.

SURGERY:

According to Davies, robot is defined as, "a powered computer controlled manipulator with artificial sensing that can be reprogrammed to move and positn tools to carry out a range of surgical tasks."

Robot has been used as a surgical assistant in close operation with the surgeon.

a. Intern,
Genesis Institute Of Dental Sciences And Research
Ferozepur, Punjab, India

b. Final year Dental student,
Genesis Institute Of Dental Sciences And Research
Ferozepur, Punjab, India

The authors report no commercial, proprietary, or financial interest in the products or companies described in this article.

Submitted, June, 2012 ; revised and accepted, July, 2012.

Da Vinci system, which is of interest to the surgeon, was programmed. The robot consists of four limbs. One arm can be used to hold the scalpel,second for suturing, third could be for video shooting the surgery and fourth arm for feeding the surgeon a sandwich!

This is of great help for a paralysed surgeon and also prevents the burn out.

Robots in surgery hold a great significance in military. A distant surgery can be carried out between two hospitals, with the help of a robot. Hence,TELE-ROBOTICS not only prevent the transmission of disease between the dentist and the patients but also assist in providing dental care to the nations at war or natural calamities.

SERVICE:

Robots can perform some per-learned tasks in moving limbs. They cable used to serve food or medicines to patients or elderly people and in you own clinic, as robotic toys for entertaining the pampered child!

Arm movements which are of interest to the child may be trained and stored for replay. The interaction can be supported by using a vision system.

Robots can assist physically handicapped children in learning and playing.

ASSISTANT :

Robot can be used as an assistant in computer-assisted dental implantology.

In this, it's feasible to transfer a pre-operative plan to the surgical field by a template.

Such a template can be manufactured easily by using CAD and the drilling of guiding holes can be performed by active or passive robots.

CARIES :

Caries is caused when the pH at e tooth surface drops below the critical pH. Based on this principle, miniatures and autonomous pH monitoring nodes have been designed that can be attached to the tooth surface, like a tooth jewel. When the critical pH drops, they send a message to your Bluetooth enabled device, saying, "you have got caries, it's time to visit a dentist."

ORTHODONTICS :

Robots provide interactive simulation system for training and treatment planning. It enables professionals to make realistic visual prediction of the final position of the teeth and the changes in shape of dental arch.

It also automates the fabrication of the acrylic portion of a class of orthodontic appliances.

DIAGNOSIS :

Robot as a diagnostic aid has been used in ultrasonography, to hold and manipulate an ultrasonic probe. Tele-healthcare is possible by controlling ultra-sound robot from a remote site. It has also been used for chair side investigation like measuring pulse rate and taking blood samples.

DENTAL MATERIALS :

The clinical trials for investigating the wear and tear of different restorative materials are expensive and time consuming. Robots improve this process. Robots are used to test the ability of different restorative materials to withstand stress.

The whole process involves use of a 3D mechanism with in which six linear actuators have been programmed using clinically obtained data to replicate the motion and forces sustained by teeth. It provides an artificial environment in which materials can be tested.

IMPLANTS :

Robots have been used to analyse the shock absorption capacity of different materials used as implants. Such programs permit the interactive control of proper implant position and also facilitate the standardisation of procedures in evaluating implant design.

EDUCATION :

As in private practice, staffing has been the most costly resource for universities. As an outgrowth of dying pool of dental staff instructors and to circumvent practice on patient, an international crop of inventors are making a mad-dash to develop teaching ways to markedly diminish teaching time and practice on human patients. The teaching simulators consisting of a palm sized robotic hand piece and a computer screen have been developed. The individual can feel and manipulate the 3D virtual reality upper and lower dental arches seen on computer monitor.

Humanoid robots have been developed that mimic a patient. They make sudden neck turn, sneeze and cough as if the robotic patient feels actual pain. It even shows fatigue by opening mouth at the dental treatment and vomits if student accidentally touches the uvula with a sensor.

CONCLUSION :

Finding live volunteers willing to play guinea pig for undergraduate dental student is surely no easy task. Nervous unsteady hands, drills, needle-sharp-probes, sound like a recipe for disaster.

