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Case Report

A rare case of ectopic molar in a non-dentate area of mandible

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Abstract

Ectopic third molar (ETM) in the anterior border of ramus near the coronoid process is an extreme rarity. The exact etiology and the incidence of this condition are still not clearly known. Most of these cases are diagnosed after the clinical signs and symptoms arise. A few cases remain asymptomatic throughout life. Panoramic radiographs aid in diagnosis and symptomatic cases require surgical removal while asymptomatic cases must be on radiological follow-up to monitor any occurrence of associated pathology. Here, we present a asymptomatic vertical ectopic mandibular molar in the ramus at the mandibular foramen which highlights the importance of appropriate and necessary imaging modalities for treatment planning in a medically compromised patient.

Keywords: Ectopic third molar, Mandible, Ramus, Vertical impaction.

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1. Introduction

Mandibular third molar tooth impaction is a very common finding where the impacted tooth can be positioned against another tooth, bone or soft tissue and its further eruption is unlikely. The impacted mandibular third molars mostly have an unusual clinical presentation and can be found as mesioangular, distoangular, vertical, inverted or ectopic. Impaction of mandibular third molar tooth in an abnormal area and position is a rare entity. When the tooth is present in a non-dentate area, distant from its point of origin it is termed as ectopic tooth. Ectopic positions in the mandible can be the coronoid process, sigmoid notch, ramus of mandible, inferior border of the mandible or condylar area.Third molar impaction are found to be more prevalent in females and has a frequency of 20%-30% of occurrence.[1] The frequency of ectopic mandibular third molar (ETM) is not assessed due to its rarity and also maybe under-reported. Taking the rarity of this condition into consideration, the etiology and the management of ETM is still unclear. In this paper, we report a case of an asymptomatic third molar in the left side of the mandibular ramus in an unusual location as well as its radiographic assessment which is a contribution to the reported literature on this topic.

2. Case Report

A female patient in her late thirties visited our outpatient department with a complaint of dislodged fixed partial denture. The patient gave a past medical history of rheumatic heart disease and was scheduled for mitral valve replacement surgery. Extraoral examination did not reveal any gross asymmetry of the face or presence of lymphadenopathy. Intraorally, the patient had multiple missing teeth with fixed partial dentures in all the quadrant of the jaws. The mandibular second and third molar on both the sides were missing, and the patient was not aware nor had dental records of whether the third molars were extracted or congenitally missing. Clinical examination of the mandible did not reveal any change in the integrity of the jaw. There was no history of tingling sensation or paresthsia in the left mandibular region. An orthopantamograph (OPG) was advised as a routine radiological investigation. The OPG allowed identification of a well-formed, vertically impacted molar in an aberrant location with no periapical or pericoronal

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pathology in the left ascending ramus of the mandible (**Figure 1**). The tooth was placed vertical closer to the anterior border of the ascending ramus with the crown facing the sigmoid notch and the apex of the tooth over the mandibular foramen. The patient was further advised a Cone Beam Computed Tomography (CBCT) scan for evaluating the close approximation of the ectopic tooth to the anatomic structures. CBCT scans were performed with a CS 9600 software, the patient exposed to X-ray source with 120 kV and 5.0 mA and 24 seconds. The parameter used for data acquisition and 3D reconstruction involved parallel slicing mode, slice thickness of 1mm and spacing of 1mm. In the axial section, the impacted molar was noted aligned vertically along the left ramus of the mandible, the apex of the root located buccally and in close approximation with the inferior alveolar nerve bundle (**Figure 2**). At the maximum curvature of the tooth, the tooth was located 2.7mm from the anterior border of the ramus and 12.5mm from the posterior border of the ramus (**Figure 3**).

Figure 1: Orthopantomograph showing vertically impacted molar in the left ramus, apex of the tooth superimposing on the mandibular foramen

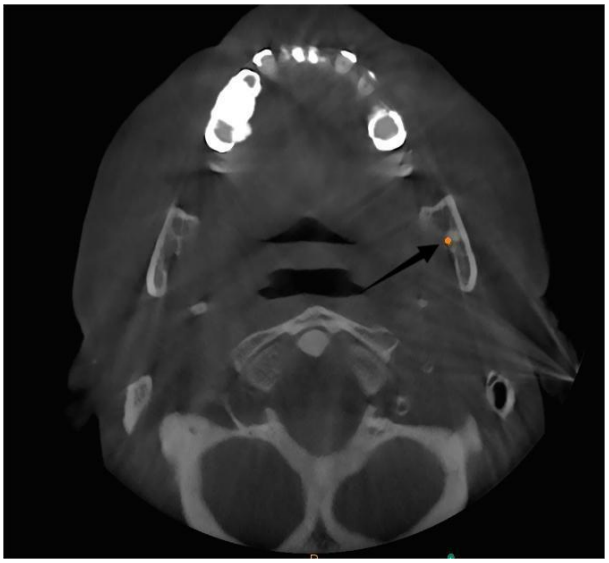

Figure 2: Axial section revealing the apex of the root placed buccally and in close approximation to the inferior alveolar nerve bundle

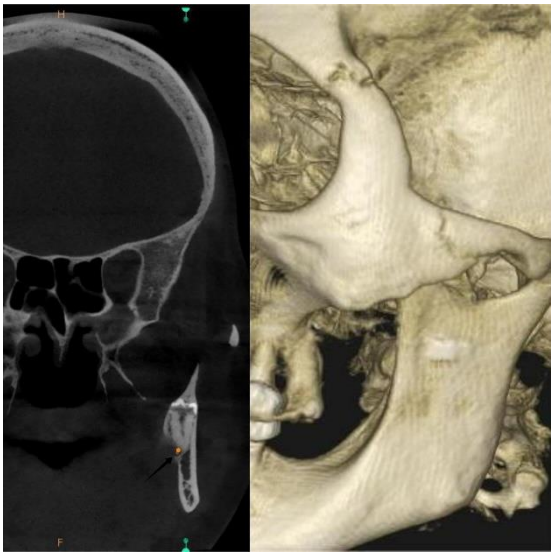

Figure 3: Coronal section and the reconstructed 3D image, lingual and buccal cortical plate in contact with the crown of the tooth

