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Case Report

UPRIGHTING A HORIZONTALLY IMPACTED MANDIBULAR THIRD MOLAR USING MODIFIED BACH'S TECHNIQUE

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ABSTRACT:

There are a number of techniques with which such horizontal impactions can be treated, with no single technique being favored over the other, as these all have pros and cons. Horizontally impacted third molars are usually indicated for extraction, and only in situations where the first or the second molar has to be extracted due to decay is when these are uprighted for replacement of the missing teeth. In contrast to vertically impacted molars there is a higher chance of success in uprighting horizontally impacted third molars as the cause is lack of space or blockage of the eruptive pathway.

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INTRODUCTION

Horizontally impacted mandibular third molars are often encountered in clinical practices and often require extractions. [1,2] Mesially impacted third molars are often easier to manage than completely horizontally placed molars, and there is limited literature on the uprighting of such impacted teeth. There are a number of techniques with which such horizontal impactions can be treated, with no single technique being favored over the other as these all have pros and cons. [3-6] These techniques involve using a heavy main stainless steel archwire with a second auxiliary wire to help upright the impacted molar. The auxiliary wire has to be modified to incorporate bends in order to deliver a spring-like effect to upright the third molar.

Horizontally impacted third molars are usually indicated for removal, and only in situations where the first or the second molar has to be extracted due to decay is when these are uprighted to replace the missing teeth.

CASE REPORT

A 23-year-old female reported to the clinic with a decayed mandibular right first molar. The tooth had been previously treated with endodontic treatment and restored using a prosthetic crown. However, on clinical and radiographic examination, the mandibular first molar had a fracture along the furcation area and, therefore had to be extracted as it could not be restored. The patient also had expressed her interest in orthodontic treatment for esthetic purposes and did not want the mandibular first molar to be replaced by an implant. Therefore, the patient was advised to undergo fixed appliance therapy, during the course of which protraction of the mandibular second molar was planned to open up space for uprighting the horizontally impacted third molar.

DIAGNOSIS

The patient presented with a class I skeletal relation and crowding in both the upper and lower arches. Upon clinical examination, it was observed that the mandibular right third molar was not visible in the oral cavity.

TREATMENT OBJECTIVES

The patient was satisfied with the present dentition, and her priority was only the replacement of the missing mandibular molar; therefore, the treatment plan based on her chief complaint was to protract the mandibular right second molar followed by uprighting of the mandibular third molar. The patient again indicated her preference for non-invasive management; therefore, the uprighting of the third molar was planned using a modification of the technique explained by Dr Richard Bach. [5]

UPRIGHTING TECHNIQUE

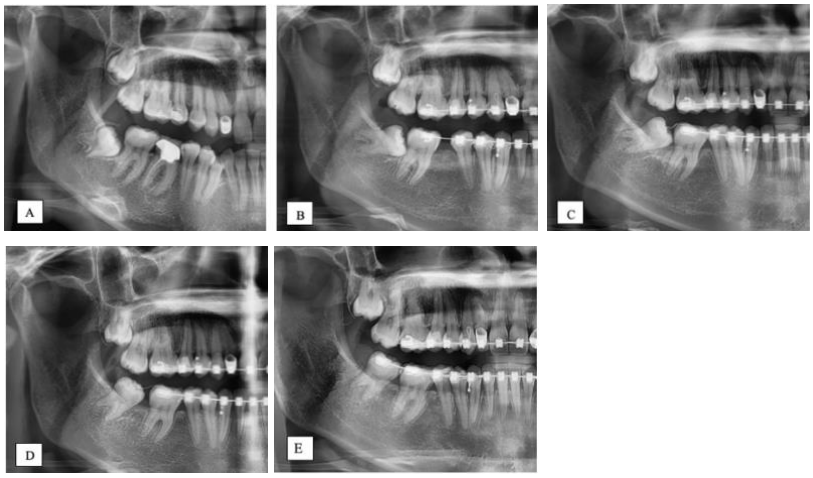
A fixed orthodontic appliance was bonded with self-ligating brackets, and leveling alignment was started. After leveling the second molar, protraction was initiated to facilitate the uprighting of the mandibular third molar. With the mesialization of the mandibular second molar, the distal part of the occlusal surface was visible in the oral cavity. Once the mesialization of the second molar was complete, the lower arch was planned as the anchorage unit for uprighting. A 019x025 SS wire was placed in the lower arch, with all the teeth secured using a ligature wire. An auxiliary wire segment of 014 NiTi was cut to fit the distance between the mesial portion of the second molar and the third molar.

The wire was fixed onto the occlusal surface of the mandibular second molar using a flowable composite and then adapted onto the visible distal portion of the occlusal surface, and the wire was pressed down to secure it using a

flowable composite (Figure 1). This process was repeated over the next few months to bring about the uprighting of the mandibular third molar (Figures 2 A-D).

Figure 1: Demonstrates the technique with the main arch wire and the auxiliary 014 NiTi wire placed onto the occlusal surface of the impacted third molar.

Figures 2 A,B,C,D,E: Demonstrates the radiographic progression of the treatment leading to uprighting.



DISCUSSION

In the initial technique explained by Dr Richard Bach, two wires are involved for uprighting the mesially impacted third molar. [5] The major difference between our method and the previously published method is that the original technique used a 014x025 CuNiTi wire from the occlusal surface of the second molar to the interproximal area between the second and the third molar, where it acts as an uprighting spring. In our planned and proposed method, we secured the wire onto the distal end of the occlusal surface of the third molar to deliver a similar uprighting effect on the third molar. The advantages of this method are that it is easy to use and does not involve any invasive procedure.

There have been other methods for uprighting mesio-angular impacted third molars detailed by Yao-Qiang Miao's method and the modified spring method. [4,6] The drawback of these methods is the use of stainless steel wires, and the incorporation of bends into the wire, making the procedure time-consuming and uncomfortable for the patient. Our technique uses a simple light NiTi wire segment, which delivers very light forces directed across the occlusal surface of the lower molar with no bending required.

The drawback of this technique is that the third molar uprights and distalizes, wherein mesialization of the third molar is required once the uprighting is complete. The last radiographic image demonstrates the completion of the mesialization of the third molar after uprighting (Figure 2D).

CONCLUSIONS

- A horizontally impacted mandibular third molar can be successfully uprighted without invasive techniques or additional anchorage devices such as orthodontic mini-screws.
- The primary consideration for uprighting horizontally impacted third molars is space, as it is the leading cause of the impaction itself. Once the first or second molar is removed for any associated problem, there is usually enough space for uprighting.
- In contrast to vertically impacted molars, there is a higher chance of success in uprighting horizontally impacted third molars as the cause is lack of space or blockage of the eruptive pathway.

CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

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