



Ectopic Third Molar in Mandibular Ramus: Report of Two Cases and Literature Review

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Abstract

Objectives: Ectopic mandibular third molar is a rare condition, and information about its causes and characteristics is limited. Its etiology has not yet been completely clarified. This article reports two cases of ectopic mandibular third molar and reviews the literature on the clinical signs and symptoms and management of this condition.

Material and methods: We searched in medline Pubmed (<http://www.ncbi.nlm.nih.gov/PubMed>) for articles from 1979-2014 and almost non English papers were excluded.

Results: We found 34 cases (37 ectopic teeth) reported in different locations in 11 men and 23 women. Mean age was 46.3 (range 22 to 80). Those cases were evaluated alongside the new clinical cases that we presented. The most possible cause of ectopic molars was related pathology such as odontogenic cyst.

Conclusion: The results of this review suggest that displaced teeth must be removed if they cause symptoms. The surgical route should be designed according to the location and position of the third molar.

Clinical relevance: Treatment of ectopic teeth should be carefully planned according to the potential for trauma caused by the surgery.

Keywords

Third molar, Ectopic tooth, Mandible, Ramus

the body of the mandible, and the position of its long axis [36,37]. Ectopic mandibular third molars, however, are unusual, with their heterotopic positions reported in the condylar area, in the ascending ramus of the mandible, or in the coronoid process. Due to the rarity of this condition, few cases have been reported, and the etiology, clinical features and optimal management of ectopic mandibular third molar are still unclear.

Owing to the rarity of ectopic third molars in the ramus region, we aimed to present two cases in the present paper and review the related literature over the past 35 years (1979–2014). A conservative intraoral surgical technique for tooth removal is also described.

Case 1

A 38-year-old woman visited our outpatient department in April 2013 complaining of pain and swelling on the left side of her face for two weeks. Radiologic examination revealed her lower left third molar, located on the left ascending ramus (Figure 1). It was sitting with the crown facing the neck of the condyle and the apex facing downward. A computerized tomography (CT) scan exposed the relationship of the ectopic tooth to the anatomic structure. It was positioned upward and outward to the close to the outer cortical bone of the ramus. Small follicular space was also identified enveloping to the crown of the tooth. Under endotracheal general anesthesia, intraoral access was obtained via an incision on the anterior edge of the ramus along to the linea oblique externa. The ramus was exposed and an oscillating saw was used to make cuts in the cortical bone at the estimated site of ectopic tooth; then a 2mm carpid round bur with a straight surgical hand piece was used to make a bony window to expose the tooth. The molar was then elevated, enucleated surrounding soft tissues were sent to pathology, and the wound was closed in a routine fashion. At the one-week follow-up the patient complained of slight paresthesia at her labial mucosa on the left side, but this complication had healed after two weeks (Figure 2).

Case 2

A 25-year-old woman was referred to our clinic from the otolaryngology department with a complaint of pain and swelling on the right side of her face. The patient had suffered several episodes of intense pain in preauricular region and in the ear. History at the time of admission showed that she had been receiving an antibiotic from the inpatient department of another hospital.

Introduction

Impaction of mandibular third molars is a common condition, with a frequency of 20%-30%, and a higher prevalence in women [1,2]. In some cases the teeth tend to occupy an abnormal position because of lack of space in the posterior side of mandible. Third molar removal is one of the most common surgical procedures [3]. Unerupted third molars are normally found near the usual site of eruption. Sometimes, however, these teeth are found at places distant from their points of origin [1-35]. Ectopic positions include condyle ramus, coronoid process, sigmoid notch and lower border of angle of the mandible. Ectopic mandibular third molars are not very common and the etiology remains unclear.

Impacted mandibular third molars are categorized according to the anterior-posterior space between the second molar and the mandibular ramus, its superior-inferior position, its medial-lateral in

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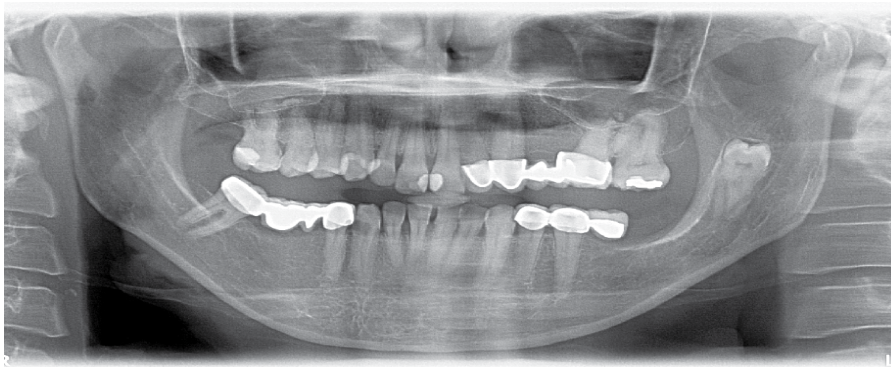


Figure 1: Case 1.



