

Extraction of Kissing Molars with Tooth Sectioning Technique: A Case Report

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Abstract

Kissing molars is an unusual condition of two impacted molars with confronted occlusal surfaces in a single follicular space and the roots pointing in opposite directions. This condition sometimes occurs between the second and third mandibular molars, and some of the cases were between the third and fourth mandibular supernumerary molars.

A 32-year-old female patient came to the Oral and Maxillofacial Surgery Clinic complaining that the lower-left posterior tooth felt uncomfortable. The patient also felt uncomfortable with the right upper posterior tooth since one month before admission. The impaction of all maxillary and mandibular third molars was found from the panoramic radiograph. The unusual left impacted mandibular fourth molar was also found with its occlusal surface contacting the occlusal surface of the impacted left mandibular third molar suggesting a class III kissing molars.

A safe surgical extraction with tooth sectioning technique was performed to remove the kissing molars without damaging the inferior alveolar nerve.

Case report (J Int Dent Med Res 2022; 15(3): 1315-1319)

Keywords: Extraction, impacted, molars, case report.

Received date: 08 May 2022

Accept date: 04 July 2022

Introduction

Kissing molars is an unusual condition of two impacted molars with confronted occlusal surfaces in a single follicular space and the roots pointing in opposite directions.^{1,2,3} The term kissing molars was introduced by van Hoof¹ when he reported a case of bilateral kissing molars in his mentally disabled patient. This unusual phenomenon, also known as rosette formation, occurs more commonly between the impacted mandibular second and third molars and rarely between the impacted mandibular third molar and fourth molar.^{4,5} The etiology of this condition is still unclear. Surgical extraction of these impacted molars needs to be performed carefully not to injure the inferior alveolar nerve. This case report describes a case of kissing molar and its surgical extraction using tooth sectioning technique to reduce the risk of iatrogenic inferior alveolar nerve injury.

Case Report

A thirty-two-year-old female patient came to the Oral and Maxillofacial Surgery Clinic complaining that the lower-left posterior tooth felt uncomfortable. The patient also felt uncomfortable with the right upper posterior tooth since one month before admission. The patient did not have any systemic diseases or allergies to medicines, and there was no history of fever, no complaints of dizziness, nausea, vomiting, and no difficulty in swallowing. On the intraoral clinical examination, there was no bulge in the left mandibular region, and no erupted third molar, no swelling, no redness of the gums, and no signs of inflammation. The patient did not complain of numbness in the left and right mandible. There was also a bulge around the buccal maxillary right posterior tooth.

The impaction of all maxillary and mandibular third molars was found from the panoramic radiograph. The unusual left mandibular fourth molar was found with its occlusal surface contacting the occlusal surface of the impacted left mandibular third molar (Figure 1). This unusual formation of two impacted molars had the characteristics of the class III kissing molars phenomenon.⁶ Moreover,

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the position of the kissing molars is also close to the mandibular canal.



Figure 1. Panoramic radiograph before surgical extraction of all impacted teeth.



Figure 2. The triangular flap incision and elevation of the flap.

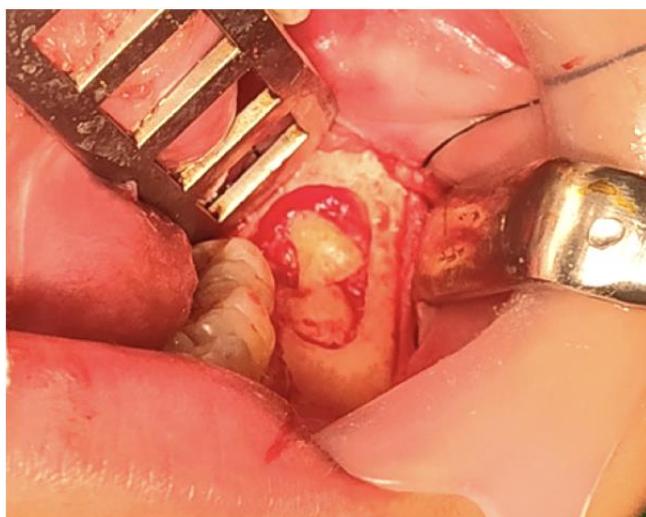


Figure 3. Removal of the overlying bone.

After the informed consent, the surgical extraction of all impacted teeth and kissing molars was performed under general anesthesia. The vestibular regions were infiltrated using lidocaine with 1/100,000 epinephrine to minimize bleeding during surgery. The removal of the other three impacted molars was carried out as usual. In the surgical extraction of the kissing molars, the triangular mucoperiosteal flap incision was made more anteriorly and laterally (Figure 2). The mucoperiosteal flap was elevated, followed

by removing the overlying bone using a round bur until the crown of the impacted kissing molars was exposed entirely (Figure 3).

