

Management of Impacted Lower Second Molar with Extra Alveolar Tads: A Case Report

Miranda Sejdiu Abazi¹, Arben Abazi², Saranda Sejdiu Sadiku³

¹Department of Dentistry, UBT – College of Higher Education and Institution, Pristina, Kosovo

²Department of Dentistry, Faculty of Medicine, University of Pristina, Pristina, Kosovo

³Department of Pharmacy, Faculty of Medicine, University of Pristina, Pristina, Kosovo

Abstract

The aim of this case report is to present an orthodontic technique combined with skeletal anchorage (TADs) in the retromolar region to pull out a right horizontally impacted mandibular second molar (MM2) beneath the third molar (MM3). This treatment approach was performed by extracting the adjacent MM3 lying over the MM2. A miniscrew was inserted in the retromolar region. It required minimal surgical exposure—mucosal incision, crown uncovering, and attaching a bondable button for uprighting MM2 with an elastic chain. Disimpaction was done for several days without any side effects. (**International Journal of Biomedicine. 2023;13(3):169-171.**)

Keywords: impacted mandibular second molar • temporary anchorage device • fixed appliance

For citation: Abazi MS, Abazi A, Sadiku SS. Management of Impacted Lower Second Molar with Extra Alveolar Tads: A Case Report. International Journal of Biomedicine. 2023;13(3):169-171. doi:10.21103/Article13(3)_CR3

Introduction

The teeth erupt when the root is three-quarters developed. The impaction means that the teeth failed to erupt within a physiological time frame, which is mainly detected late after a routine dental examination.⁽¹⁾

Management of impacted teeth is very challenging in dentistry. The most prevalent impacted teeth are the third molars.^(2,3) The prevalence of an impacted second molar is reported to be under 2%,^(4,5) the most common being mesioangular impacted second molars.⁽⁵⁻⁷⁾ Performing surgical procedures exposing an impacted mandibular second molar (MM2) is safe and reduces treatment time, and the treatment outcome differs from case to case.^(8,9) Treatment procedures using temporary anchorage devices (TADs) combined with a surgical approach effectively treat impacted molars.⁽¹⁰⁾ Miniscrews inserted in the ramus of the mandible are reliable in uprighting of horizontally impacted molars and should engage in bone an average of 3 mm.⁽¹¹⁾

Case Presentation

A 21-year-old female patient presented to our private clinic for orthodontic treatment. After the clinical evaluation,

a panoramic cephalometric was ordered. The image showed the impaction of the right MM2, which was lying beneath the MM3. The patient was unaware of such impaction. The panoramic radiograph presented an impacted MM2 on the right side. The angulation was measured between the long axis of the MM2 and MM with a cephalometric protractor (Figure 1).

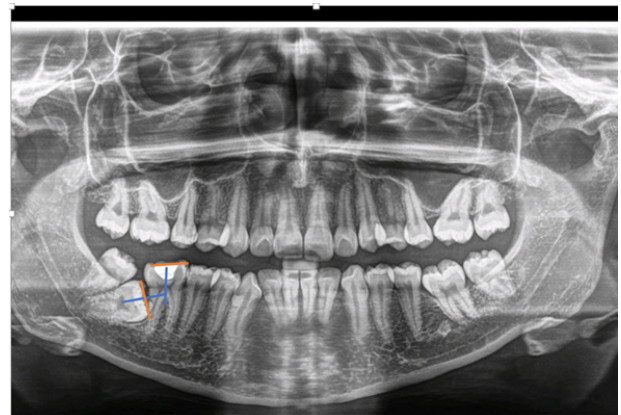


Fig. 1. The angulation of MM2.

The treatment goal was to treat the impaction and alignment of the teeth. The patient signed an informed consent before treatment therapy. She was informed of procedures, treatment plans, and the advantages and disadvantages of the therapy. Initially, orthodontic fixed appliances, FORESTADENT (Germany) sprint brackets, were used with slot size 22. After the teeth were aligned, the patient was referred to a surgeon to extract MM3. After two weeks, we proceeded to insert a titanium miniscrew (FORESTADENT, Germany) with a length of 8 mm and diameter of 2 mm, manually in the retromolar area, and on the same day, minimal surgery was done - a mucosal incision (Figure 2).



Fig. 2. Insertion of a miniscrew in the retromolar area.

After three weeks, a bondable button was inserted in the distal surface of MM2. A Dentaurem power chain, without pause, was inserted to pull out the impacted molar. The patient was observed twice per month, every month, until the tooth presented in the mouth. After MM2 was pulled, the button was removed, and the tube was placed for further alignment and leveling of MM2 with a continuous wire technique (Figures 3-5). The impaction was corrected in 59 days. The miniscrew was removed after 48 days. Currently, the MM2 is in the process of leveling (Figure 6).



Fig. 3. Intraoral view of the miniscrew and bondable button in MM2.