Figure 2: Case 1, postop. 18 months

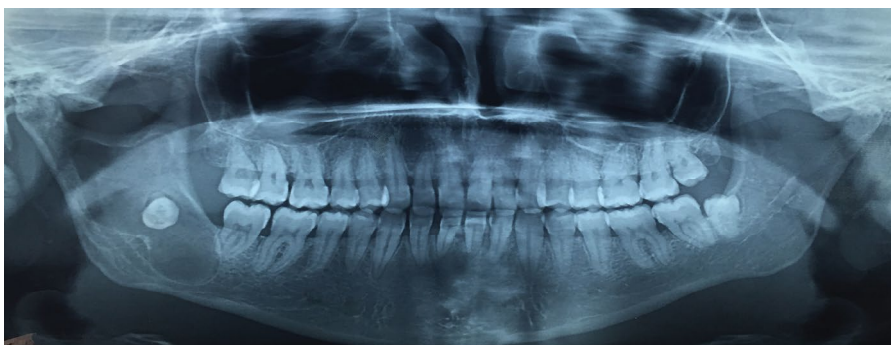


Figure 3: Case 2 panoramic view



Figure 4: Case 2, sagittal view

Extra-oral examination revealed a swelling over the right side of face extending from the angle of the mandible to the temporal region.

The skin was of normal color. On palpation there was no tenderness or localized rise in temperature. Intra-oral examination revealed

a discharge distal to second molar. Pus aspiration was obtained by needle. Radiological examination revealed a large radiolucent area in the ramus with dimensions of around 4x8. The third molar was positioned in middle of the ramus (Figure 3-5). The crown segment of tooth was facing the lingual side and the apex was facing the vestibular cortex of the mandibular ramus.

The tooth was impacted and displaced superiorly in the ramus, approximating to the outer and anterior cortex of the ramus. There was a slight expansion of that area. Surgical removal was performed under general anesthesia with access in a routine fashion. The bone was removed around the tooth. The tooth was elevated carefully, the bony window enlarged, the cyst epithelium enucleated and the cyst cavity irrigated with saline. The enucleated tissue was sent to pathology department. The histopathology report confirmed the diagnosis of a dentigerous cyst (Protocol No: 43540832212). There was a slight paresthesia in the postoperative period, being fully recovered in 4 weeks. The patient was checked with one week intervals; swelling and the ear pain disappeared gradually.

Literature Review and Discussion

We searched medline Pubmed (<http://www.ncbi.nlm.nih.gov/PubMed>) using the following key words “ectopic tooth”, “third molar” and “mandibular” including articles from 1979–2014, and almost non English papers were excluded. We found 34 cases (37 ectopic teeth) reported in different locations; we identified them 4 subdivision: mandibular ramus, coronoid process, mandibular condyle and mandibular angle. We found higher prevalence in women including

23 cases. The mean age was 46.3 (range 22 to 80) of 11 men and 23 women. 10 of the ectopic mandibular third molars were located in ramus, 18 in condyle, 3 in the angulus, 3 in the coronoid process, 2 in the pterygomandibular space and one on the lower edge of the corpus. 20 of them were located right side and the other 17 on the left; 18 of the 37 teeth had been removed via intra-oral access, 14 extra-orally, and 5 had not received any treatment (Table 1). The most frequent symptoms were pain and swelling; other symptoms were trismus, difficulty in mastication, pus discharge, bad taste and temporomandibular joint dysfunctions. Of the ectopic molars, 21 were associated with cysts (mostly described as dentigerous cyst), 3 with abscess and 1 with osteomyelitis.

A variety of case reports have described ectopic molars in different places on the mandible [1-8,10,12-25,27,29,30,32-35,38]. The etiology of ectopic teeth cannot be easily determined [23]. Several theories have been considered to explain ectopic locations such as trauma, ectopic formation of germs and aberrant eruption [27]. Impacted molars may be located at a distance from their normal location due to an aborted eruption, or displacement because of lesions (cyst or tumors) [6,7,11,18,21,29,32,33,38].

Diagnosis is based on clinical findings together with radiological assessment [3,37]. Whether third molars should be removed or not depends on the individual case. Ectopic third molars that are not symptomatic or associated with any disease do not require treatment [4,8,15,16,29]. If they lead to symptoms, however, it is obvious that they should be removed.

Table 1: Ectopic third molars in different locations.

