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Case Report

Surgical approach of impacted maxillary second premolar – A case to report

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ABSTRACT

Impacted molars are frequently seen in clinical circumstances. When compared to other teeth, wisdom teeth and the cuspid are discovered to be significantly more impacted. Aside, impacted teeth have a likelihood of more extreme and significant issues, which include fostering the growth of cysts and other consequences because of their close association to the nasal and oral cavity, in addition to their debilitating nature and a likely functioning disruption they can cause. For the patient, managing it is crucial from a cosmetic and practical standpoint. Impaction on premolars is thought to occur at a rate of about 0.5%. We focus on the case of a 19- year-old girl who had an uncommonly affected maxillary second premolar tooth that was treated with surgical exposure and orthodontic traction.

1. Introduction

According to Peterson, an impacted tooth has lost some or all of its ability to erupt to the proper location in the dental arch. The mandibular and maxillary wisdom teeth, the maxillary cuspid, and the mandibular bicuspid are the teeth that are typically involved.[1] Various local factors such as facial growth deficiencies, persistent primary teeth, excessive mineralization of jaw bones, genetic factors, endocrine disorders, and various syndromes may cause impaction.[2]

Premolar impaction is thought to occur in 17.5% of cases and 0.5% of cases, respectively.[3] The impacted premolar teeth, although rarer, can cause local problems such as aesthetic problems, mastication disorders, pathologies arising from follicular tissues, and root resorption or caries on adjacent teeth.[4] Aside from these, an impacted maxillary premolar may be extremely close to the nasal and antral cavity floors, raising the possibility of additional problems that could necessitate extensive surgical intervention. Dentigerous cysts are frequently associated with impacted teeth, as well as the emergence of odontomas and inflammation in addition to the cysts themselves.[5] There aren't many instances of impacted premolars in the literature. This report shows a case of impaction of the second premolar in the maxilla in an adolescent to demonstrate the critical importance of early diagnosis and treatment planning.

2. Case Presentation

A 19-year-old female who had presented with chief complaints of a missing second maxillary premolar on the left side (Figure 1). On clinical and appropriate radiological examination, diagnosed as an impacted tooth (Figure 2). An orthodontic opinion was sought, and treatment options were discussed with the patient and her parents. It was decided to expose the impacted second premolar surgically and to utilize upper fixed appliance therapy to re-distribute the space and to pull the tooth into occlusion. The surgery was performed with a closed surgical approach to uncover the tooth. An orthodontic bracket tied with a metal chain was

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bonded to the second left premolar and the flap was closed (Figure 3).

