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ORTHODONTIC CLINICAL PEARLS

Orthodontics

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ABSTRACT

With regard to clinical aspect current advances on theory and techniques of orthodontics continues to evolve and expanding day by day. There are number of occassions in practice when orthodontics is presented with different types of malocclusion and it is commendable that the clinical procedures should be simplified and streamlined. With time and experience there are many treatment modalities and techniques have been used during past few years that facilitate to achieve good clinical results. Aim of this article is to compile some of the important and useful clinical techniques which are used routinely and frequently in orthodontic treatment planning in one frame and also present clinical information along with photographs regarding them.

KEYWORDS

Clinical pearl, orthodontic treatment, different techniques.

1.Intrusion spring

Burstone proposed this intrusion spring is made from 0.017" x 0.025" TMA wire without a helix or 0.017" x 0.025" stainless steel wire with a helix for optimal force for intrusion. A helix is formed by bending the wire gingivally mesial to the molar tube. The mesial end of the spring is bent into a hook and is engaged into archwire distal to lateral incisor. An elastic chain can be attached to the hook for simultaneous intrusion and retraction.[1,2]

2. Mollenhauer's aligning auxillary(MAA).

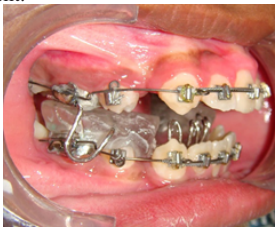
MAA auxillary was developed by Dr.Barry mollenhauer and it was given the name as ' An aligning auxillary for ribbon arch brackets'[3].It is made with 0.009" AJ Wilcock Australian wire.

Applications of maa:

Bodily alignment of crowded teeth
Root uprighting
To control mesio-distal root position.

3.EVAA appliance.[4]

The appliance described first by Van Der schueren and De Smit in 1994. EVAA stands for (in dutch) experimental fixed appliance activator. It is a solid block of acrylic with protruding wires that are inserted into the tubes of upper molar bands. The U-shaped wires inserted in headgear tubes and ending in the acrylic block enable the new postural position of the lower jaw and transfers functional forces to mandibular dentoalveolar and skeletal structures. The fixed appliances can be placed to align the teeth at the same time as the orthopedic treatment.



4. Cetlin intrusion arch [5,6]

It is used for intrusion of maxillary incisors in all class II divisions and deep bite cases. it can intrude the maxillary incisors for a period of 12 to 15 weeks[7]. Rectangular stainless steel wire is used as anterior component, 0.18 AJ wilcock wire is used as overlay intrusive wire with 3mm helix wound 2½ times placed mesial to the auxiliary tube. Curvature is placed in the intrusive arch, so that the incisal portion lies gingival to the central incisors. Thus, an intrusive force develops when the arch is tied with the anterior component.

5. Jenner auxillary[8]

It is made up of 0.012" AJ wilcock wire and consists of two boxes on the upper or lower canines with very prominent roots that may be present initially or during treatment . Lingual root torque exerted by the boxes reduces the prominence of root.

6. Pendulum appliance: [9,10]

Pendulum appliance for molar distalization was introduced by Dr. Hilgers in 1992. It consists of large Nance acrylic button in palate for anchorage and 0.032" titanium molybdenum alloy (TMA) springs that provide light and continuous force to maxillary first molars for their distalization without affecting Nance palatal button. it produces force of 200 to 250grams in a swinging arc like pendulum from midline hence the name.

7.Mulligan's appliance:[11]

Mulligan's 2x4 appliance can be used as overlay wire, made up of 0.016" AJ wilcock wire , has one helix bent into on either side 2 to 3 mm mesial to upper and lower molar tubes. The anchor bend is continuation of helix and no cuspid circles required. Helices are tied with elastic thread to buccal hook on molar tubes. The strong moments generated by anchor bends provide force for retraction as well as intrusion on incisors.

8. Riding Pontic [12]

Riding pontics are temporary prostheses used during fixed orthodontic treatment in patients with missing teeth.