Author	Age	Gender	Position of tooth	Signs and symptoms	Managment	Associated pathology
Adams & Walton [4]	45	F	R, Angulus	Pain	No treatment	Cyst
Ahmed & Speculend [1]	38	F	L, Angulus	Pain, facial swelling, foul taste	Extra oral	Cyst
Ahmed & Speculend [1]	52	F	R, Condyle	Swelling, trismus	Extra oral	Cyst
Ahmed & Speculend [1]	36	F	R-L, Ramus	Pain, infection	R-L, Intra oral	none
Bortoluzzi & Manfro [3]	64	F	R, Ramus	Pain, swelling, purulent discharge	Intra oral	none
Bowman et al. [5]	56	M	R, Subcondyle	Swelling, pain	Extra oral	Cyst
Burton & Scheffer [6]	57	F	L, Condyle R, High ramus	Painful swelling left side	Left side-extra oral Right side-intra oral	Cyst
Bux & Lisco [7]	66	F	R, Subcondyle	Pain, pas, swelling	Extra oral	Dentigerous cyst
Chongruk [8]	27	F	L, Coronoid	No gross disease	No treatment	none
Gadre & Wankis [10]	40	M	L, Condyle	Facial swelling, pain, pus discharge	Intra oral	Abscess
Gadre & Wankis [10]	30	F	R, Condyle	Pre auricular pain, swelling	Intra oral	Cyst
Goel et al. [38]	22	M	L, Angulus	Swelling	Intra oral	Cyst
Iglesias- Martin et al. [12]	53	F	L, Condyle	Pain, swelling, trismus	Extra oral	Cyst
Kansy et al. [14]	27	F	L, Ramus	No complaint	Intra oral	none
Keros & Susic [15]	41	M	L, Coronoid	No complaint	No treatment	none
Kim [16]	70	F	R, Condyle	No complaint	No treatment	none
Kupferman & Schwartz [17]	49	F	R, Ramus	Pain, trismus, foul taste	Intra oral	Chronic infection
Kupferman & Schwartz [17]	55	M	L, Pterygomandibular space	Swelling, pain, fever, trismus,	Intra oral	Acute abscess
Lambade [18]	35	F	Subcondyle	Pain, trismus, pus, fistula	Extra oral	Osteomyelitis
Lee et al. [19]	46	M	R, Pterygomandibular space	Swelling, pain	Intra oral	Cyst
Markowitz et al. [20]	23	F	R, Ramus L, Ramus	No Complaint	Intra oral	none
Medici et al. [21]	41	F	R, Condyle	Tmj pain, swelling, trismus,	Intra oral	cyst
Pace et al. [24]	53	M	R, Subcondyle	Erythematous skin swelling, pus discharge	Extra oral	Cyst
Procacci et al. [25]	38	F	L, Coronoid	Pain	Intra oral	none
Procacci et al. [25]	37	M	R, Corpus	Pain, Swelling	Extra oral	Cyst
Salmeron et al. [27]	53	F	R, Condylar neck	Pre-auricular pain and swelling	Extra oral	Cyst
Salmeron et al. [27]	41	M	L, Condylar neck	Pre-auricular swelling, pain, intra oral purulent secretion	Extra oral	Cyst
Shivashankara et al. [2]	45	M	L, Subcondylar	Pain, swelling, trismus	Extra oral	Cyst
Srivastava & Singh [29]	45	M	Subcondylar	Pain, Swelling, Trismus	No treatment	None
Suarez-Cunheiro et al. [30]	45	F	R, Condyle	Pain, swelling	Intra oral	Cyst
Toranzo & Terrones [32]	80	F	L, Ramus	Facial asymmetry, trismus, pain	Intra oral	Infected cyst
Tumer et al. [33]	47	F	R, Subcondyle	Swelling, pain	Extra oral	Cyst
Wang et al. [34]	31	F	R, Ramus	Pain, swelling	Intra oral	Cyst
Wassouf et al. [35]	49	F	L, Condyle	Pain, swelling	Intra oral	Cyst

