Bimaxillary Protrusion - Management With Sliding Mechanics

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ABSTRACT:
The straight wire appliance has supreme control and finishing potential. This case report will evaluate the management of bimaxillary protrusion in adult patient with extraction of premolars. Clinical and cephalometric evaluation revealed Class I Skeletal pattern, Class I dental pattern, bimaxillary protrusion, high mandibular plane angle, increased lower anterior facial height, protruded upper and lower lips, decreased overjet and overbite. The goal of treatment was to use light forces and to provide maximum space for the retraction of anterior teeth. The case was successfully managed by extraction of all first premolars and fixed appliance therapy using MBT mechanics. Post-treatment changes were good and stable.

Key words: Bimaxillary protrusion, MBT mechanics, Malocclusion

CASE REPORT

Introduction
Class I bimaxillary protrusion is frequent type of malocclusion encountered in India. Its management frequently involves four premolar extractions. These cases were earlier managed to reasonable extent using edgewise appliance¹² and later with Begg's appliance.³ This case report illustrates An adult male patient having angles Class I dental with bimaxillary protrusion on class I skeletal base treated with extraction of all the first premolars using 022 MBT (McLaughlin Bennett Trevisi) mechanics⁴

Case Report
This 16-year-old patient presented with a Class I bimaxillary protrusion malocclusion with a significant anteroposterior skeletal discrepancy, and a high angle between the maxillary and mandibular planes. The patient requested treatment to improve his dental appearance. He had no relevant medical history. Extra oral examination revealed convex profile, high mandibular plane angle, increased lower anterior facial height, protruded lips. Intraoral examination revealed Angles Class I molar and canine relation, generalized anterior spacing in upper arch. Lower midline shifted to left side by 1 mm, good oral hygiene, healthy soft tissue, U-shaped maxillary and mandibular arches, decreased overjet and overbite, unerupted 3rd molars (Fig. 1). To achieve an ideal result, a treatment plan using MBT appliance was planned and a treatment based on orthodontic compensation and extraction of all upper and lower first premolars was implemented.
Treatment Objectives
- Retraction of Upper and Lower anteriors
- Improve facial profile.
- Maintain Class I molar and canine relation
- Establish normal overjet and overbite
- To improve smile of the patient by decreasing the incisor visibility on smile

Treatment plan
- Extraction of all first Premolars
- Fixed appliance therapy using MBT mechanics

Key Stages of treatment
- Final treatment planning and extraction of all first Premolars were performed.
- Bonding and placing of .016 NITI aligning wires was done
- After 2 months .019x25 NITI leveling wires were placed.
- .019x25 SS wire for retraction was used with active tie-backs (Fig. 2)
- Space closure was finished in 6 months with light forces (Fig. 3)
- After achieving desired occlusion, fixed retainers were delivered (Fig. 4)

Discussion
The deficiencies of the standard edgewise orthodontic appliance and the difficulties in obtaining satisfactory treatment results with the edgewise technique resulted in the development of brackets with built in prescription in the early 1960s. The MBT (McLaughlin, Bennett and Trevisi) bracket system is based on a more balanced mix of science, tradition and experience. It is a bracket system for use with light continuous forces, lacebacks and bendbacks. It is designed ideally to work with sliding mechanics. The design of edgewise bracket imposes a treatment regimen of bodily movement. Post-treatment, Patient had an improved smile and profile. (Fig. 4) Upper and lower incisors were retracted to achieve normal incisor angulations, overjet and overbite. Bilateral Class I molar and canine relation was maintained.

Conclusion
Being a common malocclusion encountered in our country a management option for bimaxillary protrusion is considered in this case report. A treatment plan of creating space by extraction of premolars, use of elastics and archwires with McLaughlin Bennett Trevisi mechanics resulted in a more favourable lip position, incisor inclination. There was a drastic improvement in the patient aesthetics and the treatment was done in favourable time span as well.

References
Figure 2: Retraction with active tie-backs on 0.019x0.025 SS wire

Figure 3: After space closure

Figure 4: Post-treatment extraoral and intraoral photographs