



Turner's Tooth: A Rare Case with Review of Literature

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Turner's tooth is a form of enamel hypoplasia. Periapical pathology of the primary tooth is the main culprit behind the enamel deficiency in the permanent tooth. The altered tooth is called a Turner's tooth. Color of the affected tooth varies from focal areas of white, yellow, or brown discoloration to extensive hypoplasia which can involve the entire crown. The crown of the permanent teeth develops mainly from six months and extends upto fifteen years. The part of the crown which gets damaged is directly related to the location of the ameloblastic activity at the time of damage. Therefore, we are here discussing the case of a seven year old boy which was reported to be the case of turner's tooth hypoplasia.

Keywords: Turner's tooth; hypoplasia; periapical pathology; ameloblasts.

1. INTRODUCTION

Ameloblasts are the cells responsible for the production of enamel [1]. Amelogenesis is

separated into various types starting from morphogenetic to desmolytic [2]. The fourth stage which is formative stage shows enamel matrix creation and mineralization occurs in the

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maturation stage [3]. The formation of pits and grooves and sometimes even absence of enamel can be seen if enamel matrix formation gets affected during the development which is known as enamel hypoplasia [2]. Enamel with less amount of mineralization may occur because of many reasons like hereditary and environmental which comprise systemic factors like lack of nutrition, measles and chicken pox, congenital syphilis, hypocalcemia, birth injury or premature birth, fluoride ingestion or idiopathic causes, and local factors such as infection or trauma from a deciduous tooth [4]. Periapical pathology of the primary tooth is the main culprit behind the enamel deficiency in the permanent tooth. The malformed tooth is a odd entity called a Turner's tooth [5]. Here we are reporting a case of Turner's Hypoplasia in a 7 year old patient.

2. CASE REPORT

A seven year old boy reported with the chief complaint of discoloured lower posterior tooth for the past 6 months along with extra oral swelling on the lower left side of face (Fig. 1). On clinical examination, small size loose grossly decayed roots of deciduous second molar were seen (Fig. 2). Carious root was removed under topical anaesthesia as roots were loosely present and patient was sent for further X ray examination.

Orthopantomogram showed unilocular lesion associated with erupting lower left second premolar (Fig. 3). Surgical excision of the lesion was done and the specimen was sent for histopathological examination. Grossed specimen showed a cystic tissue measuring 2x2 cm, creamish in color and soft to firm in consistency and attached to 35 (Fig. 4) (rudimentary hypoplastic [not properly developed]).

Histopathological examination of H and Estained tissue section revealed the presence of nonkeratinized stratified squamous epithelial lining and the connective tissue wall surrounding the cystic lumen (Fig. 5, 4x). The epithelium was of variable thickness with prominent arcading pattern (Fig. 5, 20x). The sub epithelial connective tissue wall was showing the presence of dense chronic inflammatory cell infiltrates mainly composed of lymphocytes. Numerous areas of extravasated RBC's were seen along with the blood vessels. Deeper connective tissue showed the presence of small foci of odontogenic epithelial cells arranged in cords and small clusters (Fig. 6).

Overall correlations of clinical, radiological, grossed and histopathological features of the present case were suggestive of Turner's Hypoplasia [Type IV enamel hypoplasia].



Fig. 1. Extra oral picture showing the swelling on the lower left side of face

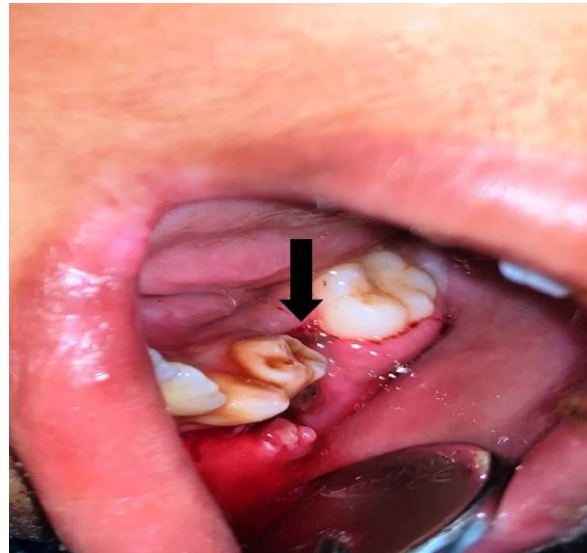


Fig. 2. Oral clinical picture shows the presence of small loose carious root (black arrow)of deciduous second molar



