

MANAGEMENT OF MIDLINE DIASTEMA ALONG WITH GENERALIZED SPACING OF TEETH: A CASE REPORT***¹Dr. Bina Nandi and ²Dr. Debasis Jana**

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ABSTRACT

Midline diastema refers to anterior midline spacing between the two maxillary central incisors. Spacing usually occurs as a result of disproportion between tooth size and arch length. A relative increased arch length or an decrease in tooth material can result in spacing. Many etiological factors are responsible for development of spacing. The case report presented here discuss the orthodontic management of generalized spacing of upper anterior region and midline diastema with proclined upper incisors.

KEYWORDS: Arch length, midline diastema, preadjusted edgewise mechanics.**INTRODUCTION**

The presence of spacing between teeth is one of the commonly seen manifestations of a class I malocclusion. The presence of spacing is a normal feature of deciduous dentition and is considered as positive prognostic sign. In the permanent dentition presence of spacing between the teeth is abnormal. The spacing can be in a localized area or the entire arch can exhibit spacing. The presence of midline spacing also has a racial and familial background.^[1] The Negroid race shows the greatest incidence of midline diastema.

Generalized spacing usually occurs as a result of disproportion between arch length and tooth material. Spacing can occur as a result of alteration in tooth morphology. Abnormal tooth form such as Peg shaped laterals can predispose to spacing. Deleterious oral habits such as thumb sucking and tongue thrusting can cause spacing in anterior region.^[2] Macroglossia can predispose to spacing. Presence of unerupted supernumerary teeth or any cystic lesion or other pathology can cause spacing.

DIAGNOSIS: A 20 years old girl reported to my clinic with chief complain of spacing of teeth and unpleasant smile.

Extraoral examination shows

- Dolicocephalic headform and leptoprosopic facial form.
- Lips are potentially competent with interlabial gap of 3mm
- Incisor display is 3mm at rest.

- Full incisal display with 1-2mm of gingiva at smile.
- Smile arc is non consonant.
- Increased lower anterior facial height.
- Posteriorly divergent face.
- No history of congenital diseases or anomaly recorded.

Intraoral examination

- Maxilla mandibular relationship shows class I molar and class I canine relationship.
- Overjet of 9mm.
- Overbite of 3mm.
- Curve of spee 2.5mm in both side.

Study model analysis – Carey' s analysis shows arch perimeter and total tooth material discrepancy of 8mm on maxillary arch and of 12mm on mandibular arch.

Bolton' s ratio shows 1.5mm of maxillary tooth material excess and 2.3mm of mandibular tooth material excess.

Ashley Howe's analysis indicates basal arch width 38.13%.

Cephalometric analysis revealed skeletal class I with ANB of 02 degree and FMA of 28 degree.

MANAGEMENT

Treatment plan: Fixed mechanotherapy with preadjusted edgewise mechanics following MBT prescription. After alignment done, elastic chain was used to close midline diastema and consolidate anterior spaces. Then the remaining spaces were closed taking anchorage from

posterior teeth and transpalatal arch. Closure of spaces by retraction of anteriors done on 19×25 ss wire.^[3]

Table 1: Pre-treatment and post-treatment parameters.

Parameters	Pre-treatment	Post-treatment
SNA	80 degree	80 degree
SNB	78 degree	78degree
ANB	2 degree	2 degree
FMA	28degree	27degree
IMPA	99degree	95degree
1 to NA	48degreee/11mm	35degree/7mm
1 to NB	30degree/9mm	27degree/ 4mm



Figure 1: Pre-treatment extra-oral photographs.



Figure 2: Pre-treatment intra-oral photographs.



Figure 3: Post-treatment extra-oral photographs.



Figure 4: Post-treatment intra-oral photographs with Lower bonded lingual retainer.

DISCUSSION

A proper history and clinical examination was done as in any other malocclusion.^[4] Any pathology or unerupted teeth or mesiodens was eliminated by radiography. There was a history of Thumb sucking in childhood. The habit no longer persists. Treatment was done by fixed mechanotherapy with preadjusted edgewise following MBT prescription. Retention is the most critical part of treatment of spacing and midline diastema. Bonded lingual retainer along with Hawleys removable plate given. The bonded FSW retainer is ideal for short- or long-term retention of closed median diastemas. The 0.0215-inch five-stranded wire should be bonded preferably over four units to reduce the risk of untoward side effects.^[5]

CONCLUSION

Midline diastema is one of the most frequently seen malocclusions that is considered easy to treat but often difficult to retain. The treatment of midline diastema and spacing is done in three phases. The first phase involves removal of etiology. Habits should be eliminated using fixed or removable habit breakers. Unerupted mesiodens should be extracted. Frenectomy should be performed to excise a thick fleshy frenum. Any midline pathology should be treated as indicated. The second phase consists of active treatment. It can be done using removable appliances or fixed appliances. The third phase of treatment involve retaining the treated malocclusion.

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