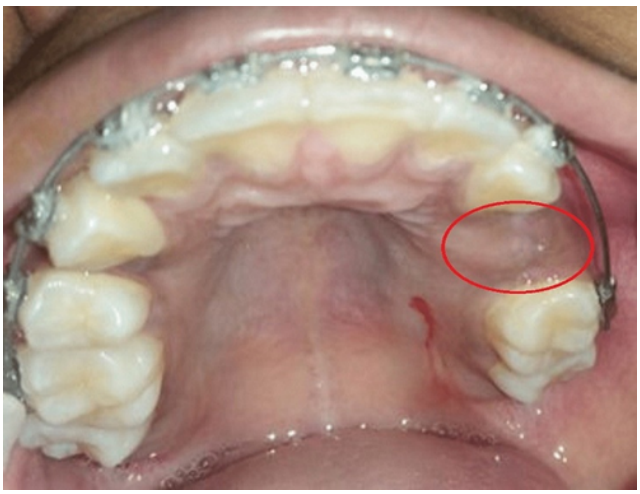

Fig. 1: Clinical photograph of missing second premolar overleft side

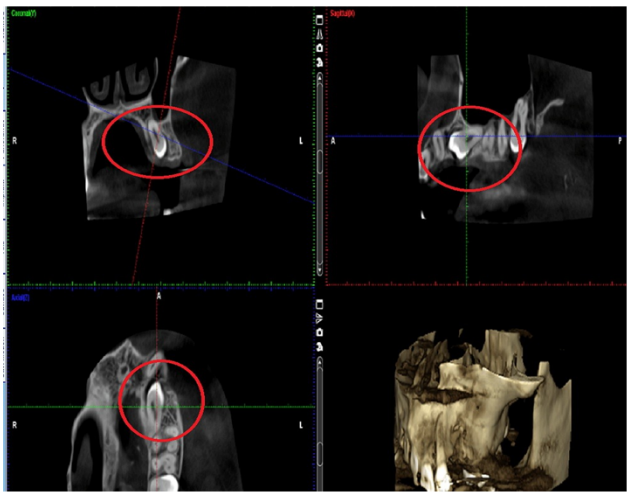

Fig. 2: CBCT showing impacted second premolar of left side of maxilla

3. Discussion

Most often, impacted teeth are discovered during routine radiological or clinical exams. In maxillary second premolars, impaction between premolar teeth is the most common. According to recent research on the Indian population, the prevalence of tooth impaction ranged from 16.8% to 18.8%.[6] Intrinsic and extrinsic factors, such as a lack of jaw room, mesial drift from the loss of deciduous molars, the ectopic positioning of the cuspid tooth germ, or inflammatory or pathological lesions, can all contribute to impacted premolars.[7] In addition to follicle

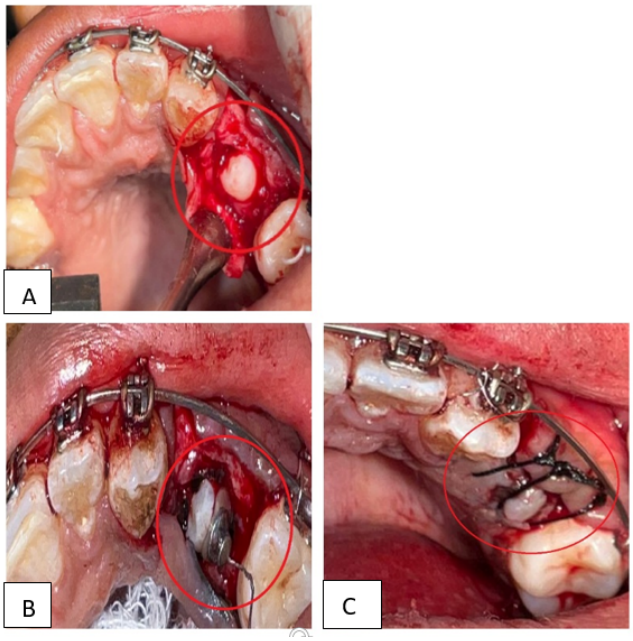

Fig. 3: Showing surgical procedure of impacted second premolar; **A**): Surgical exposure by raising flap; **B**): Placement of orthodontic wire and metal chain; **C**): Closure of flap

pathology and the loss of surrounding structures, such as neighboring teeth, impacted premolars can cause aesthetic issues, masticatory dysfunction, dental hygiene issues, and aesthetic concerns. It has been reported that impacted teeth can cause dentigerous cysts, the most prevalent type of odontogenic cyst.[8] These dentigerous cysts may also experience secondary infections and inflammatory changes, resulting in signs like pain and swelling. There have also been reports of adenomatoid odontogenic lesions developing in these circumstances.

In our instance, the patient had sought orthodontic treatment for his or her crooked teeth. On the palatal side, there was a noticeable bulge or growth. Various available radiographic aids should be used in addition to a clinical evaluation, during which impacted teeth should be suspected in instances where teeth are missing past the anticipated date of the eruption. The planning of the surgical operation heavily relies on radiographic techniques. According to a study, using the appropriate imaging methods during the diagnosis and surgical planning of these teeth allows one to visualize the morphological changes associated with the impacted teeth and their connection to adjacent structures. The intraoral periapical, occlusal, and orthopantomogram views are the radiography approaches that are most frequently recommended. The interconnected nature of the anatomical structures in the region, however, may prevent a full visualization of every structure in the area in three dimensions (3D) using the radiographs that were acquired.[9,10]

According to a study, it is possible to see the morphological changes connected to the impacted teeth and their connection to surrounding structures by using the proper imaging techniques during the screening and planning for surgery of these teeth. [11]

4. Conclusion

Impaction of the tooth are not seldom clinical and radiographical findings. The assessment is the most important step in creating the best treatment strategy. For the patient, management is crucial in terms of appearance and functionality. Every choice made should be evaluated on its own merits.

5. Source of Funding

None.

6. Conflict of Interest

None.

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