



Case Report

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Mandibular 2nd molar uprighting by using TADs- A Case Report

Adeel Ahmed Bajjad¹, Anil Sharma¹, Santosh Verma¹, A.K. Chauhan¹

¹ Department of Orthodontics & Dentofacial Orthopedics, Kothiwal Dental College and Research Centre, Moradabad, UP, India

Abstract

The purpose of this case study is to present the application of mini-screw implants (MIs) as an optional treatment in case of mandibular molar uprighting without loss of anchorage. This is a clinical case where a mesially tilted mandibular 2nd molar is described that has been uprighted by using a mini-implant as an anchorage and the site of insertion of temporary anchorage devices (TADs) is distal to the molar.

Keywords: TADs, Anchorage, Tilted molar, Uprighting, Anchorage.

INTRODUCTION

Since the beginning of orthodontics, orthodontists are used various intraoral and extraoral appliances that helps to control anchorage and thus completing the desired movement of teeth without effecting the movement of certain teeth. However due to Newton's third law, i.e. for every action there is an equal and opposite reaction, so there are certain limitations in our ability to completely control all aspects of tooth movement. Thus, the success of orthodontic treatment is dependent on anchorage control and it is different in every case. Nanda has described anchorage into types A, B, and C. Full patient cooperation requires in the case of extraoral anchorage devices such as headgear, which is sometimes very difficult and is unpredictable. Thus the evolution of implants in orthodontics has solved this issue and now has become one of the best reliable sources of anchorage. TADs basically have revolutionized the field of anchorage in orthodontics

A tipped mandibular 2nd molar is seen very frequently among orthodontic patients, which usually occurs due to premature loss of the 1st molar that leads to the inclination of second molars and loss of space [1, 2]. There is an inadequate arch length in the mandible, loss of first molar of adjacent side, suprareuption of opposing teeth, a premature eruption of the mandibular third molar, and an unusually there is mesial eruption in the pathway of the third molar that can also cause due to its partial or total impaction. There is a reported incidence of 0.03–0.3% of the general population and 2–3% of orthodontic patients [3–5]. The tilted molars may cause various problems in a patient's mouth, especially if a prosthetic rehabilitation is to be planned. According to Zachrisson, the periodontal status can be aggravated with the signs of inflammation, due to angular bone loss, and apparently pocket formation is seen at the mesial surface of a tipped mandibular molar [6]. Due to an excessive inclination, there is supra eruption of the opposite molar, premature contacts, and occlusal interferences that may impede the prosthetic restoration [7]. However, correct molar uprighting leads to the normalization of the functional as well as periodontal condition [7].

CASE REPORT

A 50-year-old male patient was referred from the department of prosthodontics to the department of orthodontics to create sufficient space for a prosthesis in the mandibular right posterior tooth region. On examination, the patient revealed a history of extraction w.r.t 36,38 and 46,48 one and half years back. On Intra-oral examination, it has been found that a space of 7mm has been lost due to tilting of the mandibular right 2nd molar. The measurement has been taken from the mesial surface of second molar to the distal surface of second premolar. The patient had class I canine relation bilaterally with normal overjet and overbite. On the left and right quadrant, the mandibular 2nd molar was uprighted and sufficient space of 10mm was created for the pontic. Because of the patient's professional engagement he didn't want a

*Corresponding author:

Dr. Adeel Ahmed Bajjad

Department of Orthodontics &
Dentofacial Orthopedics,
Kothiwal Dental College and
Research Centre, Moradabad,
UP, India

Email: dr4dentist@gmail.com

prolonged orthodontic procedure. So, we shifted our treatment to sectional mechanics and by using TADs that help us to increase anchorage of the pre-molar region.