The good news is that oral training and care will eventually be improved by robotics.

The bad news is, it may take some time because these are diamond studded invention with platinum parts, the most expensive research the profession has seen yet.

REFERENCES :

1. The robotic human jaw.Albany,NZ: Massey University, Massey news.July 28,2005
2. Lin B, Unique robotic jaw will advance space research, Vancouver B.C.:Canada. USC Reports 51:8,2005
3. Cropper CM, The robot is in-and ready to operate. Business Week. March 14, 2005
4. P.N. Casap N. WA, Schnider A and Lustman J., "Navigation surgery for Dental Implant Assesment of accuracy of Image Guided Implant system"
5. J.J. Craig, Introduction to robotics mech-control: Pearson Hall 2005
6. W.K. Ludwig Adams, Dietrich Meyer-Ebretch and Ruegh "Computer-assisted Surgery," IEEE Computer Graphics and App, pp. 43-51, May 1990
7. Joy B: Why the future doesn't need.804-810,2000, http://www.wired.com/wired/archive/8-04/joy.html
8. Davies BL. A review of Robotics in surgery. Mech-Eng. H2000:214-129-139
9. Harwin WS, Ginge A. Jackson RD. A robot work station for use in education of physically handicapped. IEEE Trans Biomed Eng. 1988:5(2):132-137
10. A.M. Biesada, "Tooth Tech & the New Dentistry" High technology Business, April 1989, pp. **28-31**

DENTAL ARCH FORM- From Genetics to Mechanics

Dr. Romina Kapadia [a]

Abstract :

A great deal has been written in the orthodontic literature about normal human dental arch form. The orthodontists have always been interested in dental arch, its different types and the influence of internal and external forces on its shape and stability results. The current article is an attempt to explore and assimilate various facts on dental arch form so as to understand its intricacies as described by various researchers and clinicians. The article discusses the normal developmental changes from prenatal to postnatal, the research and clinical criteria to study the arch width and its stability considerations.

Key Words : Dental arch form, developmental changes, arch width, stability criteria

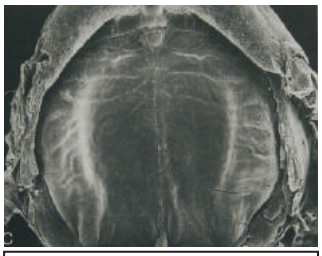
INTRODUCTION :

The search for a universal, ideal arch form has been one of the most persistent tasks that orthodontic researchers have pursued. Dental arches show considerable variations amongst human groups, in untreated normal samples as well as in different types of malocclusions. Many geometric forms and mathematical equations[1] have been proposed to describe the same.

Despite numerous investigations, there is currently little agreement as to the best size and shape for an ideal arch form. Arch forms are usually neglected during orthodontic treatment because the focus is mainly on mesio-distal relation of teeth. But arch form should not be overlooked for esthetics, function and above all for stability of the treatment results.

The genetic influence on arch forms

The arch form is initially shaped by the configuration of the supporting bone which is more genetically influenced and after eruption of the teeth is influenced by the circumoral musculature and intraoral functional forces. The earlier research found estimated heritability of arch shape to be 39%. The research by Cassidy & others2 in 1998 showed that arch width and depth are genetically influenced with a mean transmissibility of 50%.



Dental arch at 10 weeks i.u.

The other findings are:

1) Arch dimensions are significantly larger in boys, both mediolaterally and anteroposteriorly than in girls.
2) Test for left-right asymmetry show that left quadrants are larger than right in both arch-length and width.

The developmental changes in arch width from embryogenesis to adulthood

Embryogenesis: Soon after palatogenesis i.e. around 10 weeks i.u. the palate is ringed by dental lamina which is roughly circular in occlusal view. Arch form subsequently elongates anteroposteriorly

with the help of nasal capsular cartilage. (Burdie & Lillie3)

Post natal development of arch width

Certain facts :-

1) The increase in arch width appears to be related to eruption of the teeth rather than chronologic age or skeletal growth.
2) The mean trend line of arch width increase of both the sexes is essentially parallel.
3) The arch width increase in mandible is about 1/3rd to that in maxilla.
4) In all three planes of space, in both the maxilla and

a. MDS
Reader, Dept. Of Orthodontics
KMSDCH, Sumandeep University

The authors report no commercial, proprietary, or financial interest in the products or companies described in this article.