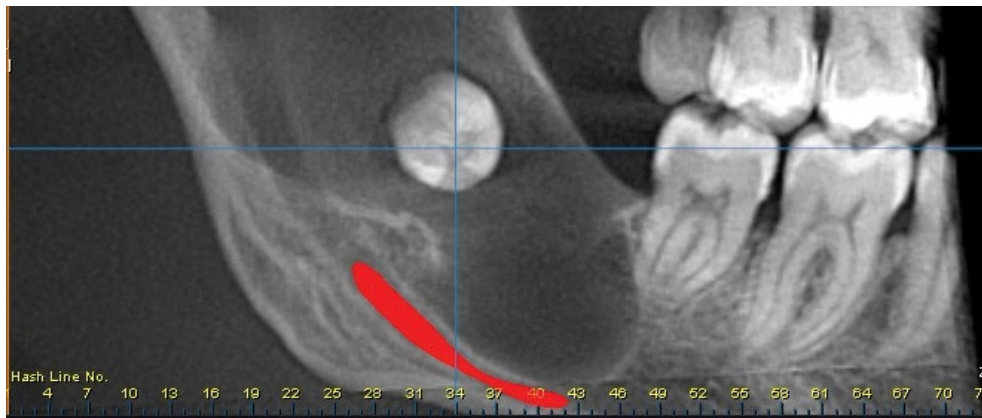


Figure 5: Case 2, frontal view

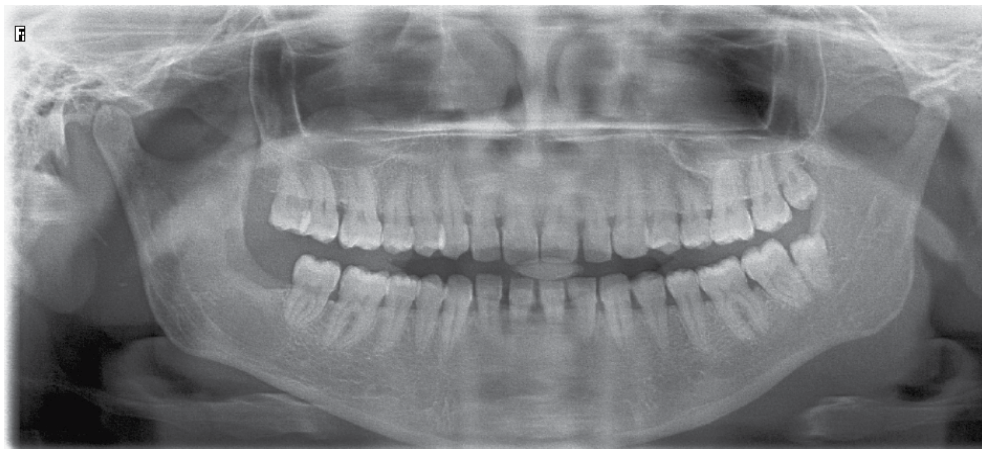


Figure 6: Case 2, postop. 8 months

Some reported cases were associated with radiolucent lesions either small or large, confirmed by radiograph as dentigerous cysts. The most relevant pathogenesis for ectopic third molar seems to be odontogenic cyst. In the period 1979–2014, the most frequent location of ectopic molars was in the condyle (18 cases) [1,2,5-8,10,12,16,21,24,27,29,30,33,35]; 10 were in the ramus [1,3,6,14,17,20,32,34], with only 3 in the angulus [1,4,38], 3 in the coronoid [8,15,25] and 1 on the lower edge of the mandibular corpus.

Management of ectopic mandibular third molar depends of several factors such as signs, symptoms and associated pathology. Pathology in the mandibular ramus and the condyle leads to complications (condylar resorption, fracture and osteolysis) [6,18].

The choice of surgical approach is based on to the preference of the surgeon and the location of the tooth. All authors agree that treatment should be designed carefully with the aim of choosing the more conservative technique (in general, intra-oral access is performed whenever possible to avoid scars and nerve injury) [4-7,13,15,18,24,25,27,38]. The use of an endoscope produces better visualization of the surgical field [30].

Where extra-oral access is required, the submandibular and retromandibular routs are most frequently used [1,7,25,29]. The preauricular approach provides better vision of the condyle, but leaves a scar. The literature describes the use of an extra-oral approach when the molar is located in the condylar or subcondylar region [2,4-7,24,27,30,33,35].

We used the intra-oral approach in our cases and managed to reach the teeth and enucleated the cyst reasonably easily and they healed uneventfully (Figure 2,6).

Complications are rare. The most frequent complication is

scarring and damage to nerve structure through extra-oral access. Mandibular fractures can be possible when a greater osteotomy is performed.

In summary, our literature review showed more cases of ectopic third molars located in the condylar region than in the ramus or coronoid. The two new clinical cases we present here were in the ramus. One was associated with a dentigerous cyst. Among etiologic hypotheses, odontogenic cysts appear to be the most relevant cause. In most of the reported cases there were no serious complications.

Conclusion

Ectopic molars in the ascending ramus are very rare. The migration of wisdom teeth should be kept in mind and patients should be controlled regularly when impacted teeth have not been removed.

If the decision is removal of the impacted tooth, the procedure should be chosen according to the individual case of each patient. The potential risks, possible complications and benefits of the procedures should be evaluated very carefully.

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