

Deep Bite malocclusion corrected with intrusion arch, a Orthodontic Case Report of an adolescent patient.

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Abstract

Deep bite malocclusion, particularly in orthodontics, deep bite has considered a difficult anomaly to correct, but also as the one most hindering to solving the problems resulting from other associated malpositions.

This is a case presentation of deep bite malocclusion in which a patient with deep bite with Class I malocclusion treated with fixed orthodontic mechanotherapy. A 13-year-old boy patient, whose chief complaint was the upper teeth heat the lower teeth diastema and creat sensitivity and mild pain during chewing. On extraoral examination he has mesocephalic head form and mesoprosopic facial form symmetrical face and lips are competent and intraorally he had class 1 molar relationship bilaterally with decreased overjet and deep overbite. For this patient the deep overbite corrected with intrusion utility arch with fixed orthodontic appliances.

Key words – Deep bite, Intrusion arch

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I. Introduction

Deep bite is one of the most common malocclusion seen in children as well as adults and is most difficult to treat successfully. Bishara [1] (Glossary) defined deepbite as Malocclusion in which the mandibular incisor crowns are excessively overlapped vertically by the maxillary incisors when the teeth are in centric occlusion. Deep bite is a malocclusion that occurs in the vertical plane of space. Some degree of vertical overlapping or overbite is a normal feature of human dentition. However, some patients present with excessive overbite termed as deep bite or deep overbite. The deep bite in the permanent dentition may be caused by inherent factors or factors acquired during the life of that dentition.

Deep bite malocclusion may cause a patient to periodontal involvement, effect on mastication, trauma, different functional abnormalities, bruxism, clicking and crepitus in temporomandibular joint.

Deep bite can be classified as dentoalveolar deep bite and skeletal deep bite, true deep bite and pseudo deep bite or incomplete deep bite and complete deep bite [2,3].

A deep bite anteriorly could be caused by supraeruption of upper and/or lower incisors or infraeruption of posterior teeth [4]. To evaluate whether infraeruption or supraeruption is present, the orthodontist must use linear measurements from the base of the alveolar process. This can be established by Cephalometric analysis.

II. Case Report

Diagnosis

A 16-years oldboy reported to the Department of Orthodontics of Guru Nanak Institute of Dental Sciences & Research with chief complaint of sensitivity of lower teeth with mild irritation and gum recession in lower anterior region with crowding of the maxillary and mandibular dental arches, Patient and guardian both were motivated about the treatment.

Figure 1 showing pretreatment extraoral and intraoral photographs and lateral cephalogram with OPG. He had a symmetric face, competent lips and average smile line, with presence of anterior complete deep bite present with class I molar relation and the Permanent teeth are not fully erupted. Intraoral examination shows presence of anterior complete deep bite present withclass I molar relation and the Permanent teeth are not fully erupted with difference in gingival margin heights between left maxillary permanent lateral incisor and canine

also noted in upper anteriors with inadequate attached gingiva over left lower central incisor. The width of keratinized attached gingiva of lower labial segment is reduced. Patient's medical history did not reveal any systemic diseases. The problem list was anterior deep bite with gingival recession of lower anterior teeth. Maxillary arch space deficiency of approx 3 mm and 2 mm respectively with flat smile arc. The aims of treatment correction of deep bite enhance smile esthetics alignment of upper and lower arches. The treatment objectives was correction of deep bite by proclination of upper anterior and extrusion of lower posterior teeth and correction of inclination of upper anteriors and develop consonant smile.

The cephalometric examination revealed the maxillary base is class I relative to mandibular base. Cephalometric analysis in contrast to clinical this goes with the clinical findings. The vertical proportions are near normal and correlates with the clinical findings. The lower incisor is normal to the mandibular base IMPA 92° while FMIA (67°) is reduced showing dento-alveolar compensation with FMA 23°. Where as the Maxillary incisors show mild retroclination (UI to NA Linear 2 mm and angular 23°). The maxillary to mandibular anterior teeth relation is about (inter incisal angle 144°). Soft tissue the lower lip is about & upper lip is 3mm E-Line. This goes with the clinical findings.

Treatment objectives

1. To alleviate the deep bite and achieve ideal over bite.
2. To achieve class I canine relationship.
3. To relieve mild crowding of upper and lower anteriors.

Treatment plan

Based on clinical and cephalometric analysis the case has to be treated by Orthodontic line of treatment. Intrusion of maxillary teeth was done by utility arch.