Submitted, June, 2012 ; revised and accepted, July, 2012.

mandible, there is a definite sequence in which growth is completed. Growth in width is completed first, then the length and finally the height.

5) Growth in width of the dental arches completes before adolescent growth spurt and is affected minimally if at all by adolescent growth changes.

6) Mandibular intercanine width is established by 8-9 yrs. of age i.e. after the eruption of four incisors (Bishara SE)4

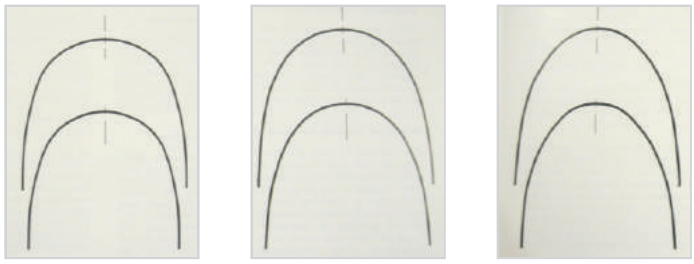
7) After complete eruption of permanent dentition, i.e. after age 12, the clinician should expect either no change or a slight decrease in the arch width which is more in the intercanine than intermolar region.

8) As age advances, a significant decrease is observed in maxillary and mandibular intercanine width in both male and female subjects.

The types of arch forms :

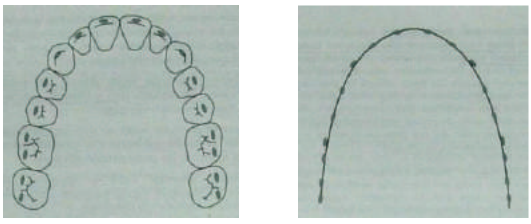
In the simplest terms there are three types of arch forms 5:

1) Square **2) Ovoid** **3) Taper**



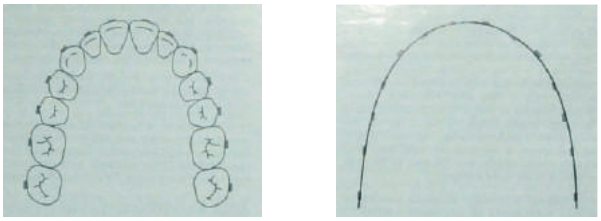
Difference between 'Research arch form' and 'clinical arch form'

This concept was introduced by Braun et al6 who measured, "the centre of each incisal edge, the cusp tips of canines and premolars, and mesiobuccal and distobuccal cusp tips of the molars." The resulting arch form is a "Research arch form" which is surprisingly tapered. It is not useful for clinician and it is not appropriate to use this shape as a basis for the construction of orthodontic arch wires.



Research measurement points Research arch form

In contrast, the clinician's arch wire shape must be based on the points where the wire will lie in the bracket slots of correctly positioned brackets. This "clinical arch form" relates to the mid-points on the labial surface of the clinical crowns of the teeth and should also include the in-out adjustment built into the bracket base. This arch form is broader than the research arch form and should be used to construct orthodontic arch wires.



Clinical measurement points Clinical arch form

Customized formation of arch wires for each individual patient rather than using pre-formed arch wires is a better approach to prevent undue expansion of arches which is very common during orthodontic treatment as pre-formed arch wires are usually much wider[7, 8] than required and this may result into unstable expanded arches at the end of treatment.

Stability considerations: In 1925, Lundstrom9 proposed the 'apical base theory'.

He stated, "Retention is a problem of apical base limitations. The size and shape of the apical base is largely under genetic control and it forms a limit to expansion of a dental arch. If teeth are orthodontically moved beyond this limit, an unstable treatment result could be expected.

