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CASE REPORT

Multiple Supernumerary Teeth In A Non-Syndromic Child-A Case Report

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Abstract

Supernumerary teeth (ST) are a prevalent multifactorial dental anomaly. Although most ST cases are idiopathic, multiple ST can be linked to genetic disorders and may appear in many syndromes. A healthy 8-year-old female had retained deciduous maxillary incisors, which was the parents' main concern. On clinical and radiographic examination, the patient had multiple unerupted ST. The patient underwent comprehensive dental treatment by multidisciplinary dental specialties. The case discussion underpins the importance of early diagnosis of ST and early treatment to ensure a favorable outcome and results.

Keywords: Tooth, Supernumerary, Tooth Abnormalities, Tooth Diseases, supernumerary teeth.

Introduction

Supernumerary tooth (ST), also known as hyperdontia, is defined as the presence of an extra tooth in addition to the normal dentition. It is a prevalent dental condition, and epidemiological studies revealed that males are more likely to have ST than females, with a male-to-female ratio of 2:1. The prevalence of ST in different populations in permanent dentition is between 0.5% and 5.3%, while in deciduous teeth, is between 0.2% and 0.8%. In general, the prevalence of ST is higher in the Asian population. In other regions like the Caspian Sea and the Black Sea, it's about 0.1% to 3.8% and has a higher prevalence (between 0.4% and 3.8%) in the Arab and East Asian countries.[2] Single ST occurs in 76- 86% of cases, double ST in 12-23%, and multiple ST in less than 1%.[3]

While the exact cause of ST is unclear, several hypotheses have been postulated. Some theories propose that ST occurs due to division of dental buds, hyperactivity of dental lamina, or reversion to ancestral human dentitions. In addition, genetic factors play a role in ST's pathogenesis, and several genes were linked to this anomaly. Moreover, this condition was also reported in some syndromes such as Ehlers-Danlos syndrome, Gardner's syndrome, cleidocranial dysplasia, familial adenomatous polyposis, trichorhinophalangeal syndrome type I, as well as other syndromes.[4,5]. ST are classified into four types: conical, tuberculate, supplemental, and odontome. While some patients with ST remain asymptomatic and appear as incidental findings in imaging procedures, many patients do experience symptoms. Clinically, patients with ST might

present with symptoms such as failure in teeth eruption, midline diastema, displacement, and crowding.[6]

In most cases, clinical assessment confirms the presence of ST. However, radiographic investigations, including X-ray images and computerized tomography, are essential. The management of ST depends on a specific patient case. Variables influencing the course of treatment include type of dentition, degree of eruption of an ST, and its influence on the position. In view of multiple factors modifying the treatment, it should be based on complex planning and treatment. Other specialists, such as surgeons, orthodontists, or paedodontists, should be involved after diagnosing ST.

A watch-and-wait approach should be adopted in some asymptomatic cases if there is a risk of damage to other permanent teeth.[7] In this article, a rare case of multiple ST in a healthy 8-year-old child is presented with a complete description of the early diagnosis and management by different specialties is also highlighted.

Case presentation

An 8-year-old girl of Indian ethnicity, medically fit and well, presented to the Dental & Maxillofacial Centre/Royal Medical Services (DMFC/RMS) with her mother complaining of delay in the eruption of the maxillary permanent incisors. The patient was seen by a specialist in pediatric dentistry and followed the formal examination protocol for new patients. No family history of similar or inherited conditions related to abnormal teeth eruption existed. The child had previous dental treatment done when she was younger, but she was uncooperative as per the mother's given history.

On clinical examination, the patient was anxious and had no extra-oral abnormalities. On intraoral examination, the patient had poor oral hygiene with gingival plaque-induced gingivitis. In addition, the maxillary deciduous incisors were not mobile, and there was palpable mild swelling in the labial vestibule. Also, caries lesions affected lower right D, upper left D, lower left E, poor restoration in lower left D, and space loss in the upper left five due to premature loss of upper left E. A preliminary orthopantamograph (OPG) Figure1 was taken and showed two ST above the deciduous maxillary incisors and over the impacted permanent maxillary central incisors, confirmed the dental caries which was seen clinically, and confirmed the presence of the upper left 5 with reduction in the available space.