Treatment progress –

The patient was Preadjusted edgewise appliances 0.022×0.028 slot (MBT prescription) was bonded to the maxillary and mandibular arches. Anchorage control was done by banding of 1st molars and TPA over 1st Permanent Maxillary molars. Initial leveling and alignment was carried out by 0.016inch HANT wire, then 0.018 AJ Willcock wire, followed by rectangular 0.019×0.025 Niti and stainless steel. Both the arches were prepared for bite opening by extrusion of posterior teeth and correction of inclination of anterior teeth by protraction utility arch. Anterior bite turbo was given for keep the bite open. Settling was done by 0.016 Niti used for both upper and lower arches.

Flexible spiral retainer from canine to canine in the maxillary and mandibular arch and Hawley's removable retainer for both the arches were given.

At the end of the Orthodontic treatment, it was possible to observed stable occlusion with Class I molar and canine relationship, adequate overbite and overjet and good form of dental arch.

Treatment result –

Case was finished with molars in functional Class I, canine in Class I and optimum overjet and overbite. Lip competency was achieved and marked improvement of facial aesthtics.

III. Discussion

Before deciding whether to perform compensatory orthodontic treatment, the clinician should conduct a detailed facial analysis. 5

Several studies have concluded that the intrusion of the anterior teeth shows to be more effective and efficient when a segmental arch is used, some mention an intrusion of 1.5 mm in superiors and 1.9 mm in inferiors while others have indicated an intrusion of up to 3 mm. 6,7

According to Nanda deep overbite can be corrected by genuine intrusion of the anterior teeth, extrusion of the posterior teeth or a combination of intrusion and extrusion .8,9

IV. Conclusion

The clinical management for orthodontic patients with gingival recession remains a tricky task for orthodontists to accomplish, especially in class I crowding patients with deep overbite and retroclined upper incisors. The proper management of biomechanics and control for the correction of these problems allow us to achieve an adequate and stable occlusion in our patients.

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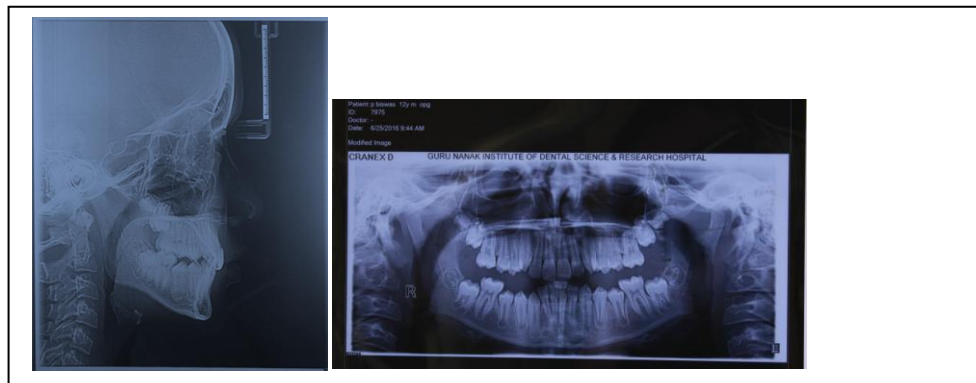
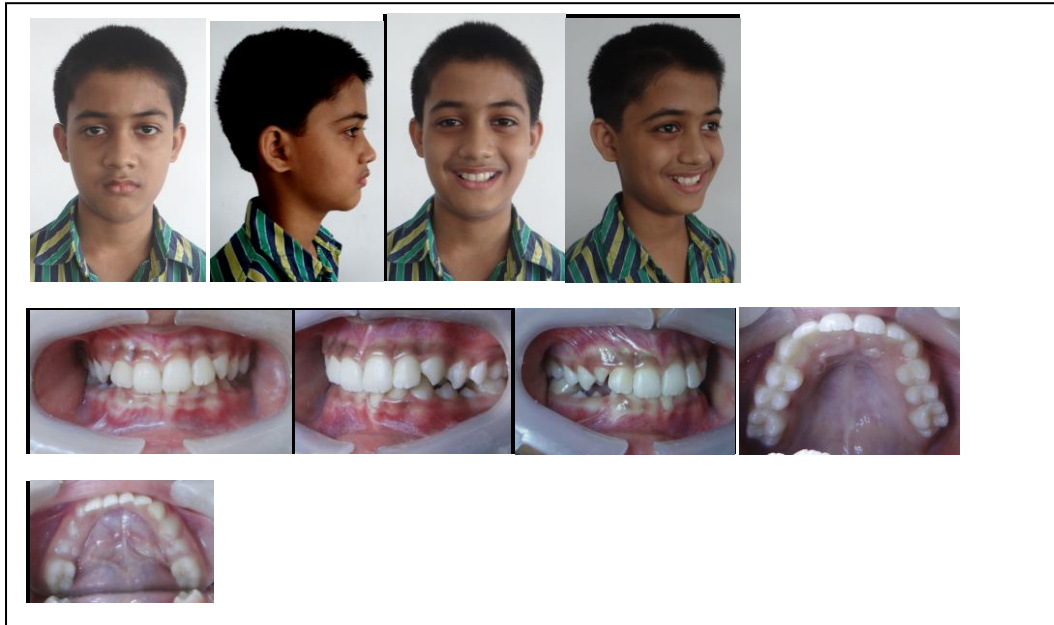