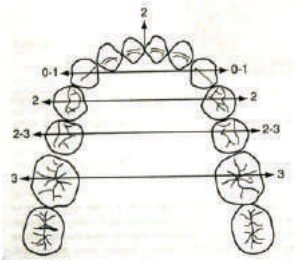
The research findings on stability:-

1) Arch width and arch length reduce with age irrespective of10:

-the type of malocclusion

-any orthodontic treatment done or not, and

-whether expansion is done or extractions.



Stable expansion possible across each tooth in the lower

2) Lower arch is more constrained than the upper hence its limitations for a stable expansion is tighter. Upper arch is more malleable and tolerates expansion with more stability than the lower.

3) Numerous reports11 show that the transverse expansion across the canines is almost never maintained permanently esp. in the lower arch in all the groups, extraction or non-extraction.

4) Bishara4 has quoted,"Relapse is a reality in the intercanine width."

5) Nanda12 has said, "Mandibular intercanine width-increase could be maintained only by fixed retention."

5) Considerable data shows that the expansion across the canines is not stable, even if the canines are retracted when they are expanded.

In contrast, expansion across premolars and molars can be stable.

6) Arch forms tend to return to pre treatment shape. Therefore, patient's pre-treatment arch form is the best guide for future arch form stability.

Conclusion:

To conclude, the famous quotation by Dr. E.H. Angle13, the father of modern orthodontics will suffice. As he rightly said, "The best the orthodontist can do is to secure normal relations of the teeth and correct the general form of the arch, leaving the finer adjustment to individual typal form to be worked out by nature through her forces which must, in any event, finally triumph.

References:

1) Felton MJ,Sinclair PM, Jones DL et al. A computerized analysis of the shape and stability of mandibular arch form. Am J Orthod 1987; 92: 478-83.

2) Cassidy KM, Harris EF, Tolley EA, Keim RG. Genetic influence on dental arch form in orthodontics patients. Angle Orthod. 1998; 68(5): 445-54.

3) Burdi AR, Lillie JH. A Catenary analysis of the maxillary dental arch duing human embryogenesis. Anat Rec 1966; 154: 13-20.

4) Bishar SE, Chadha JM, Potter RB. Stability of intercanine width, overbite and overjet correction. Am J Orthod 1973; 63: 588-95.

5) Chuck GC. Ideal arch form. Angle Orthod 1934; 4: 312-27.

6) Braun S, Hnat WP, Fender DE et al. The form of the human dental arch. Angle Orthod 1998; 68 (1): 29-36.

7) Engel GA. Preformed arch: reliability of fit. Am J Orthod Dent Orthop 1979; 76: 497-504.

8) White LW. Individualized ideal arches. J clin Ortho 1978; 12: 779-87.

9) Lundstrom AF. Malocclusion of the teeth regarded as a problem in connection with the apical base. Int J Orthod Oral Surg Radiogr 1925; 9: 591-602, 724-812, 933-40, 1022-42, 1109-33.

10) Samir EB, Jacobson JR, Jean Treader, Arthur Nowak. Arch width changes from 6 weeks to 45 years of age. Am J Orthod Dent Orthop 1997; 111:401-9.

11) Little RM, Waller TR, Riedel RA. Stability and relapse of mandibular anterior alignment. Am J Orthod Dento Orthop. 1981; 80(4): 349-65.

12) Housley, Nanda, Currier. Stability of transverse expansion in the mandibular arch. Am J Orthod Dent Orthop 2003; 124(3): 288-293.

13) Angle E.H.Treatment of Malocclusion of the teeth. 7th ed. Philadelphia: S.S. White Dental Mfg. Co. 1907.

CHURRO JUMPER: CLASS II CORRECTORS- A Case Report

Dr. Bhavik Thakkar[a], Dr. Kalyani Trivedi[b], Dr. Pooja Thakkar[c]

Abstract :

Angle's class II malocclusion is the most prevailing which may be either skeletal or dental presenting with different clinical manifestations. There are number of appliances to treat such a malocclusion in a growing child. Fixed functional appliances are indicated for class II corrections in patients who report late with minimal residual growth left. A case of class II skeletal and dental malocclusion treated with PEA supplemented with Churro jumper.