Benefits of using Riding Pontics

- to improve esthetics
- mesiodistal width of the missing tooth can be maintained.
- Midline matching is easier.
- to improve Psychosocial status.

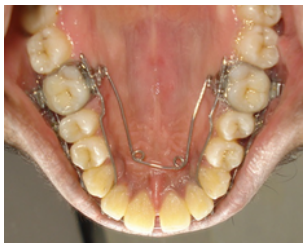
9.Quad helix: [13,14]

Rickett introduced the quad helix in 1947. It consist of two anterior helices and two posterior helices. Free end rest against lingual side on buccal teeth and are soldered onto lingual aspect of molar bands. It works by a combination of buccal tipping and skeletal expansion in a ratio of 6:1 in pre-pubertal children.

Indication-

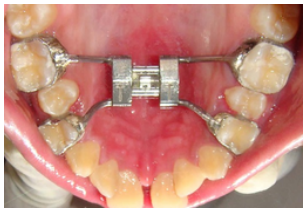
All cases of class II and class III crossbites and for arch expansion in mixed/early permenant dentition.

Cleft palate condition, either unilateral or bilateral.



10. Hyrax appliance. [15]

Hyrax type is a tooth borne, rapid maxillary appliance, introduced by William biedermann in 1968. it uses a special type of screw called HYRAX- hygienic rapid expander. The main advantage of this expander is that it does not irritate the palatal mucosa and easy to clean. It is capable of providing sutural separation of 11-13 mm within a very short period of wear. Each activation of the screw produces approximately 0.2 mm of lateral expansion and it is activated from front to back[17]. It can be given in posterior crossbite class II and class III cases, constricted maxillary arches and also cleft palate patients,



11. Temporary anchorage device (TAD).

TAD is defined as a device that is temporarily fixed to the bone for the purpose of enhancing orthodontic anchorage either by supporting the teeth of the reactive unit(indirect anchorage) or by obviating the need for reactive unit altogether (direct anchorage), which is subsequently removed after use[16].

Indication[14]**:**

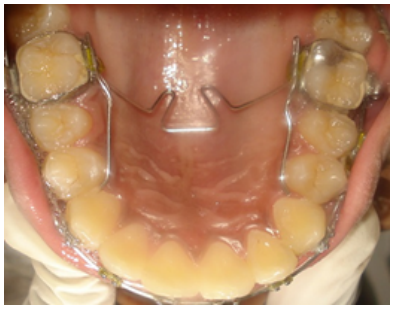
1. As absolute anchorage in maximum retraction cases
2. In case of missing 1st molar teeth, it provide anchorage as well as manage the space.
3. To achieve difficult tooth movements such as intrusion, en masse retraction, molar up righting and molar distalisation.
4. In adjunctive adult orthodontics for difficult tooth movements.

12. Forsus (fatigue resistance device) [18]

Introduced by William vogt in 2006. The Forsus is a semirigid telescoping system incorporating a superelastic nickel-titanium coil spring that can be assembled chair-side, and it can be used in conjunction with fixed orthodontic appliances. It is indicated in skeletal class II cases with retruded mandible.

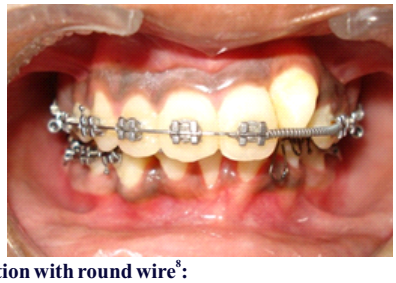
13. Zachrisson type transpalatal bar[19]**.**

it is a occlusal representation of Zachrisson-type transpalatal bar introduced in 1997 which is made from a 0.036-inch Blue Eligiloy wire, and consists of three loops: a larger and longer mesially directed central loop and on either side two small, distally directed loops. Less or no reactivation is required due to lower load deflection rate.



