

The Preternatural First Premolar: A Ground Section Tooth Case Report

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Abstract:- Ectopic eruption is a developmental disturbance in eruption pattern of permanent dentition most often associated with maxillary first permanent molar (2-6% of general population), mandibular lateral incisors (<1%), maxillary permanent canines (1.5-2%). Ectopic eruption of teeth is a rare phenomenon although cases have been reported in nasal cavity, maxillary sinus, mandible, palate, orbital cavity. Ectopic eruption of mandibular first premolar is a rare condition and there were no discussions in the literature about its eruption in coronoid process. Premature loss of primary second molar and second permanent premolar can lead to disturbed eruption of first premolar. In this case report, we present an ectopic mandibular first premolar at the level of sigmoid notch below the right coronoid process.

I. INTRODUCTION

Eruption of teeth is a complex process. It is influenced by genetic control, craniofacial morphology, body composition. Tooth eruption refers to axial or occlusal movement of tooth from its developmental position within the jaws to functional position in occlusal plane. A variety of eruption problems may arise during the mixed dentition period and one such problem is ectopic eruption. Sandy Marks, Don Cahill demonstrated that dental follicle plays a major role in initiating eruption by regulating alveolar bone resorption and alveolar bone formation [6]. Mononuclear cells (osteoclast precursors) are recruited into dental follicle prior to onset of eruption.

These cells in turn fuse with each other to form osteoclasts that resorb alveolar bone, forming an eruption pathway for tooth to exit its bony crypt. Ectopic teeth are similar to impacted teeth. The difference is that ectopic teeth erupt in abnormal position whereas impacted teeth may be on course to erupt in right spot, but are not able to erupt. A tooth can be both ectopic and impacted. In this case study, we report a case of an ectopic mandibular first premolar located in the coronoid process which was asymptomatic. It was noticed accidentally in orthopantomogram (OPG) when the patient desires replacement of his edentulous maxillary and mandibular arches with complete dentures.

II. CASE DESCRIPTION

A 48-year-old male patient reported to the outpatient department of prosthodontics and crown and bridge, Bapuji Dental College and Hospital complaining of missing teeth in upper and lower jaw and desires replacement with complete

dentures. Patient gave a history of betel nut chewing with tobacco for 25 years, 8-10 times daily and alcoholic for 17 years. And also, patient gave a history of extraction of maxillary and mandibular posterior teeth 25 days ago before the evident of this case in the department of oral maxillofacial surgery for receiving the complete dentures. No gross facial asymmetry was seen on extraoral examination. On intraoral examination completely edentulous U-shaped maxillary and V shaped mandibular arches were seen. In the mandibular arch red colour patch was seen on right buccal mucosa (figure 1). A small protuberance of size 2 x 2 cm was palpated over medial side of right ramus of mandible (figure 1 and 2). After taking orthopantomography (OPG), ectopic premolar was located in right coronoid process of mandible [figure 3 and 7]. Radiograph of sagittal sections showed impacted tooth with crown morphology similar to mandibular first premolar at the level of sigmoid notch below the right coronoid process [figure 4]. Perforation of medial and lateral coronoid plate near crown of impacted tooth was seen [figure 5]. There was no pathological change in surrounding bone. The patient was informed of ectopic tooth in coronoid process and directed to the department of oral Maxillofacial Surgery for surgical excision of ectopic tooth.

➤ *Figure 1 and 2 Showing Small Protuberance of 2 X 2cm Over Medial Side of the Ramus.*



Fig 1 Showing Red Colour Patch Seen on Right Buccal Mucosa



Fig 2 Showing Small Protuberance of 2 X 2cm Over Medial Side of the Ramus

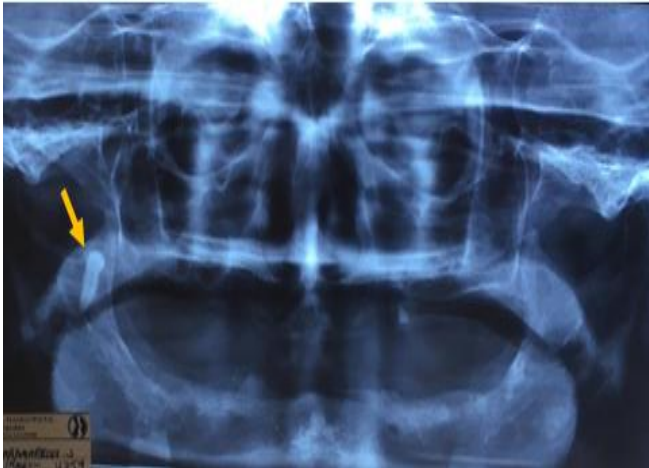


Fig 3 Radiograph Showing Ectopic Mandibular Premolar Located at the Level of Sigmoid Notch below the Right Coronoid Process of Mandible