Key Words : Angle's class II malocclusion, Fixed functional appliance, churro jumper

INTRODUCTION :

Among all malocclusions, Class II malocclusion constitutes approximately 15%. Class II

Division1 malocclusion could be produced by:

1. Protrusion of the maxillary teeth although the jaw relationship was normal,
2. Mandibular deficiency with the teeth of both arches normally related to the jaw,
3. Downward and backward rotation of the mandible produced by excessive vertical growth of the maxilla, or a number of other possibilities.

Depending on the cause treatment can be planned accordingly. Devices commonly used for the correction of class II malocclusion can be classified as extraoral (head gear), intraarch, or interarch. The intraarch devices are either removable (cetlin or sagittal appliances) or fixed (Pendulum, Distal Jet, Jones Jig). Fixed intra arch appliances often depend on a Nance button for anchorage. Interarch devices, which use the mandibular arch for anchorage, can be removable (bionator, twin block) or fixed. They can pull (Class II elastics, SAIF springs) or push (Frankel, Herbst, Jasper Jumper).

While all these Class II appliances are capable of distalizing the maxillary molars, each type has different treatment effects. Headgear inhibits maxillary growth, but has little impact on the mandibular arch. Intraarch devices usually cause flaring of the maxillary incisors, tipping of the maxillary molars, and slight clockwise rotation of the mandible. Interarch appliances tend to produce some slowing of maxillary growth, some acceleration of mandibular growth (which may not be clinically significant), and flaring of the mandibular incisors. To determine the best Class II device for a particular patient, the orthodontist must consider such factors as whether the patient's profile is flat, concave, or convex; whether the face is long or short; whether the incisors are flared or upright; and whether the maxilla is prognathic or the mandible retrognathic. The severity of the problem and the anticipated patient cooperation also play an important role. Class II, division 1 and 2 cases often involves both dental and skeletal problems. Functional

appliances have been shown to produce beneficial effects in growing patients with Class II malocclusions, but the mechanism and effectiveness of these appliances remain controversial. Some authors contend that functional appliances have a mandibular skeletal effect, while others do not believe. De Vincenzo. J.P. study showed an initial stimulation of condylar growth, but a long-term total amount of growth that was no higher than in untreated control groups.

a. M.D.S. (Orthodontics)
Reader, Karnavati School of Dentistry, Gujarat.

b. M.D.S (Orthodontics)
HOD & Proffessor, Karnavati School of Dentistry, Gujarat.

c. B.D.S.
Karnavati School of Dentistry, Gujarat.

The authors report no commercial, proprietary, or financial interest in the products or companies described in this article.

Submitted, June, 2012 ; revised and accepted, July, 2012.

In any event, the ability of removable functional appliances to produce dental rotations and bodily movements is limited. Conventional functional appliances can be used when the patient reports during active growth spurt period. But if the patient reports after the pubertal growth spurt or during the late stages of puberty then, fixed functional appliances would be the better choice. A number of fixed functional correctors are available, such as Herbst appliance, Jasper Jumper, MPA, Eureka spring, Saif spring, Forsus, Adjustable bite corrector, Universal bite jumper, Versatile hinge appliances, MARA, Forsus fatigue resistant device and Twin force bite corrector etc. The Churro jumper is an interarch push spring that produces about 200g of force when fully compressed. Unlike other pushspring appliances, such as the Herbst, the churro jumper can intrude the maxillary first molars and thus correct a Class II malocclusion without opening the bite.

A 14 year old Female patient was treated in our department using Churro jumper is reported here with.

Case Report :

A 14 years old Female patient reported to the department of orthodontics with the chief

complaint of protruding upper teeth. Clinical and cephalometric examination revealed a class II skeletal pattern with mandibular deficiency and class II div 1 dental malocclusion with proclined upper anteriors and crowding in the lower teeth with aggravating soft tissues. Facial divergence is convex with receding chin. An overjet of 8mm & over bite of 4 mm was present. Her cephalometric analysis revealed a tendency towards average growth pattern and mandibular retrognathism (Fig1).

Fig 1: Pretreatment Extra oral and Intra Oralphotographs

Considering the amount of discrepancy in the upper and lower arches, it was decided to treat the patient with non extraction, preadjusted edgewise appliance supplemented with Churro jumper.

