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The Management of Maxillary Midline Diastema a Clinical Case Report

Dr Rahul Pushpad[1],Dr Siddharth Dixit[2] , Dr Trilok Shrivastava[3], Dr Chandresh Shukla[4], Dr Syed Akbar Ali[5]

[1] PG student, Department of orthodontics and dentofacial orthopaedic, People's college of dental sciences and research centreBhopal ,Madhya Pradesh

[2]MDS Reader,Department of orthodontics and dentofacial orthopaedic, People's college of dental sciences and research centreBhopal ,Madhya Pradesh

[3]MDS Professor and Head of Department, Department of orthodontics and dentofacial orthopaedic, People's college of dental sciences and research centre Bhopal ,Madhya Pradesh

[4]MDS Professor, Department of orthodontics and dentofacial orthopaedic, People's college of dental sciences and research centreBhopal ,Madhya Pradesh

[5]MDS Professor, Department of orthodontics and dentofacial orthopaedic, People's college of dental sciences and research centreBhopal ,Madhya Pradesh

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ABSTRACT

Midline diastema is a space between the maxillary or mandibular central incisors. Midline diastema can be caused byvarious factor such as genetic, environmental etc. A maxillary midline diastema is a most common complaint of dental patients.Maxillary midline diastema can be treated from different disciplines method, including operative dentistry and orthodontics. Acomprehensive smile analysis isnecessity before beginning treatment. This article highlightsthe closure of a 3-mm Maxillary Midline Diastema by using fixed orthodontics technique.

KEYWORDS :-Case report, Fixed Orthodontic Treatment , Midline diastema,

I. INTRODUCTION

Diastema, which means interval in Greek, is a gap or space between two or more consecutive teeth. It occurs more frequently in the median plane of the maxillary arch between the two central incisors and hence called the median, central or midline diastema.Angledescribed the dental midline diastema as a rather common form of incomplete occlusion characterized by a space between the maxillary and less frequently the mandibular central incisors[1]. Maxillary anterior space shown to be most negative influence on the dental appearance[2],maxillary midline diastema is commonly a primary concern of patient during dental consultation[3].It is most frequently seen malocclusions and its incidence ranges from 1.6% to 25.4% and is inversely proportional to age.Broadbent described the maxillary midline diastema in growing children as unaesthetically pleasing and termed it as the “ugly duckling” stage of dental development. He considered this stage as a phase which underwent spontaneous closure with the complete eruption of lateral incisors and canines[4].The continuing presence of a diastema between the maxillary central incisors in adults often is considered an esthetic or malocclusion problem[5]. Midline diastema’s can be physiological, dentoalveolar, due to a missing tooth, due to peg shaped lateral, midline supernumerary teeth,proclinationof the upper labial segment, prominent frenum and due to a self-inflicted pathology by tongue piercing[6,7].The extent and the cause of the diastema must be properly evaluated. Proper case selection, appropriate treatment selection, adequate patient cooperation, and good oral hygiene are crucial to the treatment success.MMD has been defined as a space greater than 0.5 mm between the mesial surfaces of the 2 maxillary central incisors.This article illustrates a clinical situation in which an MMD was addressed bycompleting a comprehensive smile analysis, followed by closure using limited orthodontic.

CLINICAL REPORT

A 29-year-oldfemalereported to the department of orthodontic and dentofacial orthopedic PCDS & RC Bhopal with chief

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complaint of spacing in her upper front tooth region expressing unhappiness with her smile. The smile analysis revealed a 3-mm diastema between the maxillary central incisors, 0.5-mm diastemas between the maxillary canines and lateral incisors, with peg lateral incisor on upper arch right sidean average smile line with 75% to 100% of the clinical crown height of the maxillary incisors displayed, with good oral hygiene and no abnormal habit

Extraoral photograph (Fig:1)shows no gross facial asymmetry flat forehead with straight profile and obtuse nasolabial angle , competent lip withand an appropriate axial inclination of all 6 maxillary anterior teeth. Intraoral photograph(Fig: 2)shows that U shape Maxillary and Mandibular arch ,Class I molar and canine relation present bilaterally with maxillary midline diastema and peg lateral incisor, lower anterior crowding.

Figure 1: Extra-oral Photographs

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Figure 2: Intra-Oral Photographs

TREATMENT OBJECTIVE

✓ Close the space present in maxillary anterior.
✓ Correction of peg lateral incisor.
✓ Correction of lower anterior crowding.

TREATMENT PLANNING

Considering the age and profile of patient the case is to be treated with fixed orthodontic therapy using MBT mechanics with non-extraction protocol firstly initial leveling alignment then, Correction of spacing, Correction of peg shape upperright lateral incisor and reliving of crowdingin lower arch .

