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# A Case Report of Kissing Molars Class III

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## Abstract

Kissing molars (KMs), first reported by Van Hoof in 1973, refer to molars with occlusal surfaces that contact each other in a single follicular space while their roots extend in opposite directions. This is a case of a 20-year-old male who presented with complaints of right mandibular molar pain with cold water contact and occlusion. Panoramic and cone-beam computed tomography (CBCT) images revealed impaction of the right mandibular third and fourth molars, with the occlusal surfaces contacting each other while the roots extended in opposite directions. KMs are classified according to the impaction of the mandibular first and second molars (Class I), second and third molars (Class II), and third and fourth molars (Class III). Our patient was considered Class III. Given the patient's preference for surgical treatment, successful teeth extraction and extirpation were performed under intravenous sedation. The patient's postoperative course was unremarkable. We describe a case of KMs Class III with a cystic variant assessed by panoramic and CBCT images. We additionally review all KMs Class III reported in the literature.

## Keywords

Kissing Molars, Mandibular Fourth Molar, Cone-Beam Computed Tomography, Molar Impaction

## 1. Introduction

Kissing molars (KMs) were first described by Van Hoof in 1973, who described a 31-year-old male with impacted molars. KMs refer to contacting occlusal molar surfaces in a single follicular space with roots extending in opposite directions [1]. A radiological classification method was proposed by Gulses *et al.* in 2012 that distinguished among impaction of the mandibular first and second molars

(Class I), second and third molars (Class II), and third and fourth molars (Class III) [2]. Later, Nedjat-Shokouhi *et al.* and Menditti *et al.* suggested a method for classifying "true" and the "pseudo"-KMs [3] [4]. True-KMs are isolated cases with three classes (I-II-III). Each class has a variant with or without cystic dilatation of the dental follicle. Pseudo-KMs refer to syndrome cases, some of which do not feature close contact with the occlusal molar surfaces. In 2022, Wen *et al.* suggest classifying KMs by the direction of the impacted teeth. This method captures impacted teeth positioned vertically (Type A), tilted (Type B), and horizontally (Type C) [5]. Here, we report a rare True-KMs Class III Type A case with a cystic variant.

## 2. Case Report

A 20-year-old Japanese male presented to our university hospital complaining of right mandibular molar pain upon contact with water or occlusion. There were no other relevant medical or dental symptoms. While the patient was aware of a pain in his right mandibular molar upon contact with water, he had not sought dental advice. The patient's extraoral examination was unremarkable. Intraoral examination revealed no redness or swelling of the gingiva, and no dental caries was observed on the right mandibular molars. Panoramic radiographs (**Figure 1**) and CBCT images (**Figure 2**) revealed lower impaction of the right mandibular third molar and upper impaction of the right mandibular fourth molar. The occlusal surfaces of the molars contacted one another and shared a single follicular space. A single follicle with a continuous cement-enamel junction and a well-defined cystic variant with lingual distention were noted. The patient was classified as a True-KMs Class III with a cystic variant. After explaining the benefits and risks of various treatments, the patient opted to undergo surgical treatment. Under intravenous sedation, the cyst was removed and extractions of the right mandibular third and fourth molars made. After surgery, the patient experienced redness, swelling, and painful swallowing; however, these symptoms disappeared one week later. No postoperative infection or hypoesthesia was observed.

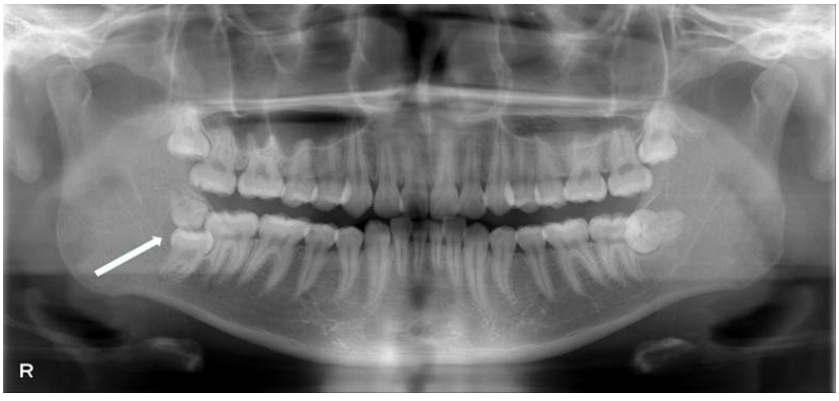


**Figure 1.** Panoramic radiograph showed the occlusal surface of the right mandibular third and fourth molars contacting each other (arrow).