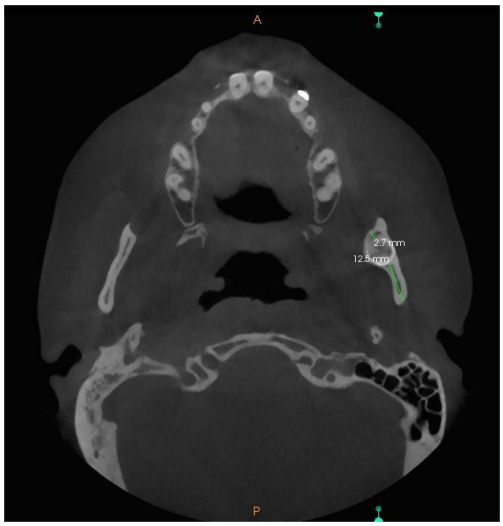

Figure 4: Axial section, placement of the tooth at the maximum curvature of the tooth from the anterior and posterior border of ramus

The coronal section and the reconstructed 3D image (**Figure 4**) revealed the impacted molar embedded within the ramus in close approximation to the buccal cortex and 2.2mm away from the lingual cortex and the root in approximation with the mandibular foramen. There was no pathologic or morphologic changes around the tooth or in the surrounding bone. A radiodiagnosis of ectopic molar in the anterior ramus of the mandible was given. Although, the ETM was located on a superior plane in the ramus and in close approximation to the inferior alveolar nerve bundle, the tooth was left in situ taking the medical history of the patient into consideration and a regular annual radiological followup was scheduled

3. Discussion

ETM are located in areas of maxillary and mandibular bones other than the alveolar arch such as maxillary sinus,

mandibular condyle, coronoid process, sigmoid notch and the angle. They are most commonly found in the condylar region followed by the ramus, and the coronoid process. Most of the reported ectopic molar cases in the coronoid and condylar area are symptomatic[2] with signs and symptoms of pain and tenderness, extra and intraoral swelling, trismus or paresthesia. Although, many theories have been suggested to explain the possible etiology, the exact cause has not yet been completely elucidated.[44] Ectopic eruption may occur due to displacement of the erupting tooth germ, or disruption in the eruption pattern, trauma in the area of the tooth germ or maybe iatrogenic in nature. Capelli[4] reported that ectopic eruption could be caused by the lack of space between the mandibular second molar and the ramus of the mandible which is the result of regressive metamorphosis of the alveolar arch. As reported by Richardson,[5] the third molar develops in the ramus of the mandible in an upright position wherein the occlusal surface of the tooth faces upward and forward. Normally, as the vertical direction of condylar growth takes place the third molar gradually descends into the alveolar process. In concurrence osteogenesis occurs further enhancing the straightening of the ramus. This hypothesis may explain the noninverted position of the ectopic third molar in this case report. In an adult mandible, the base of the condylar process develops as a result of bone tissue apposition in the posterior segment of the ramus. Hence, the bone that forms the mandibular base in childhood may be shifted to the region beneath the coronoid process in adulthood, at times leading to malpositioning of the tooth germ. In the present case it may be hypothesised that the ectopic location of the third molar may not be due to an abnormal growth of the mandible or the tooth per se, but can be a complete dislocation and shift of the base of the tooth germ. In our patient the etiology appears to be developmental abnormality since there was no history from the patient regarding any trauma or surgical procedure in relation to the left mandibular area nor was the tooth of interest associated with any pathology. Literature search reveals that more number of reported cases of ETM's are in females. This could be attributed to the differences in the growth pattern of the mandible in males and females.[6] The most common location of ETM is the condylar or subcondylar region and unilateral as reported.[7] Literature search reveals right side of the jaw is more frequently affected than the left side.[8,9] The present case was also unilateral and was found on the left side of the jaw. Veerabhadrappa et al[2] in their systematic review reported that majority of the cases were diagnosed after being symptomatic. The clinical signs and symptoms of an ectopic tooth may be in the form of pain, swelling, tenderness, trismus, rise in temperature, or draining sinus.[1] In the present case, the ETM was asymptomatic and was an incidental finding on OPG giving an insight into the possible occurrence of symptoms of nerve involvement in future. Usually, the management of an ectopic impacted tooth involves an intraoral surgical approach if possible to avoid scarring of facial skin[5] and also minimise trauma to the patient. However, the extraoral approach can be implemented if the ectopic molar is placed high in the ascending ramus. In the present case, the surgical treatment was opted for later due to the scheduled cardiac surgery of the patient.

4. Conclusion

Ectopic third molar in ascending ramus is a rare clinical entity detected when symptomatic. However, the occurrence maybe under-reported due to tooth being asymptomatic. A screening Orthopantamograph revealed the presence of an aberrant third molar and the Cone bean computed tomography imaging facilitated the precise location of the tooth to the inferior alveolar nerve bundle contributing to a better understanding of the treatment plan. The treatment of ectopic third molar should be carefully planned according to the position and the possible trauma to the surrounding anatomical structures caused in the surgery.

5. Source of Funding

None.

6. Conflict of Interest

The authors declare no conflicts of interest.

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