Figure 1 : Pre treatment intraoral photographs and lateral cephalogram and OPG



Figure 2 : Mid treatment intraoral photographs

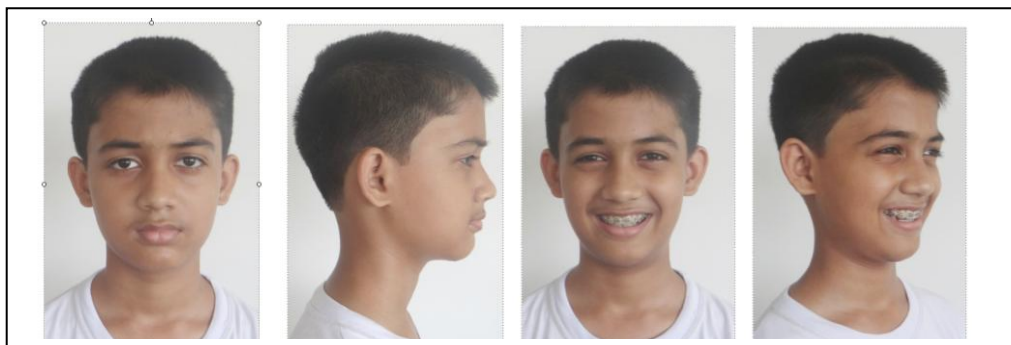
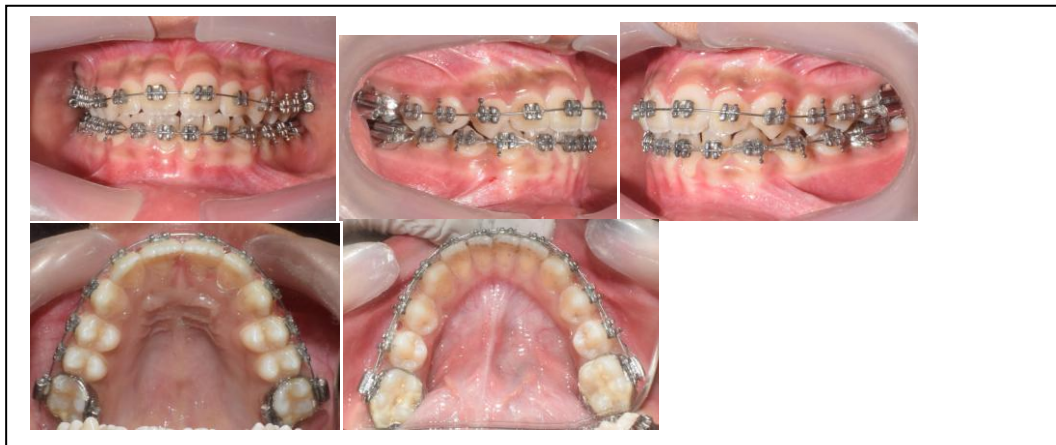