Figure 1: A & B- TADs insertion site on Right and left side of mandibular arch

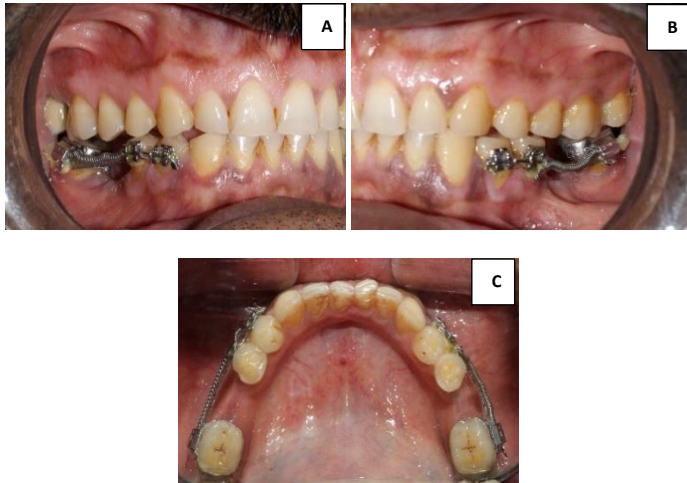


Figure 2: A,B & C- 0.16 SS wire with an open coil spring

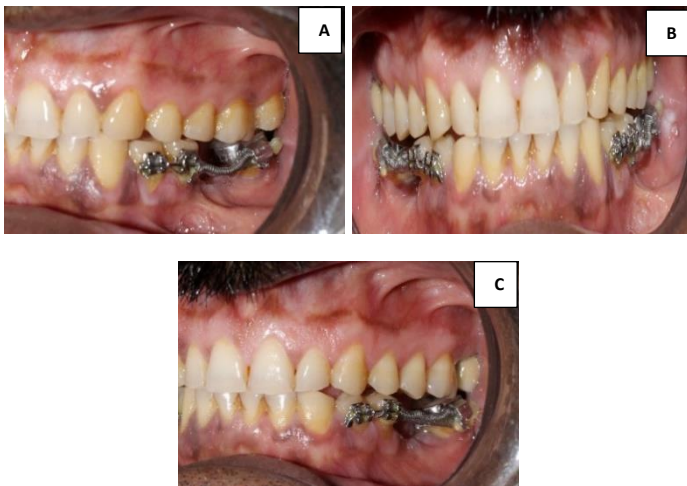


Figure 3: A,B & C- Molar uprightment at 6 months

DISCUSSION

A similar study has been reported in past where severely impacted mandibular 2nd molars uprighting had been done [8]. In cases where there is loss of space due to extraction of 1st molar because of caries and loss of 3rd molar, second molar mesialization has been seen. There are various studies that have recommended the extraction of third molars to assist second molar uprighting [9,10]. In this case the patient had already given history of 3rd molars extraction and that favours our treatment plan. A sufficient space was gained with distalization of molars for pontic placement through sectional mechanics without using full arch mechanotherapy. By this way the functional efficiency of elderly patient can be improved with the increased occlusal table and further extrusion of teeth in the opposite arch can also be prevented [11].

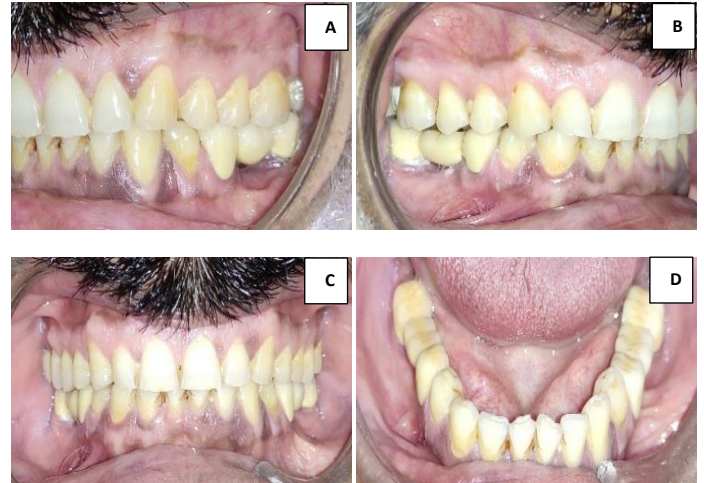


Figure 4: A,B,C & D- At 9 months molar uprighting along with prosthesis given

In the present era, by using both the traditional (segmental mechanics) as well as conventional mechanics (use of TADs), molar uprighting and distalization has become very easy and a successful inter-disciplinary results can be achieved within a short span of time. It has been seen that the positioning of the mini-screw requires surgical anatomical access. By placing mini screws in the retromolar area, the desired tri-dimensional position of the second molar could be achieved.

CONCLUSION

By this technique the clinician can correctly repositioned the mesially inclined 2nd molars with the help of TADs without causing any deleterious effects to the other biomechanics that involves whole arch. This help in achieving the functional efficiency by improving the occlusal table.

Conflict of Interest

None declared.

Financial Support

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