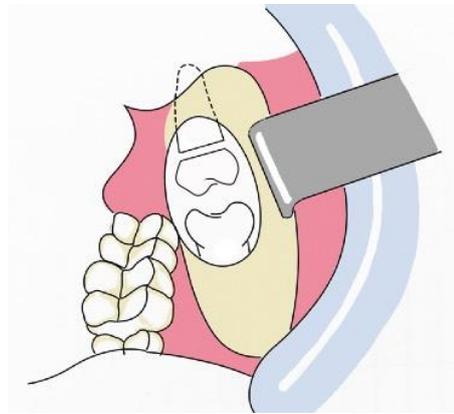


Figure 4. The tooth sectioning of the impacted fourth molar.

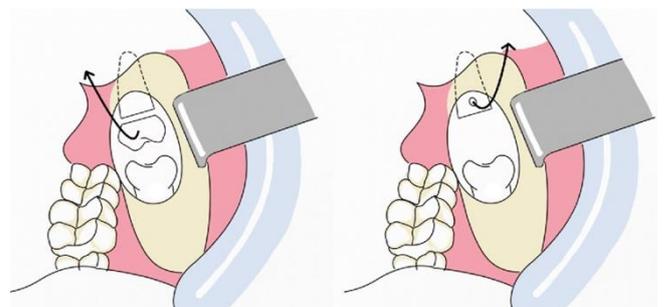


Figure 5. Removal of the fourth molar.

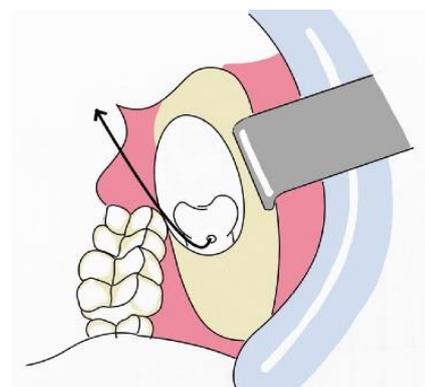


Figure 6. Removal of the third molar.

A groove was created at the cervical line of the fourth molar using a fissure bur, then the tooth sectioning to separate the crown and the root was performed using the fissure bur and a straight elevator (Figure 4). Then, the crown was removed, followed by removing the root (Figure 5). Then, a groove was also created at the cervical line of the third molar, followed by removal using a Winter root elevator (Figure 6).

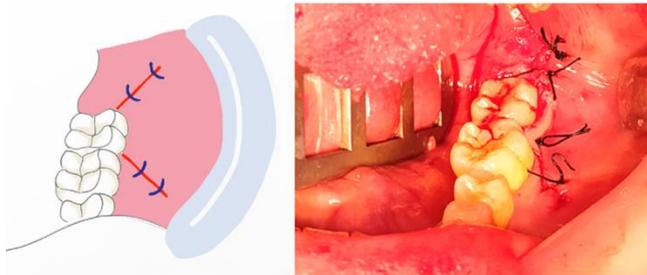


Figure 7. The flap was sutured back to its original position.



Figure 8. Panoramic radiograph after surgical extraction of all impacted teeth.

The bone margin was smoothed using a bone file, then the area was irrigated with saline solution, and the flap was sutured back to its original position using polyglycolic acid 4/0 suture (Figure 7).

A panoramic radiograph was taken on a one-week postoperative follow-up visit (Figure 8). The patient did not have any complaints except a slight numb sensation on the lower lip's left side, but it entirely disappeared at two weeks postoperatively.

Discussion

Supernumerary teeth have known to occur single or multiple in any region in the jaw. The most common supernumerary teeth were mesiodens and, more rarely, in the distomolar region as supernumerary fourth or fifth molars. The etiology of supernumerary teeth remains unclear.^{4,7} In the case presented here, the patient had rosette formation, also known as kissing molars. Kissing molars is an unusual type of supernumerary teeth, and their occurrence theory is still not well understood. Van Hoof¹ reported the first description of kissing molars when he saw the panoramic radiograph of a 31-year-old mentally retarded patient. Kissing molars usually occur between the impacted

mandibular second and third molars and rarely between the third and fourth molar or distomolar.^{4,5} Nakamura et al.⁸ suggested the association between this unusual impacted teeth condition with mucopolysaccharidosis, a group of metabolic disorders. Mucopolysaccharidosis causes damage to the lysosomal enzymes, leading to the accumulation of glycosaminoglycans in the heart, liver, bones, and other organs and body systems.^{9,10} On the other side, Kiran et al.⁵ reported that kissing molars are associated with hyperplastic dental follicles following their case of bilateral kissing molars. Likewise, Menditti et al.¹¹ indicated that kissing molars results from a failure in the ability of the dental follicle to continue to resorb the overlying alveolar bone during the eruptive phase. Meanwhile, Gulses et al.⁶ proposed the possibility of bone loss due to the expansion of cystic formation associated with impacted teeth, leading to the movement and rotation of impacted third and fourth molars forming kissing molars or rosette formation.