Fig.4-5. The inserted super-elastic archwire was in the tube for

Discussion

The present work described the effectiveness of uprighting of MM2 with extra-alveolar insertion of TADs and elimination of factors such as MM3 that prevented the eruption of MM2. Early diagnosis and early treatment is the primary key to a better prognosis for uprighting the impacted molars. ⁽¹²⁾ Uprighting of tipped and impacted molar benefits better hygiene, improving functional and periodontal occlusion, and quality of life. ⁽¹³⁾ Mandibular uprighting treatment with TADs leads to rapid, more predictable results of disimpaction, with fewer side effects. ⁽¹¹⁾ Lee et al. ⁽¹⁴⁾ in their study design with direct miniscrew anchorage, concluded that this technique is simple to apply with a positive outcome; even the MM3 could be left in situ, or if it is extracted, the miniscrew could be inserted on the same day.

Lorente and colleagues ⁽¹⁵⁾ believe that a miniscrew inserted mesially to an impacted tooth may be the treatment of choice for deeply impacted molars with any angulation.

We can conclude that placement of the miniscrew in the extra-alveolar region is easy and quickly performed and has a great effect on the horizontal disimpaction of the MM2 without any side effects.

Competing Interests

The authors declare that they have no competing interests.

References

1. Kaczor-Urbanowicz K, Zadurska M, Czochrowska E. Impacted Teeth: An Interdisciplinary Perspective. *Adv Clin Exp Med.* 2016 May-Jun;25(3):575-85. doi: 10.17219/acem/37451.
2. Bhat M, Hamid R, Mir A. Prevalence of impacted teeth in adult patients: A radiographic study. *Int J Appl Dent Sci* 2019;5(1):10-12.
3. Soh NHBC, Kumar S, Arthi. Prevalence of Impacted Teeth Among Dental Patients - An Institutional Study. *European*



Fig. 6. Alignment and leveling of MM2.

- Journal of Molecular & Clinical Medicine. 2020;7(1):1943-1951.
4. Patil S, Maheshwari S. Prevalence of impacted and supernumerary teeth in the North Indian population. *J Clin Exp Dent*. 2014 Apr 1;6(2):e116-20. doi: 10.4317/jced.51284.
 5. Cassetta M, Altieri F, Di Mambro A, Galluccio G, Barbato E. Impaction of permanent mandibular second molar: a retrospective study. *Med Oral Patol Oral Cir Bucal*. 2013 Jul 1;18(4):e564-8. doi: 10.4317/medoral.18869.
 6. Shapira Y, Finkelstein T, Shpack N, Lai YH, Kuftinec MM, Vardimon A. Mandibular second molar impaction. Part I: Genetic traits and characteristics. *Am J Orthod Dentofacial Orthop*. 2011 Jul;140(1):32-7. doi: 10.1016/j.ajodo.2009.08.034.
 7. Turley PK. The management of mesially inclined/impacted mandibular permanent second molars. *J World Fed Orthod*. 2020 Oct;9(3S):S45-S53. doi: 10.1016/j.ejwf.2020.09.004.
 8. Selvido DI, Wongsirichat N, Arirachakaran P, Rokaya D, Wongsirichat N. Surgical Management of Impacted Lower Second Molars: A Comprehensive Review. *Eur J Dent*. 2022 Jul;16(3):465-477. doi: 10.1055/s-0041-1739443.
 9. Kravitz ND, Yanosky M, Cope JB, Silloway K, Favagehi M. Surgical Uprighting of Lower Second Molars. *J Clin Orthod*. 2016 Jan;50(1):33-40.
 10. Altieri F, Guarnieri R, Mezio M, Padalino G, Cipollone A, Barbato E, Cassetta M. Uprighting Impacted Mandibular Second Molar Using a Skeletal Anchorage: A Case Report. *Dent J (Basel)*. 2020 Nov 18;8(4):129. doi: 10.3390/dj8040129.
 11. Tamer İ, Öztaş E, Marşan G. Up-to-Date Approach in the Treatment of Impacted Mandibular Molars: A Literature Review. *Turk J Orthod*. 2020 May 21;33(3):183-191. doi: 10.5152/TurkJOrthod.2020.19059.
 12. Shpack N, Finkelstein T, Lai YH, Kuftinec MM, Vardimon A, Shapira Y. Mandibular Permanent Second Molar Impaction Treatment Options and Outcome. *Open Journal of Dentistry and Oral Medicine*. 2013;1(1):9-14. doi: 10.13189/ojdom.2013.010103
 13. Yeh JC, Chao CW, Wu YT, Chou CC, Kao CT. Management of Tipped and Impacted Mandibular Second Molars. *Taiwanese Journal of Orthodontics*. 2018;30(4):Article 6.
 14. Lee KJ, Park YC, Hwang WS, Seong EH. Uprighting mandibular second molars with direct miniscrew anchorage. *J Clin Orthod*. 2007 Oct;41(10):627-35.
 15. Lorente C, Lorente P, Perez-Vela M, Esquinas C, Lorente T. Management of Deeply Impacted Molars with the Miniscrew-Supported Pole Technique. *J Clin Orthod*. 2018 Nov;52(11):589-97.
-
- *Corresponding author:** Dr. Sci. Miranda Sejdiu Abazi.
Department of Dentistry, UBT – College of Higher Education and Institution, Pristina, Kosovo. E-mail: dr.miranda.sejdiu@gmail.com
-