After 3 months of leveling and aligning and after 6 months of space closure with .019 x .025" SS, churro jumper was placed for 6 months (Fig2)

Fig 2: Churro jumper in place

Case was finished in class I molar and canine relationship and a pleasing profile changes (Fig3). Lower fixed canine to canine and upper removable wrap around retainer were given for retention.

Fig 3: Extra oral and intra oral photographs of the patient after removal of churro jumper

Fig 1 : Pre-treatment extra oral and intra oral photographs of the patient

Fig 2 : Churro jumper in place

Fig 3 : Extra oral and intra oral photographs of the patient after removal of Churro jumper

CONCLUSION :

A case of moderate skeletal class II and dental class II div 1 subdivision treated with PEA supplemented with Churro jumper is reported. The Churrro jumper can be used instead of Class II elastic in mild cases and in place of Herbst appliances in severe cases. Churro jumper work best in patients with convex profiles, but they are indicated in any Class II patients except those with normal mandibles and protrusive maxillae, or with protrusive or overly large mandibles relative to the other cranial structures

Brackets with negative crown torque can then be used to offset the spring forces that will tend to flare the mandibular incisors. Advance planning also makes treatment time estimates much more accurate, because the factor of patient cooperation has been largely eliminated.

REFERENCES :

1. William R. Proffit, Henry W. Fields, David M. Sarver. 4th ed. St Louis: Elsevier Mosby; 2007.
2. Ricardo Castano et al: Clinical Use of the Churro Jumper. JCO 32; 12 : (731-745) 1998
3. WilliamVogt: The Forsus Fatigue Resistant Device, JCO 2006.
4. McNamara, J.A.; Bookstein, F.; and Shaughnessy, T.: Skeletal and dental changes following functional regulator therapy, Am. J. Orthod. 88:91-111, 1985.
5. Valant, J.R. and Sinclair, P.M.: Treatment effects of the Herbst appliance, Am. J. Orthod. 95:138-147, 1989.
5. Falck, F. and Frankel, R.: Clinical relevance of step-by-step mandibular advancement in the treatment of mandibular retrusion using the Frankel appliance, Am. J. Orthod. 96:333-341, 1989.
6. Creekmore, T.D. and Radney, L.J.: Frankel appliance therapy: Orthopedic or orthodontic? Am. J. Orthod. 83:89-108, 1983.
7. DeVincenzo, J.P.: Changes in mandibular length before, during, and after successful orthopedic correction of Class II malocclusions, using a functional appliance, Am. J.Orthod. 99:241-257, 1991.
8. Bishara, S.E. and Ziaja, R.R.: Functional appliances: A review, Am. J. Orthod. 95:250- 258, 1989.
9. Krishna Nayak US, Goyal V: Treatment of division II malocclusion in young adult with Forsus™ fatigue-resistant device. Indian J Dent Res. 2012 Mar;23(2):289-91.

With Best Compliments

from :

Apple Health Care

Makers of Apple Mouthwash

Afloraac-SP, Afloraac - P and Paroply - 40mg

Apple Health Care

A-82, Mathuranagri, B/h AIMS Oxygen, Old Padra Rd, Baroda

Tel. : 0265 225130, Mob. : 92769 08948 I E-mail : appleheathcare@hotmail.com

LISTERINE® GIVES YOU 8 MORE REASONS THAN CHLORHEXIDINE.

Scientific studies have shown that LISTERINE® provides equivalent anti-plaque and anti-gingivitis effects to Chlorhexidine. All this with superior anti-microbial efficacy and no side effects like tooth staining or taste alterations.

LISTERINE® is the ideal mouthwash for long term usage. Make the right choice for your patients.