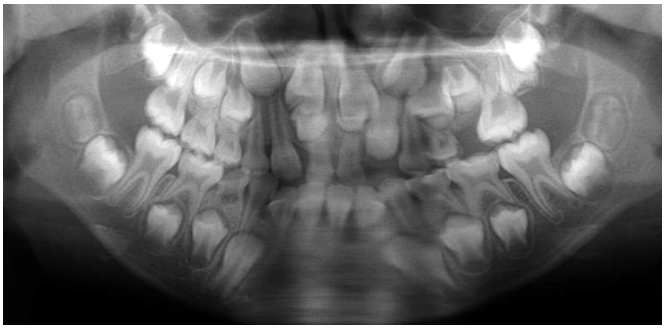

Figure 1: Two ST above the deciduous maxillary incisors and over the unerupted maxillary central permanent incisors

For more details and accurate diagnosis, a Cone Beam Computerized Tomography (CBCT, fig 2) scan was taken and revealed the following:

1. Two ST in the pre maxilla region: conically shaped crown, cervical root part is formed, positioned on the palatal aspect of the impacted permanent maxillary central incisors, and covered with about 2 mm of bone palatally.
2. Another four STs: two on the right side of the maxilla, palatal to upper right first and second permanent molars, and two on the left side of the maxilla, palatal to upper left first and second permanent molars.

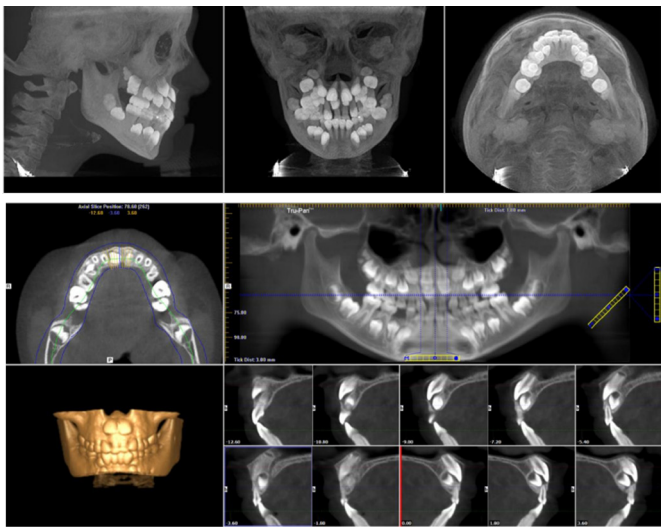

Figure 2: Cone Beam Computerized Tomography (CT) scan shows several supernumerary teeth.

The case was discussed with the senior consultants in Paediatric Dentistry, Orthodontics, and Oral surgery. The resultant treatment plan was carried out with the involvement of the patient and her parents:

1. Prevention: improve plaque control, fluoride therapy, diet modification, and fissure sealants.
2. Conservative: treatment of the carious teeth.
3. Surgical: Extraction of deciduous maxillary incisors along with the underlying two ST and exposure of permanent maxillary central incisors.
4. Orthodontic: placement of orthodontic traction on maxillary permanent central incisors.

Regarding the posterior four ST: keep under regular clinical and radiographic observation. The patient had the above treatments carried out under local anesthesia. Figure 3 shows the final results with the maxillary central incisors erupted.