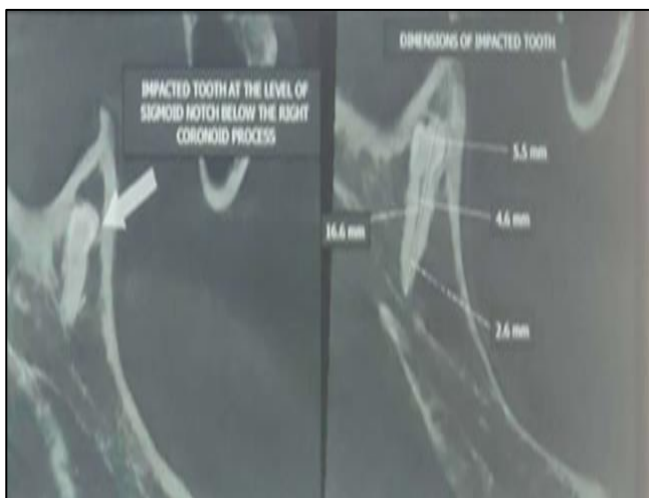


Fig 4 Digital OPG of Sagittal Sections Showed Impacted Tooth with Crown Morphology Similar to Mandibular First Premolar at the Level of Sigmoid Notch below the Right Coronoid Process



Fig 5 Digital OPG Showing Perforation of Medial and Lateral Coronoid Plate near Crown of Impacted Tooth was Seen

The surgery was performed under general anaesthesia using an extraoral approach. Surgically excised hard tissue of tooth specimens appears greyish white in colour and hard in consistency. [figure 8]. Hard tissue biopsy of tooth specimens revealed the presence of enamel, dentin, cementum and pulp canal. Enamel appears normal in structure and formation with normal microscopic features. Dentin appears normal in structure and formation with normal microscopic features like S shaped dentinal tubules. Cementum appears normal in structure and formation, contains microscopic features like both cellular and acellular cementum. Pulp appears normal in structure with prominent canal extended up to root apex. [figure6]

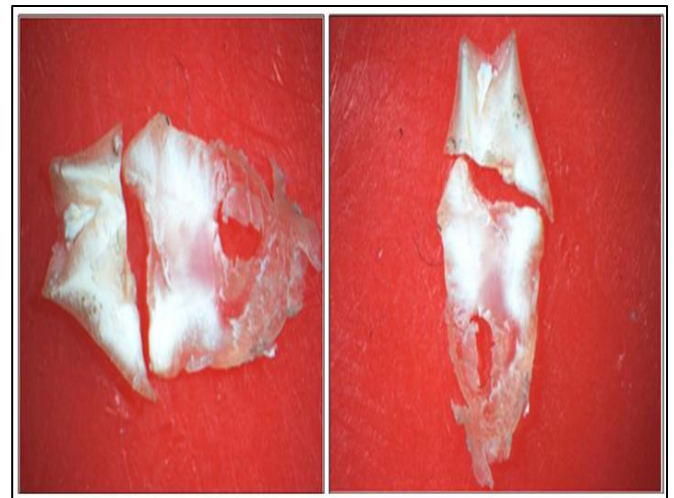


Fig 6 Hard Tissue Biopsy of Tooth Specimen Showing Normal Appearance of Enamel, Dentin, Pulp and Cementum Under Microscopy

