Bringing The "Corner Stone" In Its Place: Effectively And Efficaciously..

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Abstract:

Eruption disturbance of permanent canines is commonly encountered by orthodontists, the cause could be multifactorial, and "en number of modalities" are used to align them properly in the line of occlusion. To extrude a tooth on its own axis using the continuous arch wire in an efficacious manner is difficult. This article highlights the salient features and various considerations to approach the cases where eruption disturbance of canine can be seen. Several systems use arch wires for control and elastomers for force application, to allow the canine and other teeth to be guided by this wire during movement. A somewhat different approach uses a metallic loop or spring as the only connection between tooth segments or individual teeth. In this direction enlightening the treatment modalities and cases treated in our department with different approaches.

Key-words: Canine, Segmented Mechanics, Loop, Cantilever Spring.

Introduction:

Canines are popularly known as the "Corner stone of the face", and because of the unique functional and esthetic characteristics, it is the duty of the orthodontists to bring the impacted canines in its proper position in the arch by making use of his unique skills.

The incidence of impacted canines occurs in a significant percentage of the population. Which could due to..

1) eruption disturbance
2) canines require the longest period to develop,
3) They have the most difficult path of eruption in comparison with all of the other teeth.
4) Genetic, systemic and local factors.

To extrude a tooth on own axis using the continuous arch wire can be quite complex. Effective repositioning of the teeth requires that the appliance provide a specific force system (force and moment) to segments or individual teeth in the dental arch. To provide this force system, the appliance must have the following mechanical characteristics1:

a   It must provide appropriate levels of force and moment-to-force (M/F) ratios to achieve the tooth displacement desired.

b.   It must be able to undergo a reasonable range of activation/ deactivation in which the appliance delivers relatively constant forces and moments.

c.   It must be small enough to fit comfortably in the space available for intraoral treatment.

Differential space closure is achieved by varying the force system between the anterior and posterior segments. A specially designed force transducer allowed accurate force and moment determination for each spring design. By duplicating predetermined spring geometries, the orthodontist can reproduce the required force system within narrow ranges2.

The most important considerations in the clinical use of attraction springs are the amount of distal activation, the angulation differential between the anterior and posterior teeth, and the centricity or eccentricity of the loop. Improvements in design have led to a more efficient, hygienic, and comfortable mechanism for space closure.

Thereby presenting all the appliance used to treat the cases where we found disturbance in canine eruption. Emphasis in this article will be on design principles and the clinical usage of attraction mechanisms for guiding the teeth in correct and efficient way2.

Single Cantilever Spring.

We have made a modified cantilever spring (TMA 0.017x0.025-inch), to align the impacted canine effectively and efficiently to the occlusal level without taxing on molar anchorage during the course of fixed orthodontic therapy within the speculative time frame.

Biomechanically One-couple cantilever appliance is proficient in applying well determined system for effective controlled tooth movement. In this method, there are two sites of attachments – One in which the cantilever is inserted in to auxiliaries where both a

couple & force is generated , and one at which the There are two sites of attachment - One in which the appliance is inserted into a auxiliaries where both a couple and force is generated, and one at which the appliance is tied as a point contact where only a force is produced3.

CASE :

The Monkey Hook :

The Monkey Hook* is a simple auxiliary with an open loop on each end for the attachment of intraoral elastics or elastomeric chain, or for connecting to a bondable loop-button. A combination of Monkey Hooks and bondable loop-buttons allows the production of a variety of different directional forces to assist in the correction of impacted, rotated, or displaced teeth4.

CASE:

Box Loop Mechanics:

A box loop produces a statically indeterminate force system. When used for canine alignment, it is constructed of .017" × .025" TMA. The activation of the box loop depends on the desired position of the canine in both the sagittal and horizontal planes of space5.

Because segmented cantilever mechanics create a statically determinate force system, they offer a predictable method of tooth movement. Box loops produce a statically indeterminate force system, but they are nevertheless effective in providing 1st- and 2nd-order corrections while continuing the eruption of an impacted canine. The combination of these two procedures reduces treatment time in the finishing stage.
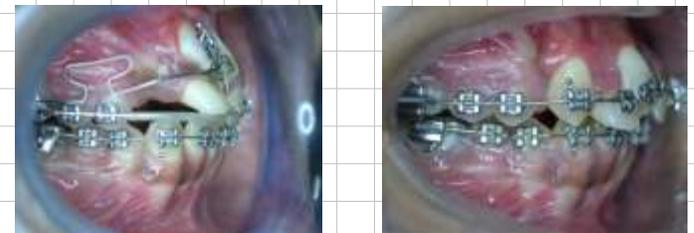
CASE:

T loop

The segmented arch technique developed by Burstone in 19626 utilizes T-loop space closure springs for anterior retraction, posterior protraction or symmetric space closure. Burstone describes this segmental T-loop as one of the most versatile space closure devices available. The force system produced by a segmented T-loop spring consists of several components-the alpha moment, the beta moment, horizontal forces, and vertical forces7.

Differential anchorage is obtained by the application of unequal alpha and beta moments. The higher moment is applied to the anchorage teeth. We have treated many cases with T loop with appreciative outcome.

CASE A :

CASE B :

Conclusion:

Treatment of canine eruption disturbance is always a difficult problem. We have many tretamnet approaches but the best option should be according to casewe are treating. Here by we have found T loop is the best effective and efficient treatment modality for canine extrusion and retraction.

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