Figure 3: Mid Treatment Photographs

TREATMENT PROGRESS

Complete oral prophylaxis was done for both the arch. Initially patients is refer to department of endodontic for buildup of peg lateral incisor. After that Teeth were etched with 37% phosphoric acid. McLaughlin Bennett Trevisi (MBT) 022 slot brackets were bonded using transbond composite resin. MBT bracket positioning gauge was used to position the bracket. MBT chart was used for the placement of the bracket. The brackets were cured for 20 seconds using LED light cure. Using Group A anchoragealignment and leveling was done using round 0.016"thermal nickel-titanium (NiTi), followed by rectangular 0.019x 0.025" nickel-titanium (NiTi) and followed by rectangular0.019x 0.025" stainless steel as shown in **Figure 3**. Midline space closure was decided to be done using continues Elastic Chain by consolidation from molar to canine in upper arch. Later on, class III elastic is used for finishing and detailing case.

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Figure 4: PostTreatmentPhotograph

Finishing and detailing case in class I molar and canine relation with ideal overjet and overbite with bonded fixed lingual retainer in upper and lower arch as shown in **Figure 4 and 5**.

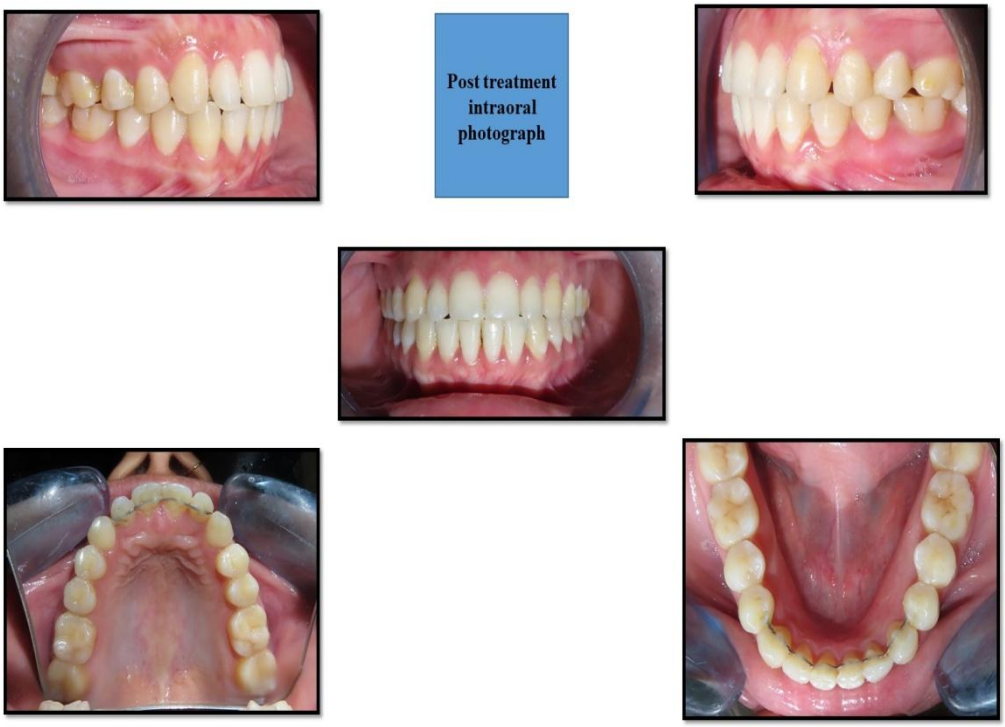

Figure 5: Post Treatment Photographs

II. DISCUSSION

In general, fixed-type appliances can provide better control in crown/root angulation. Bracketed/banded appliances can close diastemas due to improper tooth inclination, deleterious occlusal patterns.There are many etiological factors

in the development of a median diastema and most have been investigated to some degree. A common cause of tooth size discrepancy is the peg-shaped maxillary lateral incisors incidence ranges from 1.6% to 25.4% and is inversely proportional to age. The reduced sizeof the maxillary lateral incisor will allowthe distal drifting of the central incisors,creating a midline diastema. If the reason for midline diastema is peg laterals, the space between the central incisors is closed; respecting the midline space the buildup of the peg-shaped lateral is done.In cases of midline diastemas caused by peg lateral incisor can be treated by combination of composite build up of peg lateral and orthodontic approach. This is the case report of 29year old female patient treated with multidisciplinary approach and fixed orthodontic therapy the diastema is closed by continues E-chain.

III. CONCLUSION

The etiology of midline diastema is a very important factor before starting any orthodontic correction.Environmentalfactors as well genetic influences together play a vital role in the etiology of midline diastema hence the orthodontist role to evaluate the various important factors and predict the risk of a developing midline diastema is valuable for patient diagnosis, treatment and retention. However, if the diastema is more than1.8 mm, an orthodontic intervention will be necessary. To achieve an aesthetic and stable result, it is important to establish the underlying cause for the midline diastema and the diastema is closed by Elastic chain using fixed orthodontic therapy.

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