The definitive diagnosis of kissing molars is based on clinical and radiographic examinations. The radiographic examinations are essential for making the diagnosis and assessing any related pathological conditions. In this case, the radiographic examination can be accomplished using a panoramic radiograph. The disadvantage of a panoramic radiograph is that it cannot provide three-dimensional morphological information and tooth position.¹²

Gulses et al.⁶ suggested a classification of kissing molars using radiographic examination into impaction of mandibular first and second molars (Class I kissing molars), impaction of mandibular second and third molars (Class II kissing molars), and impaction of mandibular third and fourth molars (Class III kissing molars). In our case, the patient had impacted third molars in all quadrants and had a supernumerary impacted fourth molar in the left mandibular jaw (Class III kissing molars). The fourth molar of the patient was impacted in an unusual position with its crown facing downwards and in contact with the crown of the left impacted mandibular third molar. Thus, it was not only a rare supernumerary tooth but also a rare combination of an impacted third molar and a rotated impacted fourth molar forming a rosette formation or kissing molars.

The assessment of factors associated with difficulty in surgical extraction of the kissing molars is essential. These factors include the tooth's location, the position and shape of the roots, and the relationship of the tooth to the inferior alveolar nerve.¹³ Stacchi et al.¹⁴ suggested that the factors affecting the surgical difficulty of impacted mandibular third molar can be separated into three groups. First, factors related to tooth shape and position; second, operative variables, such as surgical technique and the surgeon's experience; and third, demographic variables, such as age, gender, ethnicity, and body mass index. A detailed preoperative assessment of possible injury to the inferior alveolar nerve and lingual nerve should also be prepared since postoperative complications such as alveolar osteitis, infection, bleeding, paresthesia, severe pain, mandibular fracture, and iatrogenic displacements to adjacent anatomical regions being commonly reported in the literature. The patient has consented to surgical extraction of kissing molars and other impacted third molars with possible complications.

When we obtain panoramic photographs showing the close relationship between the impacted teeth and the mandibular canal, CBCT is recommended for further investigation to demonstrate a three-dimensional relationship between these structures. Moreover, caution is needed since kissing molars can be associated with other pathological conditions such as odontogenic cyst, odontoma, periodontal complications, dental caries, or progressive bone loss.⁴

The surgical removal of impacted mandibular third molars was performed under general anesthesia, considering patient comfort and for the surgeon in performing the operation. Moreover, there are definite considerations for general anesthesia to facilitate the impacted teeth removal.^{15,16} One of the considerations for surgery performed with general anesthesia is that the surgeon can remove one impacted tooth and other impacted teeth in one surgical procedure.¹⁶

A triangular full-thickness flap was used in the surgical extraction of this particular kissing molars case. In most conditions, the envelope flap is the most common mandibular third molar surgery technique. Nevertheless, a triangular flap is better if the surgeon requires better access downward, which could tear the envelope flap.

This flap provides adequate blood supply, better visualization, and good stability.¹⁷ After the mucoperiosteal flap was elevated, the overlying bone was removed to the level of the cemento-enamel junction, which is useful for surgical access and facilitating tooth sectioning. When adequate access is obtained, the need for tooth sectioning of both molars can be determined.^{18,19}

Tooth sectioning aims to facilitate tooth removal, preserve the alveolar bone, and prevent injury to adjacent anatomical structures.^{20,21} The technique for tooth sectioning varies depending on the position of the impacted kissing molars. Arjona-Amo et al.²¹ presented four cases of kissing molars extraction with tooth sectioning technique. The tooth sectioning was performed in all four patients to separate the crown and the root in both molars. In the present kissing molars case, the tooth sectioning was performed on the fourth molar, and the third molar was extracted without sectioning. The tooth sectioning must be made within the tooth structure to prevent the lingual nerve or inferior alveolar nerve injury.¹⁸ Furthermore, the tooth sectioning was performed sub-totally by fissure bur followed by complete sectioning using an elevator.²²

The crown of the fourth molar was removed first, and then the roots were followed. The inferior alveolar nerve was identified after third molar removal and was still intact. The associated follicular tissue was also removed along with both molars. The bone margins were smoothed using a bone file then the area was irrigated with saline solution. Afterward, the wound is sutured using a resorbable suture (polyglycolic acid 4/0). The first suture is made at the corner of the flap to ensure correct flap repositioning, and the rest were made along the vertical and posterior incisions.

Conclusions

Kissing molars is a rare condition found in daily dental practice. This dental disorder is often asymptomatic, but it can signify many serious pathological conditions. Therefore, a safe surgical extraction procedure with a tooth sectioning technique is required to remove the kissing molars without injury to the inferior alveolar nerve.

Patients' consent

Informed consent was obtained from the patient to publish the data concerning this case report.

Declaration of Interest

The authors declare that there is no conflict of interest concerning this article.

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