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Midline Diastema Correction Utilizing Clinical Application of M-Spring - A Case Report

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Abstract

Background: The aim of this paper is to illustrate the clinical application of M-Spring for the correction of midline diastema.

The midline diastema can be caused by various reasons such as high frenal attachment, midline pathology, etc. In the field of orthodontics, relapse rate is high while treating midline diastema. This relapse can be reduced only when there is bodily movement of the incisors in mesial direction.

Case report: In this article, midline diastema treated using "M" spring which has three coils; two at periphery and one at the Center and each coil was of 3mm diameter. "M" spring was fabricated using 0.017 X 0.025 TMA. The duration of treatment was for six weeks.

Keywords: Midline diastema, Diastema correction, Bodily movement, M-spring.

Introduction

Aesthetics and function are the two most important goals of modern-day dentistry. An attractive well-balanced smile and a confident speech are valuable personal assets. Maxillary midline diastema is one of the most frequently seen malocclusions and its incidence ranges from 1.6% to 25.4% and is inversely proportional to age. Angle described the midline diastema as a common form of incomplete occlusion characterized by a space between the maxillary and, less frequently, mandibular central incisors. In his classical article, Andrews stated that interdental diastemas should not exist and all contacts should be tight so that the patient has 'straight and attractive teeth as well as a correct overall dental occlusion.' Maxillary anterior spacing or diastema is considered unesthetic and unacceptable by the general population. Treating the midline diastema is a problem for the dental practitioner as many different aetiologies are reported to be associated with it. Many researchers,

like Broadbent, consider midline diastema as an 'ugly duckling stage' and explain this phase as a transitional phase in the dental development. He also describes the closure of the diastema with the complete eruption of lateral incisors and canines as a normal stage in dental development. However, the persistence of the midline diastema, even after the eruption of the permanent canines, in some cases requires investigation into the underlying causes and possible preventive and corrective treatment options.

M-spring

"M" spring which has three coils; two at periphery and one at the Center and each coil was of 3mm diameter. "M" spring was fabricated using 0.017 X 0.025 TMA. The spring design is very simple and easy to fabricate. Activation by closing the helix.

Since, the spring is made up of rectangular wire rather than tipping of teeth there is bodily tooth movement and hence occurrence of relapse is rare.

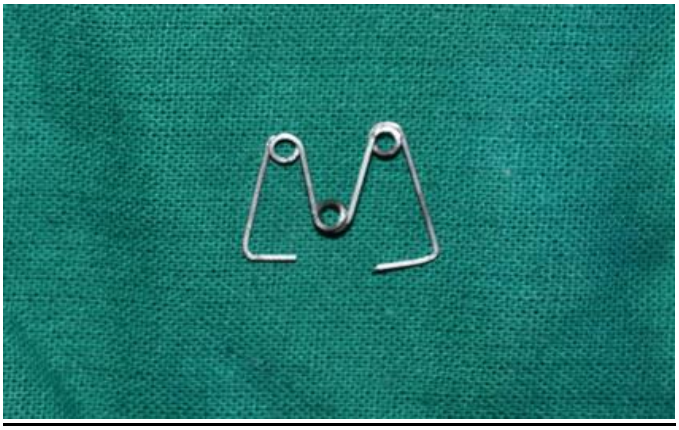

Figure 1:

A Case Report

A 21 yrs old female patient came to our department with a chief complaint of gaps present between upper two front teeth. On extra oral examination she has convex profile, posterior divergence, mesomorphic build with asthenic body type, mesocephalic head and Competent lips.

On Intraoral examination, Patient presented with class I molar and canine relation bilaterally with midline diastema of 3.5mm and overjet of 4mm.

After examination, she was diagnosed as Skeletal Class II base, with underlying Angle's Class I malocclusion with midline diastema and increased overjet with horizontal growth pattern.

Treatment Objectives

1. Correction of Midline diastema
2. Correction of rotations
3. Achieving aesthetic considerations

Treatment plan

Non-extraction treatment plan is finalised and correction of midline diastema using M-spring made up of 17X25 TMA wire. After that, Conventional fixed appliance therapy. The appliance used is PEA MBT me chano therapy in 0.022 SLOT.

Figure 2: Midline diastema reduced to 1mm after 2 weeks

Lower 0.016 NiTi placed

Figure 3: After 6 weeks of treatment using M-spring, midline space is completely closed and upper 0.016 NiTi is placed

Discussion

Young adults are more concerned about their aesthetics. Aesthetics is compromised in patients with midline diastema. Maxillary midline diastema is a common dental malocclusion characterized by a space between the central incisors. Numerous etiologic factors such as tooth material and jaw size discrepancies, aberrant labial frenum attachments, habits, congenitally missing lateral incisors, midline pathologies, peg laterals, etc. have been reported for midline diastema.

Various metals play a major role in treating cases of midline diastema in orthodontics. These metals are being used to produce natural aesthetic smile in human beings. Metals used vary with their property and cross section. Depending on the properties and dimension of the wire, wire must be decided prior to the treatment to control the relapse. This article describes a case treated with "M" spring for midline diastema.

Conclusion

M-spring with rectangular wire is a better way of treating midline diastema in which the occurrence of relapse can be reduced because of bodily movement of the tooth in mesial direction. This "M" spring reduced the fabrication time and treatment duration.

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