**Figure 2.** CBCT images; (A) fourth molar (arrow) and third molar (triangle), (B), (C) True-KMs sharing a single follicular space (arrow).

## 3. Discussion

KMs are rare condition. Published descriptions of True-KMs Class III cases are listed in **Table 1** [4] [6] [7] [8] [9] [10]. This was the second case reported in Japan. The causes and characteristics of KMs are mysterious. There are some reported cases of KMs in patients with mucopolysaccharidosis, supernumerary teeth, and macrodontia [11] [12]. However, our patients had no significant systemic findings. In addition, there are case reports that describe delayed or unerupted teeth [7] [8]. Our patient's mandibular fourth molar was inversely and completely impacted. The inverse impaction of the mandibular fourth molar might have been a factor related to our patient's KMs Class III designation.

With the addition of our case, there are 26 reports of True-KMs Class (I-II-III) in the literature, including 8 patients with dentigerous cysts, 4 with no evidence of disease, 1 patient with a hyperplastic dental follicle, and 13 unknown or not described cases [10] [13]. Excluding unknown or not described cases, approximately 62% of reported cases were dentigerous cysts. Dentigerous cysts commonly involve the mandibular molars and maxillary canines. First-line treatment is generally a cystectomy or upright orthodontic diversion of the impacted tooth after cyst opening therapy [14]. In cases of KMs Class III, mandibular third and fourth molar extraction might not interfere with the occlusion; however, orthodontic treatment is preferred for patients with KMs Classes I and II. There have been reports of orthodontically guided eruption of Pseudo-KMs Class I [15]; however, none of the 25 True-KMs reported in the literature were successfully treated. Kaneko *et al.* reported in 2021 that orthodontic upright was initially used to treat unilateral True-KMs Class II; ultimately, the molars were extracted [13]. KMs treatment outcomes should be explained to the patient. Diagnosis of KMs is mainly radiological [4], so panoramic radiography and CBCT images should be obtained preoperatively. Our patient did not undergo postoperative histopathological examination; however, preoperative histopathological examinations are needed to achieve a more definitive diagnosis.

KMs are rare and poorly understood clinical entity. Aside from their rarity, there is a lack of awareness and recognition of KMs. Within the Japanese literature, there is a single case report of orthodontically treated mandibular second and third molars where the occlusal surfaces faced one another on panoramic radiography; however, this case was not classified as True-KMs [16]. To avoid

**Table 1.** Cases of True-KMs Class III in the English and Japanese literature.

| Author and Year of Publication | Gender/age | Unilateral/bilateral | Histopathological Findings |
|---|---|---|---|
| Bakaeen *et al.*, 2005 [6] | M/23 | Bilateral | No evidence of disease |
| Boffano *et al.*, 2009 [7] | M/42 | Unilateral | No evidence of disease |
| Shahista *et al.*, 2013 [8] | F/21 | Unilateral | - |
| Menditti *et al.*, 2015 [4] | M/56 | Bilateral | No evidence of disease |
| | F/30 | Unilateral | Hyperplastic dental follicle |
| Arjora-Amo *et al.*, 2016 [9] | F/24 | Unilateral | Dentigerous cyst |
| Edamatsu *et al.*, 2019 [10] | M/29 | Unilateral | Dentigerous cyst |
| The present case, 2022 | M/20 | Unilateral | - |

M: male, F: female.

overlooking potential KMs, specialists such as oral surgeons, dental radiologists, orthodontists, and dentists should be aware of KMs to facilitate timely diagnosis and treatment.

## 4. Conclusion

This report describes a unilateral True-KMs Class III case with a cystic variant based on panoramic radiographs and CBCT images.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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