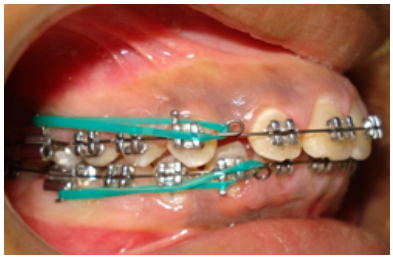
14. Niti open coil springs[14]

it is compressed between two teeth and group of teeth. It deliver the constant force during de activation due to unique property of super elasticity and can exert constant light continuous force for a long period, it used for molar distalisation and to create space for impacted tooth or teeth.



15. Retraction with round wire[8]**:**

Incorporate of cuspid circle in 0.016" SS wire mesial to canine bracket. Class II or lower class I elastics are used for retracting upper or lower incisors respectively, by sliding them along through the archwire. It helps in closing the anterior spacing, prevent drifting of cuspids and also stabilize the wire by preventing its sliding.



CONCLUSION

A hallmark of orthodontics is the diversity of treatment options on both clinical and academic issues. Nevertheless, this article have provided some of the important innovative clinical techniques and informations that could help to achieve accurate treatment results. However it is not possible to cover the complete orthodontics as it is a vast subject to explore and there is no end for it

REFERENCES:

1. Shroff B, Lindauer SJ, Burstone SJ, and Leiss JB. Segmented Approach to Simultaneous Intrusion and Space Closure: Biomechanics of the Three-Piece Base Arch Appliance. Am J Orthod Dentofac Orthop 1995;107:136-143.
2. Shroff B, Yoon W, Lindauer SJ; Burstone CJ. Simultaneous Intrusion and Retraction Using A Three-piece Base Arch. Angle Orthod 1997;67(6):455-462.
3. Mollenhauer B. An aligning auxiliary for ribbon arch brackets: rectangular boxes from ultrafine high tensile wires. Aust Orthod J 1990;11:219-226
4. Van der Schueren GL, De Smit AA. Combined fixed-functional Class II treatment. J Clin Orthod. 1994 Jan;28(1):15-20.
5. Burstone, C.D.: Mechanics of the segmented arch technique, Angle Orthod. 36:99- 120, 1966.
6. Burstone, C.D.: Deep overbite correction by intrusion, Amer. J. Orthod. 72:1-22, 1977.
7. kalra hiten, class II correction: non extraction approach, bfudj, volume 5, number 2, June, 2014
8. Dr. vijay p. jayade, refined begg for modern times, 1st edition September 2001
9. Hilger JJ. A palatal expansion appliance for non- compliance therapy. J Clin Orthod 1991; 25:491-7.
10. Hilger JJ. The pendulum appliance for class II non-compliance therapy. J Clin Orthod. 1992; 26:706-14.
11. mulligan TF: common sense mechanics.Phoenix,Az:CSM,1982
12. Jena AK, Chandrashekar BS, Duggal R. Riding pontics: An esthetic aid in orthodontics. Orthodont Cyber J 2007.
13. Ricketts, R. M.: Early treatment, J. Clin. Orthod. 13: 181, 1979.
14. om prakash kharbanda. Orthodontics- diagnosis and management of maloclusion and dentofacial deformities. 2nd edition 2013
15. hass. Rapid palatal expansion of maxillary dental arch and nasal cavity by opening the mid palatal suture. Angle orthod 1961;31:73-90
16. Cope JS. Temporary anchorage devices in orthodontics: a paradigm shift. Semin orthod 2005;11:3-9.
17. Bishara SE, Staley RN. Maxillary expansion: clinical impli¬cations. Am J Orthod Dentofacial Orthop 1987 Jan;91(1): 3-14.
18. Dr. Prateek, Dr. Shami and Dr. Sandhya, 2017. "Fixed functional appliances: An overview", International Journal of Current Research 9, (03), 47407-47414.
19. Zachrisson, B. U. Important aspects of long-term stability. J ClinOrthod 1997. 31:562–583.