Figure 3 : Near end treatment intraoral and extraoral photographs

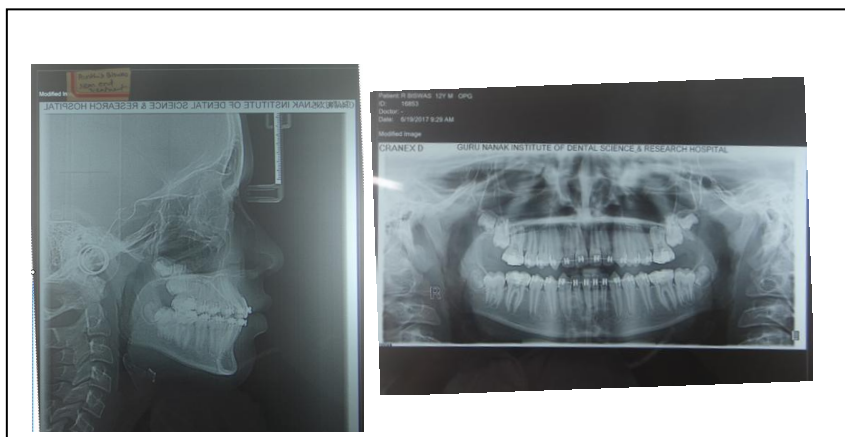


Figure 4: Near end treatment lateral cephalogram and OPG

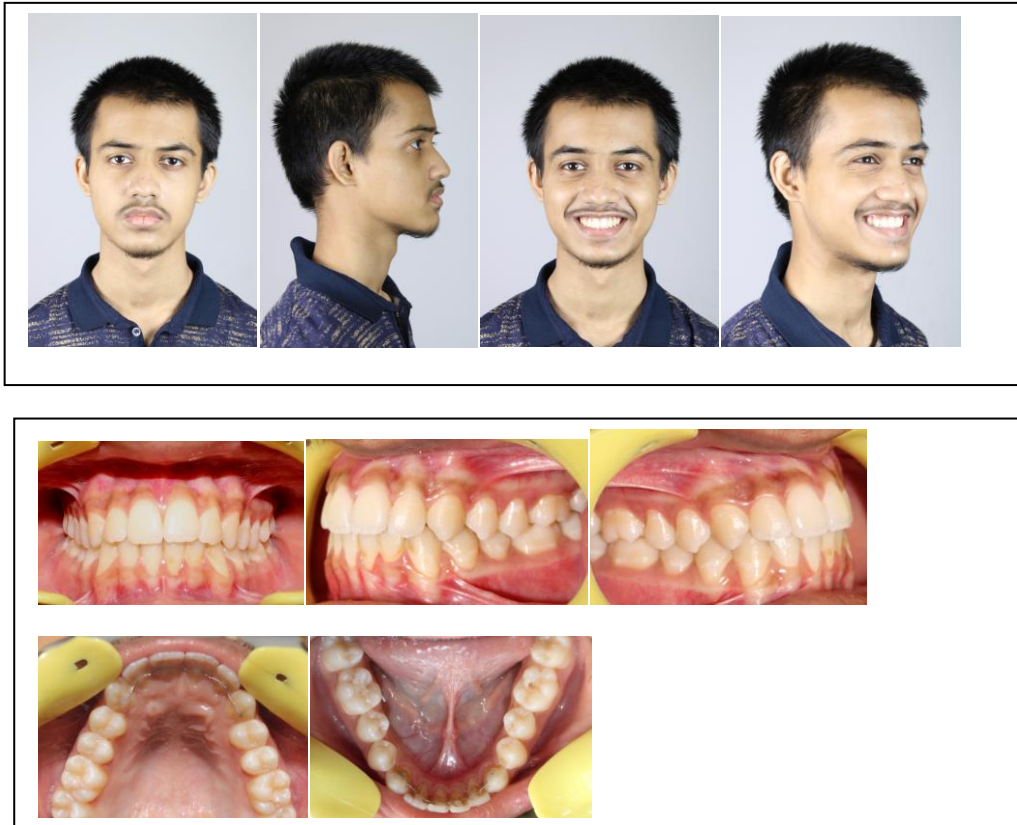


Figure 5: End treatment extraoral and intraoral photographs

Table 1 : Pre and post treatment cephalometric values

| Measurement | Pre treatment | Post treatment |
|----------------------|---------------|----------------|
| SNA | 76 | 76 |
| SNB | 74 | 75 |
| ANB | 2 | 1 |
| Occl. To S-N | 20 | 20 |
| GoGn to S-N | 29 | 31 |
| UI to N-A (mm.) | 2 | 6 |
| LI to N-B (mm.) | 0 | 5 |
| UI to N-A (Angle) | 23 | 28 |
| LI to N-B (Angle) | 18 | 22 |
| LI to UI (Angle) | 144 | 130 |
| Upper Lip Protrusion | 3 | 3.5 |
| Lower Lip Protrusion | 1.5 | 2.5 |

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