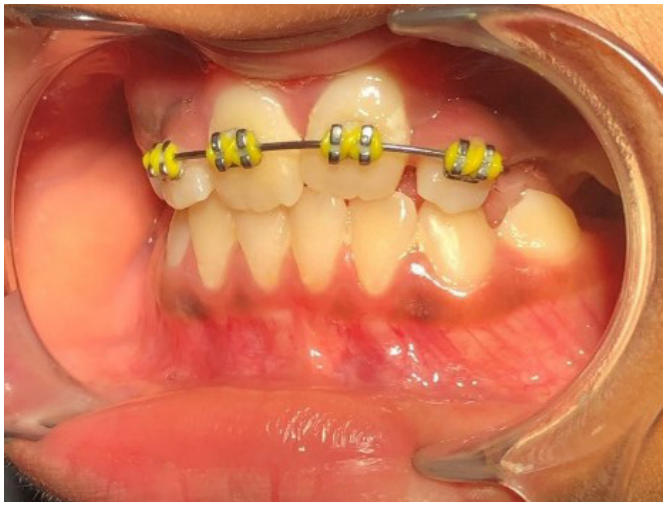

Figure 3: Permanent incisors erupted successfully

Discussion

A general dental practitioner may come across some cases of ST; however, accurate diagnosis is important in management. ST, most of the time are asymptomatic, and most of them are an incidental finding during an intraoral or extraoral radiographic examination; therefore, proper radiographic technique choice is of paramount importance in diagnosis and management.[8] In the reported case, CBCT has benefits in which it shows the accurate location of impacted ST with providing accurate distances measurement from the anatomical structures. Therefore, CBCT is better than two-dimensional view radiographs.

Certain clinical situations should arouse suspicion of an ST, like malocclusion, diastema, positive familial history, symptomatic, non-vital adjacent teeth with root resorption, and swelling on the vestibular or palatal/lingual area. In the reported case, the patient's main chief complaint was a delay in the eruption of the maxillary permanent incisors. Therefore, the CBCT was a very accurate choice for making the diagnosis of ST. In the presence of multiple STs, genetic and syndromic causes should be considered. In the occurrence of genetic association, family genetic counseling is important to go through the type and possible hereditary risks. Additionally, the presence of ST is essential to diagnose some syndromes.

Management of ST must be a part of a comprehensive treatment plan. Different management approaches are available for patients with ST that are not related to complex syndromes, such as extraction, followed by orthodontic management to ensure proper occlusion or continuous periodic monitoring of such teeth to minimize the risk of complications accompanying them. According to Garvey et al., extraction is not always the treatment of choice for supernumerary teeth.[9] Many situations in which ST can be monitored without extraction, such as when the tooth erupts in the proper position, if there is no orthodontic intervention is required, if no pathology related to ST, and if extraction would harm the vitality of a nearby tooth.

In the reported case, all six supernumerary teeth were impacted. Two supernumeraries were detected palatal to upper incisors that caused a delayed eruption of upper incisors, so the removal of ST was indicated. In contrast, four impacted upper paramours were found incidentally. Supernumerary paramolars are usually found incidentally on radiographs; about 75% of them with no clinical symptoms remain unerupted. The patient's parents were informed about the presence of ST, and a periodic follow-up was planned to review the status every six months. Hogstrum and Andersson suggest two alternatives for the timing of surgical extraction of ST.[10] One choice is to extract the ST as soon as they are discovered; the other is to delay extraction until the root of adjacent teeth is completed. If ST causes an eruption delay on any teeth, it is

advisable to extract the ST and give approximately 18 months for the delayed tooth to erupt. Surgical exposure with the placement of orthodontic traction will be considered if the tooth does not erupt. Delaying orthodontic and surgical intervention will cause more complications in the treatment. Before using orthodontic traction, it is important to know the surgical exposure techniques. For labial impacted teeth, there are two of the most used surgical exposure techniques:

1. The window approach exposes all the labial surfaces to the anatomic crown and completely removes keratinized tissue.
2. Exposing only 4-5 mm of cusp tip on the labial aspect while preserving 2-3 mm of keratinized tissue.

In the window approach, a complete removal of keratinized gingiva will cause gingival recession, loss of clinical attachment, and gingival inflammation. Therefore, preserving keratinized gingiva or using an apical placement flap will allow the tooth to erupt through the preserved keratinized attached gingiva, reducing risks.

Conclusion

ST may cause some aesthetic deformities and functional impediments; however, numerous STs should raise the suspicion of genetic or syndromic association. Therefore, achieving an early diagnosis and interdisciplinary intervention is important to minimize the consequences of developing dentition.

Clinical and radiological assessments play an important role in early diagnosis.

and intervention can help avoid orthodontic problems and dental pathology associated with ST.

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