Supernumerary Tooth: A Common Odontostomatologic Anomaly Of Number Of Teeth

Muhammad Shahrukh Khan Sadiq, Daud Mirza

INTRODUCTION:

Supernumerary tooth (ST) is a developmental disturbance of number of teeth characterized by teeth present in excess of normal dental formula of deciduous or permanent dentition.[1,2,3,4] It may occur in either dental arch, maxillary or mandibular.[5] Literature has shown marked predilection in maxilla over mandible.[6,7] The first documented report of supernumerary teeth has been revealed in human fossils that are approximately 11,000 years old.[8]

Keywords: Supernumerary teeth, Hyperdontia, Mesiodens, Paramolars, Distomolars

METHODOLOGY:

Search engine of Google was utilized with various keywords and phrases to search articles related to supernumerary teeth from 2000-2018. Key words and phrases as supernumerary teeth, history of supernumerary teeth, etiology of supernumerary teeth, prevalence of supernumerary teeth, types of supernumerary teeth, diagnosis of supernumerary teeth, complications of supernumerary teeth and management of supernumerary teeth etc. were used. A total of 45 articles including reviews, original articles, case reports and textbooks were selected.

LITERATURE REVIEW:

Etiology:

The exact etiology of ST is unknown but, three main theories are proposed by researchers, in addition to the combination of genetic and environmental factors:

a) The first theory is of phylogenetic reversion, which states that ST may be an atavistic appearance of fourth molar of primitive dental formula and signifies evolution.

b) Second is dichotomy theory, which focuses on third tooth bud arising from dental lamina near permanent tooth bud or by splitting of permanent bud itself.

c) Finally, there is theory of hyperactivity which is considered to be the most widely accepted. According to this theory, ST appear because of the independent hyperactivity of dental lamina that is localized in nature. Rudimentary form of tooth arises from proliferation of epithelial remnants of dental lamina induced by presence of complete dentition.[9,10]

Prevalence:

Muhammad Shahrukh Khan Sadiq
Lecturer, Oral Pathology, BUMDC

Daud Mirza
Associate Professor and Head of Department Oral Pathology, (BUMDC). Email:

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a. At International level:

The prevalence of ST varies around the world, study conducted in Spanish population showed its prevalence from 0.3% to 3.8%in their study subjects.[11] A Hungarian study conducted by Gabris on 2,219 patients reported prevalence of 1.53% in indigenous subjects.[12] Nayak and colleagues reported the prevalence of ST was 0.09-0.29% among Indian population.[13] No significant sex distribution is seen in the primary dentition but males are affected approximately twice as compared to females in permanent teeth.[14,15,16,17]

b. At National level:

In Pakistan, few extensive researches have been presented on the topic of ST. Prevalence of ST in orthodontic patients was 3.9% as reported by Farhat Amin at University of Lahore. Mesiodens were present in 0.87%, paramolars in 2.6% and distomolar was present in only in 0.43%. Gender wise, females were more affected than males by the ratio of 2:1 and left to right side ratio was found to be 5:2. [16,17,18]

Diagnosis:

The ratio of ST in terms of impacted to erupted is 3:1.[19] They are mostly diagnosed by clinical examination and routine radiographs of oral cavity. Often, clinical signs such as wide diastema, ectopic or eruption failure of permanent tooth, persistence of deciduous dentition and obvious visual presence of additional tooth aid the clinician in its diagnosis. Detailed history taking, proper clinical examination, thorough investigation, early diagnosis and appropriate treatment plan is essential for its management.[20, 21]

Classification:

A range of classification standards are used to categorize ST.[22] According to chronology, ST are classified as predeciduous, past permanent, or complementary. On the basis of morphology they can be odontoma, supplemental or eumorphic and rudimentary or dysmorphic (subdivided into conical, tuberculate, and molariform types) and according to orientation they can

be vertical, inverted, and transverse. [24,25] On the basis of location, supernumerary teeth that occur between or posterior to the maxillary central incisors are referred as "mesiodens".[26,27] Supernumerary structures found in molar region can be grouped as paramolars and distomolars Distomolars are located distal or distolingually to wisdom molars.[28] Paramolars are usually smaller in size and dysmorphic in form, being located either buccally or lingually to one of the molar teeth.[5] Mostly the occurrence of paramolars is unilateral and they are rarely observed bilaterally.[29]

Complications:

Numerous complications accompany ST. Some of these complications can be crowding, malocclusion, delayed eruptions, localized periodontitis, caries, root resorption, dentigerous cyst and abnormal root development.[30,31,32] Not only they are a source of complications but also interfere in alveolar bone grafting and and implant placement.[33] According to the report by Parolia and Kundabala, adjacent molar is most likely to be affected with caries incase of maxillary paramolars, that are bilateral in nature.[5]

Association with syndromes:

ST are often associated with syndromes. Some of these are Cleidocranial Dysplasia, Gardener's syndrome, Fabry-Anderson syndrome, Ellis-van Creveld syndrome, cleft lip and palate. Less common associated syndromes involve Gorlin-Chaudhry-Moss syndrome, Willaim's syndrome, Hallermann-Streiff syndrome, orofaciodigital syndrome etc.[34,35]

Management:

The management of ST involves endodontic therapy, retention of the additional tooth or extraction. The removal of ST is advised when:

a. There is associated pathology
b. Permanent tooth eruption has been delayed due to the presence of ST
c. Increased risk of caries due to the presence of ST which makes the area inaccessible to maintain oral hygiene
d. Altered eruption or displacement of adjacent tooth is evident
e. There are severely rotated teeth leading to further complication
f. Orthodontic treatment needs to be carried out to align the teeth
g. Its presence would compromise alveolar bone grafting and implant placement
h. There is compromised esthetic and functional status.[36,37,38]

Conclusion:

ST is a pervasive developmental anomaly among the world populace. The etiology of this anomaly still remains unclear. Various tooth complications are part and parcel of supernumerary teeth therefore, on diagnosis each case should be managed appropriately in order to mitigate the aesthetic and functional compromise to the dentition. The condition demands an efficient and effective treatment by the clinician.

Figure 1: Intraoral view showing mesioden [25]

Figure 2: Intraoral view showing fractured maxillary left permanent central incisor and mesiodens (arrow)[26]

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