

3 in 1 mechanics (Simultaneous intrusion, retraction & protraction) using Mini-screw Implants.

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Abstract: Anchorage in orthodontics is always a challenging situation. Use of mini-screw implants in orthodontics has solved this problem to the large extent. Here is a case of 22 years old male patient with critical anchorage that requires intrusion & retraction of upper incisors and lower left molar protraction which was in end-on relation with upper molar. Case treated successfully using mini-screw implants by simultaneous intrusion, retraction & protraction to achieve class I molar relation and pleasant profile.

Keywords: Anchorage, Intrusion, Mini-screw Implants, Protraction, Retraction.

I. Introduction

Anchorage and mechanics are the two difficult aspects of orthodontic treatment. Conventional methods of anchorage preservation and conventional mechanics are not so patient friendly and also has certain limitations¹⁻⁴. Use of mini –screw Implants in orthodontics has changed this scenario^{5,6}. More than 1 mechanics can be performed using implants during orthodontic treatments^{7, 8}. In this case report we present the management of 22 years old male patient with critical anchorage that requires intrusion & retraction of upper incisors and lower left molar protraction which was in end-on relation with upper molar. The use of skeletal anchorage systems has become a new orthodontic treatment strategy over the past decade. Miniscrews, as an alternative method for absolute anchorage have been extensively used⁹. The major advantages compared with dental implants or microplates are small size, allowing placement in many intraoral areas, low cost and easy implantation and removal^{10, 11}. Case treated successfully using mini-screw implants by simultaneous intrusion, retraction & protraction to achieve class I molar relation and pleasant profile.

II. Case Report

22 year old male patient came with the chief complaint of forwardly placed upper and lower front teeth.

Facial examination revealed, convex profile, incompetent lips acute nasolabial angle and excessive incisor display on smiling (FIG. 1). Cephalometric analyses confirmed the findings.

Intraoral examination revealed, class I molar relation on right side and end-on molar relation on left side with class I canine relation on both the sides of the arch. Proclined upper and lower anteriors. Deep bite (FIG.2).

III. Treatment Objectives:

1. Correction of anterior deep bite.
2. Correction of overjet
3. Correction of crowding in the lower arch.
4. Establishing class I molar, canine and incisor relationship.
5. Improving the overall facial esthetics.

IV. Treatment Plan

- 1) Extraction of all 1st premolars for incisor retraction with absolute anchorage.
- 2) Correction of deep bite by upper incisor intrusion.
- 3) Correction of left side molar relation by lowers molar protraction.

Appliance used – MBT 0.022” slot straight wire fixed appliance technique.

V. Treatment Progress

Initial alignment and leveling done after 4 premolar extractions for 4 months. Later Mini-screw Implants were place between upper central and lateral incisors on both sides. Similarly Implants were placed between 2nd premolar and 1st molar on both the side of the arch.

Simultaneous intrusion and retraction were carried out using these implants for upper incisors and canines^{11, 12} (FIG.3).

Similarly 1 implant was placed between lower left canine and extraction space for molar protraction on same side (FIG 4). All 3 mechanics were carried out simultaneously using mini-screw implant¹³⁻¹⁵.

VI. Treatment Results

- 1) Class I molar and canine relation bilaterally.
- 2) Optimum overbite.
- 3) Competent lips, pleasant profile, optimum incisor display on smiling (FIG.5)
- 4) Optimum incisor angulations, Midlines coinciding (FIG. 6), were achieved in 20 months of treatment period. Finally patient was given retention phase using “Essix retainers” (FIG. 7).

VII. Conclusion

Conventional methods of anchorage conservation and techniques are not so patient friendly. Mini-screw Implants have changed the scenario of anchorage planning and mechanics in orthodontics. Simultaneously 3 mechanics were used to treat the case successfully.

FIG.1



PRE-OPERATIVE EXTRA ORAL PHOTOGRAPHS

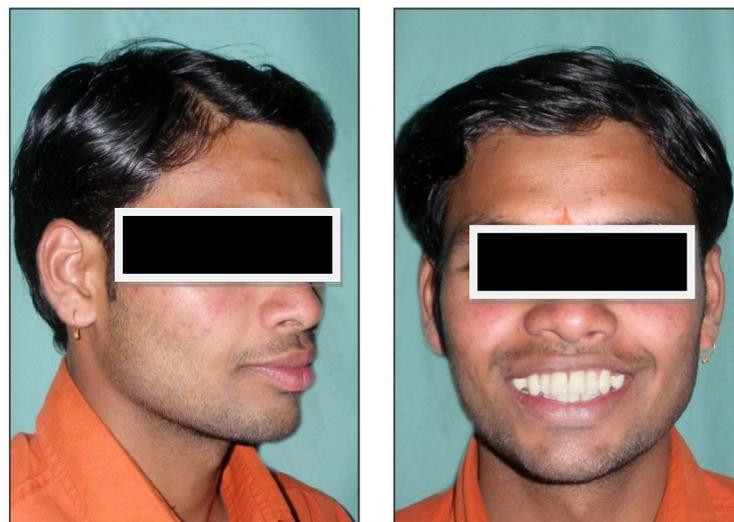


FIG.2



PRE
OPERATIVE
INTRA ORAL
PHOTOGRAPHS



FIG.3



SIMULTANEOUS
INTRUSION &
RETRACTION
OF UPPER
INCISORS USING
MINI-SCREW
IMPLANTS &
TIE-BACK ON
LOWER
RIGHT SIDE



FIG.4
PROTRACTION OF LOWERLEFT MOLAR.



FIG.5



POST TREATMENT EXTRAORAL PHOTOGRAPHS



FIG.6



POST
TREATMENT
INTRAORAL
PHOTOGRAPHS



FIG.7



**RETENTION
WITH
UPPER
AND
LOWER
ESSIX
RETAINER**



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