

Inversion of a premolar: a case report

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ABSTRACT

Objective:

This case report aims to highlight the rare occurrence of an inverted mandibular second premolar (tooth 44) in a 19-year-old Caucasian patient, alongside other dental and medical anomalies. It further explores the diagnostic and management considerations of impacted and inverted teeth, specifically in the context of a sub-Saharan population.

Key words

Inverted premolar, panoramic radiograph, mandible fracture

INTRODUCTION

A 19 year old Caucasian patient presented to the outpatient department of a Tertiary Hospital complaining of a missing front tooth and requesting a crown for his other broken front tooth.

The patient's medical history reveals that he only suffers from acid reflux which he self medicates with antacids. Socially the patient confirms to drink and smoke.

The patient's dental history revealed that he is a regular in patient and was recently brought to the dental hospital due to interpersonal violence trauma which caused him to avulse

his 12, damage his 21 and fracturing his mandible. The patient also confirms that he has a history of an orthodontic examination and is awaiting further treatment and that he has had a composite restoration done on his 21 and has a history of a semi rigid splint being placed on his anterior maxillary and mandibular teeth.

A panoramic radiograph was taken as part of the patient's treatment and work up and an incidental finding of an inverted tooth was made. The patient was made aware of this and opted to rather wait for possible orthodontic treatment or to leave the inverted tooth as he is fearful of invasive dental treatment.

Radiographic interpretation

The panoramic radiograph (Figure 1) displays good diagnostic quality and is suitable for interpretation. On the right condylar head/neck area and articular surface there appears to be no anomalies or pathology, the right maxillary sinus is patent with no anomalies or pathology, the nasal aperture is normal with a slight deviation to the left, the left maxillary sinus is patent and devoid of anomalies or pathology. On the left condylar neck and head area there is increased space between the condylar head and glenoid fossa, the left hand mandible has a subcondylar fracture extending from the ramus to the coronoid notch which appears un-complicated radiographically. The left hand inferior alveolar canal has close approximation of the 37 with slight widening of the right hand inferior alveolar canal. Bilaterally on the angles of the mandible (right and left) there are radiopacities in the soft tissue indicative of calcification of the stylohyoid ligaments.

Upon analysis of dentition the 11 has apical osteitis, the 12 is missing, the 18 is unerupted, the 21 has an incisal and mesial

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Figure 1: Panoramic radiograph

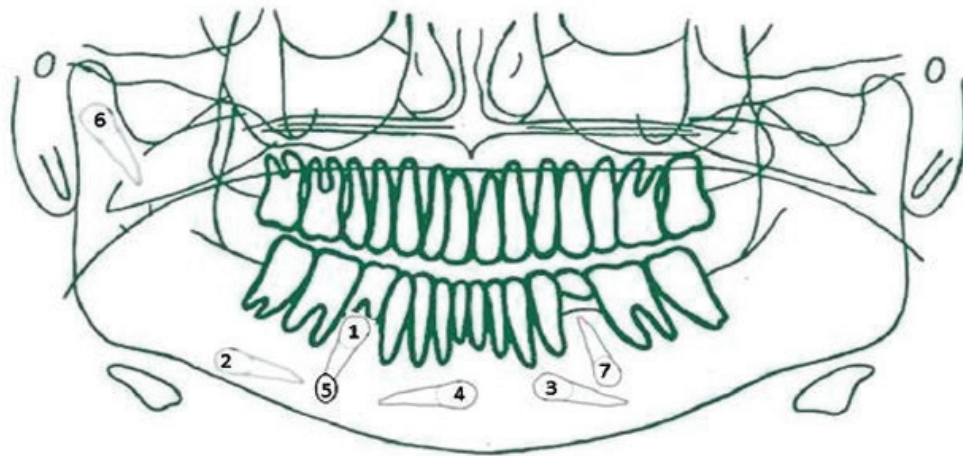


Figure 2: Classification as adapted from Arsyad and Muchlis

class IV composite restoration and the 28 is unerupted. The 38 is missing, the 37 had caries extending to dentine and the 36 is missing. The 44 displays inversion with a radiolucent halo surrounding the coronal area of the tooth attached at the cement-enamel junction. The 46 has taurodontism and the 47 and 48 are missing, all other dentition not mentioned are devoid of anomalies or pathology.

DISCUSSION

In the sub-Saharan population impaction of dentition is seen to be more common in mandibular and maxillary third molars with an equal proclivity towards males and females almost equally. Inversion of a tooth is said to be a tooth that is upside down.^{1,6} Literature pertaining to inverted premolars is very sparse with very few cases reported due to the lack of clinical presentation.²

There are various causes that one may look at when determining why teeth may impact namely lack of space, obstruction, infection, displacement and or trauma.³ Radiographic imaging plays a very important role in determining the location, position and proximity to critical anatomical structures of inverted teeth, techniques that can be used for detecting impacted teeth are intraoral radiographs, orthopantomographs, occlusal radiographs, and in cone beam computerised tomography (CBCT).⁴

Inverted teeth have a tendency to not present with any clinically symptoms but when they do display clinical symptoms its usually a headache, diastema, unrelated late eruption of other dentition, ectopic eruption of other dentition. As far as specific types of dentition that have a preponderance to invert it is usually reserved for incisors, premolars and canines.⁵

The classification for the impacted mandibular second premolar is shown in Figure 2 and Table 1. This is an adaptation from research done by Arsyad and Muchlis.⁷

Management of impacted teeth includes observation, intervention, relocation, and extraction. Occasionally a combination of the above treatment options can be done to better suite the patients needs.⁶ Our patient presents with a type 7 according to Arsyad and Muchlis and should be surgically removed but since there are not adverse clinical presentations and the patient is fully aware of the inversion it is best kept at an observational level and only intervention will be done when the patient requests intervention.

CONCLUSION

Inverted teeth are a unique dental anomaly with inverted mandibular premolar teeth being very scarcely documented. This case report serves to add to the already scanty information of inverted mandibular premolar teeth in the Sub-Saharan region.

COMPLIANCE WITH ETHICAL STANDARDS

Funding

This is a case report and no funding was required.

Conflict of interest

All authors declare that they have no conflict of interest.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent

There are no patient identifiers in this case report and informed consent was obtained from the patient.

Consent for publication

For this type of study consent for publication is not required.

Availability of data and Materials

All data sets and research materials are available for revision on request.

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