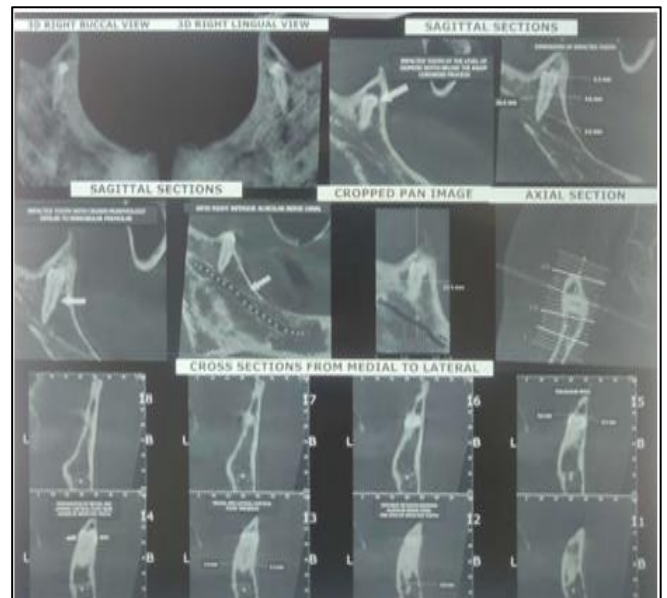


Fig 7 Digital OPG



Fig 8 Surgically Excised Tooth

III. DISCUSSION

Tooth development results from a complex interaction between the oral epithelium and underlying mesenchymal tissue. Sometimes during development of teeth, abnormal tissue interaction between oral epithelium and underlying mesenchymal tissue may result in ectopic tooth development [1 and 2]. Ectopic eruption of tooth in non-dental sites is rare although very few cases have been reported in nasal cavity, orbital cavity, mandible, palate, nasal septum and maxillary sinus [3-5]. The incidence and aetiology of ectopic eruption are still unknown. Researchers have suggested that, premature loss of mandibular first permanent molar and second premolar or loss of primary teeth may result in distal migration of mandibular first premolar. They also suggested that, theories on trauma, infection, pathologic conditions, crowding and developmental anomalies such as displacement of tooth buds explains the phenomenon of ectopic eruption of tooth. Ectopic teeth are commonly observed in second and third decade of life. The incidence of ectopic teeth is higher in men than in women. Our patient was a 48-year-old male [7]. In this case report, displacement of mandibular premolar was idiopathic and patient is completely edentulous. Symptoms such as pain, generally may occur in mandibular coronoid and condylar regions, some cases are asymptomatic and are often discovered in routine radiographic examinations, as in present case study.

A review of literature between 1980 and 2010 found 1 ectopic premolar tooth. A research of English language studies showed 10 cases of ectopic mandibular second premolar in condylar or subcondylar region from 1968 to 2010[8]. In 8-year-old boy distal migration and ectopic eruption of mandibular first premolar was reported following early extraction of primary second molar [9]. After extraction the first premolar erupted just mesial to permanent first molar. Ectopic eruption of mandibular first premolar is a rare condition and there were no discussions in the literature about its eruption in coronoid process. In asymptomatic cases, removal of premolar can be delayed for

a few days but, in symptomatic cases, surgical extraction of ectopic tooth subsides pain and reduces further complications. In summary, occurrence of an ectopic tooth in coronoid process is rare and has an unclear aetiology. In this case, patient with ectopic tooth without clinical symptoms was noticed, who do not know that they have dislocated tooth. OPG taken before construction of complete dentures suggested for early diagnosis of ectopic tooth.

IV. CONCLUSION

Ectopic eruption of premolar is a rare condition, although cases of eruption of premolar is noticed in condylar and subcondylar region. In our case we report an ectopic mandibular first premolar at the right coronoid process of mandible which is asymptomatic without any associated dentigerous cyst.

REFERENCES

- [1]. T. srinivasa Prasad, G. Sujatha, T. M. Niazi, and P. Rajesh,"dentigerous cyst associated with an ectopic third molar in the maxillary sinus: a rare entity," Indian Journal of Dental Research, vol.18, no.3, pp. 141-143, 2007.
- [2]. M. C. Bortoluzzi and R. Manfro," Treatment for ectopic third molar in the subcondylar region planned with cone beam computed tomography: a case report," Journal of Oral and Maxillofacial Surgery, vol.68, no.4, pp.870- 872,2010.
- [3]. F. Iglesias- Martin, P. Infante - Cossio, E. Torres-Carranza, V. E. Prats – Golczer, and A. Garcia-perla-Garcia, 'Ectopic third molar in the mandibular condyle: a review of the literature,' Medicina Oral, Pathologia oral y Cirugia Bucal, vol. 17, no.6, pp.e1013- e1017,2012.
- [4]. T. Baykul, H. Yasan, and M. Cina Aksoy, "Clinical impact of ectopic teeth in the maxillary sinus," Auris Nasus Larynx, vol. 33, no.3, pp 277-281, 2006.
- [5]. R. K. Verma, j. Bakshi, and N. K. Panda, "Ectopic intranasal tooth: an unusual cause of epistaxis in a child," Ear, Nose, and throat journal, vol.91, no.6, pp. 242-244, 2012.
- [6]. Cahill DR, Marks SC Jr. Tooth eruption: evidence for the central role of dental follicle. J Oral Pathol. 1980; 9: 189-200.
- [7]. G.Beriat, N. Beriat and E. yalcinkaya, 'Ectopic molar tooth in the maxillary sinus: a case report," Clinical Dentistry and research, vol.35, no.2, pp.35-40, 2011.
- [8]. A. Fuziy , A. L. F. Costa, C. M. Pastori, C.F. de Freitas, F. C. Torres, and L.L.V. Pedrao," Sequential imaging of an impacted mandibular second premolar migrated from angle to condyle," Journal of Oral Science, Vol.56, no.4 ,pp.303-306,2014.
- [9]. Fux-Noy A. Distal migration and Ectopic Eruption of the Mandibular First Premolar: Case Report. J Clin Pediatr Dent. 2020; 44 (2): pp127-129.