	CRITERIA	LISTERINE ® Mouthwash with essential oils	Mouthwash with Chlorhexidine
Efficacy	Plaque reduction *from placebo at 6 months[1]	103%	120%
	Gingivitis reduction *from placebo at 6 months[1]	41%	39%
	Anti - viral activity for adenovirus and coronavirus (responsible for majority of winter colds)[2]	✓	✗
	Bactericidal activity for strict anaerobes (responsible for post - operative infections)[2]	✓	✗
Long term effect	Does not cause tooth staining[1, 7]	✓	✗
	Does not cause taste alterations[6, 7]	✓	✗
	Does not promote Calculus formation[1, 7]	✓	✗
	Efficacy not impaired by toothpaste ingredients[5,7]	✓	✗
	Approved by IDA and ADA[3]	✓	✗
	CONCLUSION	Ideal for Long term use	Not ideal for long term use

Efficacy of LISTERINE® is backed by science and history. Choose LISTERINE® for your patients

- LISTERINE® has proved its efficacy for 100 years to a billion consumers.
- World's most studied mouth rinse.[4]
- Efficacy proven in multiple clinical studies.

LISTERINE® MOUTHWASH

idaa Indian Dental Association ACCEPTED

ADA Accepted American Dental Association ®

For circulation among dental professionals

For more information visit – http://listerine.in/dental-professional/home

1. Overholser CD, Meiller TF. DePaola LG, Minah GE and Niehaus C. Comparative effects of 2 chemotherapeutic mouthrinses on the development of supragingival dental plaque and gingivitis. J Chn Periodontol 1990; 17.-S7S-579. 2. Lawrence J. Walsh.Antiviral and antibacterial effects of pre-procedural mouth rinses. 3. Data on file 4. John C. Gunsolley.cA meta-analysis of six-month studies of antiplaque and antigingivitis agents. J Am Dent Assoc 2006;137;1649-1657 5. Barkvoll P, Rolla G, Svendsen AK. Interaction between chlorhexidine digluconate and sodium lauryl sulfate in vivo. J Clin Periodontol. 1989;16:593-595. 6. Peridex® (0.12% chlorhexidine gluconate) Oral Rinse [prescribing information]. Phoenix, Ariz: Zila, Inc; 2004. 7. Louis G. DePaola and Ann Eshenaur Spolarich. Safety and Efficacy of Antimicrobial Mouthrinses in Clinical Practice, J Dent Hygiene 2007, Supp: 13-25.

RMA/CHC/16Feb1201
1119.2012

CLINICALLY PROVEN

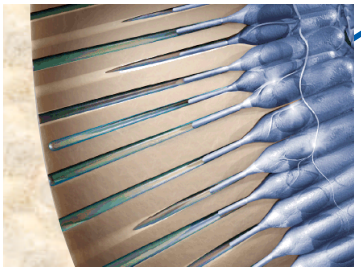
PRO-ARGIN™ TECHNOLOGY

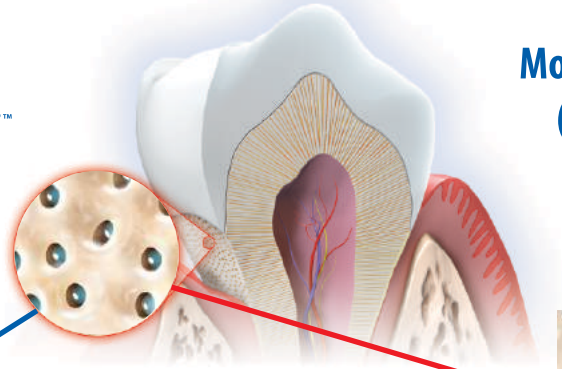
2x more effective *

WHY DOES IT WORK BETTER?

Colgate Sensitive Pro-Relief™

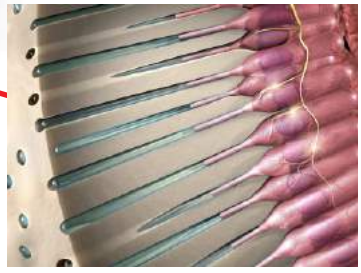
SEALS
channels to the nerve





Most Sensitive Toothpastes (with Potassium Salts)

NUMB
the nerve



- ✓ .....Instant relief **..... ✗
- ✓ .....Superior lasting relief ..... ✗
- ✓ .....Seals channels to the nerves..... ✗

idA Indian Dental Association ACCEPTED

*v/s sensitive toothpastes containing potassium salts, based on 2 weeks results after regular brushing twice a day
**when directly applied on the sensitive tooth for one minute