

A Case Report of Kissing Molars Class II

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Abstract

Kissing molars (KMs) is a condition of occlusal molar surfaces in a single follicular space with roots extending in opposite directions. Here, we have reported a case of KMs in a 58-year-old woman. The patient complained of pain in the right mandibular molar region and was diagnosed with KMs consisting of the right mandibular second and third molars. Because of the patient's pain having subsided at the time of the visit and her unwillingness to undergo tooth extraction, the patient was followed up. KMs is classified into three classes (I-III) and is either true-KMs or pseudo-KMs and presents with or without cystic variants of dental follicles. The presents as true-KMs class II without a cystic variant. With reference to the literature and based on our analysis, the mean age of patients affected by this specific case of KMs is 31.7 years and unilateral KMs is relatively more common (85.7%). Histopathological findings of dentigerous cysts are more often indicated (42.9%). The treatment policy for KMs should therefore be based on the classification of KMs. Importantly, the focus should be on preserving the first and second molars as much as possible. The treatment approach, such as the employment of surgical removal or orthodontics, should be determined by considering the associated factors such as the crowns, tissues, and age of the patient.

Keywords

Kissing Molars, Mandibular Second Molar, Mandibular Third Molar, Cone-Beam Computed Tomography

1. Introduction

Kissing molars (KMs) is a condition of occlusal molar surfaces in a single follicular space with roots extending in opposite directions [1]. A radiological classification method distinguishes between the impaction of the mandibular first and second molars (class I), second and third molars (class II), and third and fourth

molars (class III) [2]. In past literature, the most common treatment strategy for KMs has been tooth extraction. However, there are a few cases of conservative treatment [3] [4]. Here, we have reported the case of KMs class II focused on panoramic radiographs and cone-beam computed tomography (CBCT) images. We suggest that reliable diagnostic imaging and classification of KMs may help identify an optimal approach.

2. Case Report

A 58-year-old Japanese woman presented to our university hospital with a complaint of slight pain in the right mandibular molar region. Previously, she had not sought any dental advice until her pain had intensified, for which she then visited a nearby dental clinic and was prescribed medicine to relieve the pain. Her panoramic radiographs revealed that the right mandibular second and third molars were impacted, and her dentist recommended extraction of the impacted teeth. She visited our university hospital for further examination and treatment. Her extraoral examination revealed symmetrical facial features and no cervical lymph node swelling, while intraoral examination showed no swelling, redness, swelling, pus, or bone expansion in the gingiva of the right mandibular molar region. The panoramic radiographs and CBCT images revealed a lower impaction of the right mandibular third molar and anterior impaction of the second molar [Figure 1 and Figure 2]. The occlusal surfaces of the molars were in contact with one another with roots expanding in opposite directions. This case was classified as KMs class II. Furthermore, there was no cystic variant. Consequently, we diagnosed the patient with true KMs class II without any cystic variant.

The patient was explained the necessity of extraction. However, we decided to only follow-up on her as she had no subjective symptoms and was unwilling to undergo extraction. We opted for conservative management rather than surgical intervention, taking into account the patient's age, desires, and living condition. Since then, however, she has not visited our hospital.

3. Discussion

KMs was first reported by Van Hoof [1] in 1973, and they that was radiologically classified by Gules *et al.* [2] based on the impaction of the mandibular first and second molars (class I), second and third molars (class II), and third and fourth (supernumerary) molars (class III). Later, Nedjat-Shokouhi *et al.* [3] suggested classifying the true KMs and pseudo-KMs, whereby the former signified impacted molars with occlusal surfaces in contact in a single follicular space with roots pointing in opposite directions and the latter signified any case of a similar nature that does not completely fulfill these criteria. Furthermore, Menditti *et al.* [5] distinguished between patients with or without cystic variants of dental follicles. In this report, we did not remove the teeth or perform a histopathological examination; however, based on the image findings, we diagnosed the patient with true KMs class II without any cystic variant.



Figure 1. Panoramic radiographs: The right mandibular second and third molars were impacted with the occlusal surfaces of the molars in contact with one another.

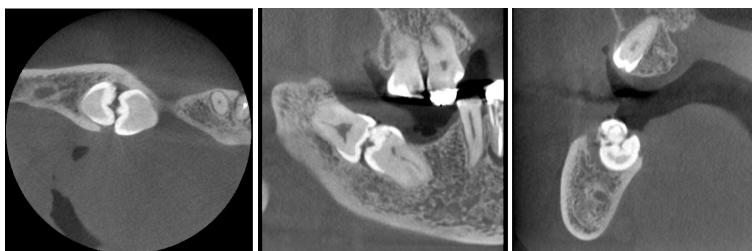


Figure 2. CBCT images: Right mandibular second and third molars were in contact with occlusal surfaces in a single follicular space with roots pointing in opposite directions.