Fig. 3. Orthopantomogram shows unilocular lesion associated with erupting lower left second premolar



Fig. 4. Gross picture shows the presence of soft cystic tissue specimen attached to 35

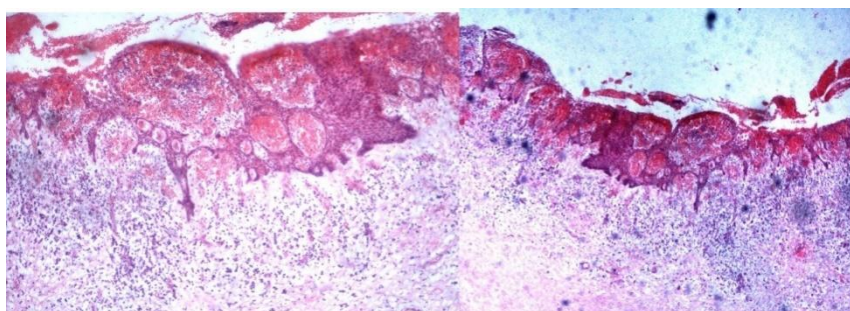


Fig. 5. Histopathological pictures reveal the presence of nonkeratinized stratified squamous epithelial lining and the connective tissue wall surrounding the cystic lumen (4x). The epithelium is of variable thickness with prominent arcading pattern (20x)

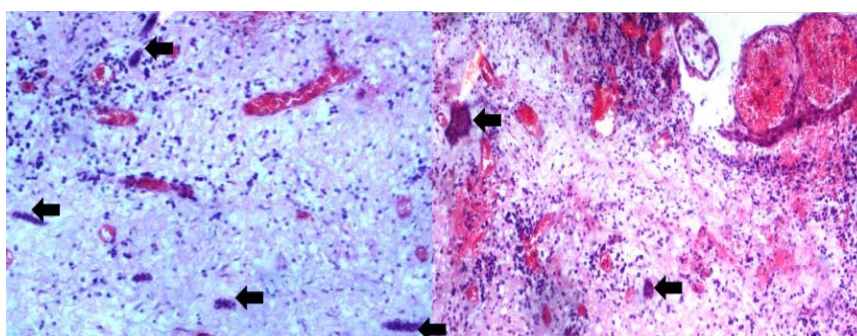


Fig. 6. Histopathological pictures reveal the presence of deeper connective tissue showing the small foci of odontogenic epithelial cells (black arrows) arranged in cords and small clusters (40x)

3. DISCUSSION

Turner's hypoplasia has more affinity for permanent maxillary incisors or premolars of both the jaws [2,4]. It usually appears as a part of omitted enamel, which can affect a single or multiple permanent tooth in the oral cavity [6]. In most of the cases affected tooth is single largely because of the underlying primary tooth [2]. If a deciduous tooth becomes carious during the period when the crown of the succeeding permanent tooth is being formed, the bacterial infection involving the periapical tissue of the deciduous tooth may disturb the ameloblastic layer of the permanent tooth and result in a hypoplastic crown [4].

Trauma to the deciduous tooth is the single most causative agent for Turner's hypoplasia is observed in the anterior region of the mouth. The affected primary tooth, most commonly a maxillary deciduous central incisor is pressed into the underlying developing permanent successor tooth finally affecting the formation of enamel [7]. This may affect either the matrix formation or calcification depending upon the

stage of tooth formation at the time of injury. If this permanent tooth crown is still being formed, the resulting injury may be manifested as a yellowish or brownish stain or pigmentation of the enamel, usually on the labial surface or as a true hypoplastic pitting defect or deformity [4].

Hypoplasia was categorized into the following types by *Silberman et al*

Type I hypoplasia: Enamel discoloration due to hypoplasia

Type II hypoplasia: Abnormal coalescence due to hypoplasia

Type III hypoplasia: Some parts of enamel missing due to hypoplasia

Type IV hypoplasia: A combination of previous three types of hypoplasia [7].

Enamel hypoplasia could affect both dentitions can result in unfavourable aesthetics, more chances of dentin sensitivity, malocclusion and dental caries [7].

4. CONCLUSION

Proper care and treatment of Turner's hypoplasia is recommended where one should encourage a complete oral rehabilitation taking consideration of both aesthetics and function. Since literature and cases regarding Turner's hypoplasia are still limited, further study needs to be conducted for better understanding of pathogenesis and clinical manifestation, so that it becomes easier for the clinician in handling these type of cases in day today practice.

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CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline Parental consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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