So far, 7 cases of true KMs class II have been reported [3] [6] [7] [8] [9] [Table 1]. The age range of the affected patients is 18 - 58 (mean: 31.7) years. The large majority of affected patients are in their 20s (42.9%) and 30s (28.6%). Of the 7, 3 (42.9%) patients are male and 4 (57.1%) are female, with 6 (85.7%) having unilateral mandibular true KMs class II and 1 having bilateral KMs. In 5 cases, the patients underwent surgical extraction. 1 patient underwent surgical removal (right mandibular) and a conservative follow-up (left mandibular). In the present study, the patient received conservative follow-up only. Of the total patients reported so far, 3 (42.9%) had a cystic variant and 4 (57.1%) did not. Histopathological findings after surgical removal revealed 3 (42.9%) cases of dentigerous cysts, which indicate that they are relatively more frequent. In the present case, the histopathological findings were unknown because no autopsy was performed.

There are various reported theories regarding the cause of KMs. Based on the histopathological diagnosis shown in [Table 1], KMs is mainly caused by odontogenic cysts and abnormal tooth eruption. In the literature, Kim *et al.* [10] reported that the downregulation of matrix metalloproteinases in hyperplastic dental follicles resulted in abnormal tooth eruption. Nakamura *et al.* [11] reported that KMs is related to mucopolysaccharidosis. However, the specific cause of KMs remains unclear.

Table 1. Cases of true-KMs class II in the literature.

No.	Author	Year	Age	Sex	Unilateral/ Bilateral	Histopathological findings	With or Without a cystic va- riant	Treatment
1	Nedjat-Shokouhi <i>et al.</i> [3]	2014	18	M	Bilateral	Dentigerous cyst (right)	With a cystic variant (right)/ Without a cystic variant (left)	Surgical removal (right)/ Conservative follow-up (left)
2	Hashitani <i>et al.</i> [6]	2017	26	F	Unilateral	Dentigerous cyst	With a cystic variant	Surgical removal
3	Kaneko <i>et al.</i> [7]	2021	25	F	Unilateral	-	Without a cystic variant	Surgical removal
4	Udagawa <i>et al.</i> [8]	2021	33	F	Unilateral	Dentigerous cyst	With a cystic variant	Surgical removal
5	Kinoshita <i>et al.</i> [9]	2022	27	M	Unilateral	Difficult to discern	Without a cystic variant	Surgical removal
6			35	M	Unilateral	No evidence of disease	Without a cystic variant	Surgical removal
7	Present case	2024	58	F	Unilateral	-	Without a cystic variant	Conservative follow-up

The main treatment approaches for KMs include tooth extraction, such as cystectomy [6] [8] [9]. In the case of KMs class I and II, orthodontic treatment was considered [6] [12]. The concept of preserving the first and second molars as much as possible is important when considering orthodontic treatment in these cases. Barros *et al.* [4] reported a case in which orthodontic treatment guided eruption and preserved unilateral pseudo-KMs class I without a cystic variant. However, there have been no reports of orthodontic treatment of KMs class II. Edamatsu *et al.* [13] reported that the choice of orthodontics and fenestration therapy for KMs depends on the case. Based on the literature review, 41 cases of KMs classes (I-III) were operated by extraction or cystectomy, 3 of which were under observation, 1 received orthodontics, and data for 7 are unavailable. Surgical treatment is one of the necessary choices when the cystic variant is small and the clinical symptoms are not clear, albeit it should be considered that cystic dilatation can result in bone fracture and infection. Cansiz [14] reported that sagittal splitting osteotomy is a useful technique that increases the safety of the removal of KMs in the surgical treatment of extraction to control bone removal and protect the inferior alveolar nerve.

4. Conclusion

To determine the optimal approach for KMs treatment, using panoramic radiographs, CBCT images, or multiplanar reconstruction is important. These tools facilitate the observation of the condition of impacted molars in contact with each other and determine the classification of KMs using images. Particularly, in the case of KMs with cystic variants, imaging helps evaluate the internal cyst condition and the relationship between crowns. The treatment approach, be it surgical removal or orthodontics, should be determined by considering the relationship with the crowns, the surrounding tissue, and ages of patients under the guidance of imaging information. We suggest that the classification of KMs, including with or without cystic variants, is an indicator for choosing conservative treatment of KMs or extraction.

Patient Consent

In this report, consent was obtained from the patient.

Conflicts of Interest

There are no conflicts of interest to declare.

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