

Infected Supernumerary or Supplemental Tooth

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Abstract

Aim: To present a case report of a 12 year old male child of an infected supplemental tooth present in premaxillary region.

Case Report: A 12 year male patient reported with pain in left upper front region since 1 week. Extraoral and intraoral examination was done, on palpation there was pain and gingiva was soft in consistency with respect to 23. On radiographic investigation a supplemental tooth was found which was blocked by lateral and canine. It was the reason for pain and crowding in upper arch. Treatment planning was done and the supplemental tooth was extracted and fixed orthodontic mechanotherapy.

Discussion: A supernumerary tooth is a developmental anomaly which develops most frequently in premaxillary

region. Generally the supplemental teeth are not infected; they grow normally but causes crowding in the arch. Hence extracting supplemental tooth is the best choice of treatment. The frequency is high in permanent dentition rather than deciduous. But in deciduous dentition these teeth get missed and rarely diagnosed.

Conclusion: Aesthetics and function are two important parameters in modern dentistry. Clinicians should always make an accurate diagnosis for both simple and complex dental pathologies by the help of radiographs or any other means of investigation. Early identification and an appropriate treatment plan minimize the potential complications of it.

Supernumerary tooth defined as any tooth or tooth substances in excess of the usual configuration of 20

deciduous and 32 permanent teeth. (Schulze C 1970). These teeth have a variety as single or multiple, unilateral or bilateral any location in the arch with highest affinity towards premaxilla. Supernumerary teeth are mostly classified on position and its form. They were first described in 23 and 79 AD.1Supernumerary tooth classified on the basis of morphology by Bush [1897]: - Conic: tooth of a small volume and conic form, its root is short and palatine. - Tuberculate: tooth with several cusps. Its root is short and hooked. - Infundibulform: tooth with a funnel form. Its root is short and conic. Tomes [1873], classified as - Supplemental: tooth characterized by the same form and function of adjacent teeth with no anatomical differences and Supernumerary: tooth characterized by an unusual anatomic form and generally smaller than normal.2

General Characteristics of Supernumerary Teeth

Etiology

The genetic and environmental factors plays major role in the presence of supernumerary tooth. Multiple theories have been considered like atavism theory, dichotomy theory, dental lamina hyperactivity theory, which suggests localized, independent, conditioned hyperactivity of the dental lamina. This dental lamina hyperactive theory is the most acceptable theory. This anomaly has been reported to be associated with syndromes such as Gardner syndrome, Down's syndrome, cleidocranial dysplasia, Ellis-van Creveld syndrome, and cleft lip and palate. [3-6]

Sexual Predilection

Hogstrum and Andersson reported a 2:1 ratio of sex distribution, whereas Luten found a sex distribution of 1.3:1. So LLY found a greater male to female distribution of 5.5:1 in Japanese and 6.5:1 in Hong Kong children [7-11]

Prevalence

Mongoloid races have highest reported frequency of 3% of supernumerary teeth. [4,5]. Koch et al. claimed the prevalence of permanent dentition is 1-3% and according to Primosch the prevalence of primary dentition is 0.3-0.6%. Rajab and Hamden [7] the reported prevalence of this abnormality varies in between 0.3% to 0.6% in the deciduous dentition in comparison with .1% to 3.8%.The prevalence of supernumerary teeth in the primary dentition varies from 0.05% in the Japanese, 0.8% in the British and the Belgian children, and 0.4% in the Bengali population. [11-14]

Location

According to multiple reports it is estimated to occur 8.2 times more frequently in the maxilla than the mandible. [15-18] Multiple supernumerary teeth are commonly found in the mandibular premolar region. [16]

Author	Year	Age(Yr)	M:F Ratio	Prevalence And Location
Padro et al. [20]	2009	5-19	1.82 : 1	Mesiodens 53.16% MAXILLA-Incisors 18.99%, Canines 5.06%, distomolar 6.33% paramolar and premolar 1.27% MANDIBLE-Canines 1.27%, Premolars 10.13%, Paramolar 2.53%
Kaan Gunduz et.al [21]	2008	4-14	2.1: 1	0.3% mesiodens
Anthonappa RP et al [21]	2008	2-16	3.1:1	95.0% located in the premaxilla
C.O. Gomes et al [19]	2007	7-16	2.1:1	Permanent 97.6% Primary 2.4% 91.3% maxilla of which 86.7% involving the premaxilla, 8.7% mandible

Complications

Problems associated with supernumerary tooth are malocclusion, esthetics, periodontal problems, difficulty in cleaning teeth, resorption of roots of adjacent teeth, incompetent lips, and cyst formation.

Treatment

Two schools of thoughts are there, few author says extraction should be done as it bring about malocclusion or inessential changes in dental arch. The second thought says extraction should not be opted always if it's not hindering the dental arch.

Case Report

A 12 year old male child reported to the Department of Pedodontic and preventive Dentistry of Santosh Dental College and hospitals Ghaziabad Delhi NCR with the chief complain of pain in left upper front region since 2 weeks. Past Medical History was insignificant and the patient was in good general health. No significant dental history was present. On intraoral examinations there was nothing much noticeable but on palpation a small swelling was noticed which was palpable. It was soft in consistency and painful on percussion. Pain was localized and non-radiating.



FIG A

FIG B

FIG C

Treatment planning was divided into a first surgical phase and a subsequent interceptive orthodontic therapy.



FIG D

FIG E

FIG F

FIG G

For investigation two IOPAs were taken. In one 22 23 and 14 15 16. In IOPAs it was noticed an extra tooth similar to canine morphologically whose root formation was yet not completed [fig D]. In fig E we noticed an infected 14 with its curved root. As the chief complaint was more concentrated an OPG and an occlusal view was advised to confirm its location either buccal or lingual. By the help of radiographs we reached to conclusion that the supplemental tooth is present palatally, due to which there is pain and crowding is present in left upper arch.

Treatment

Treatment planning was divided into a first surgical phase and a subsequent orthodontic therapy. The surgical extraction was performed under local anaesthesia. Mucoperiosteal flap was reflected and the

tooth was explored in palatal surface. It was encountered that the tooth was impacted between palatally placed canine and the lateral incisor. Keeping in mind that we don't luxate the adjacent tooth, the supplemental tooth was extracted and sutures were placed. The patient was recalled after 7 days for suture removal and follow up.



FIG H

FIG I

FIG J

FIG K

FIG L

Discussion

The most commonly found supernumerary tooth has been reported to be mesiodens, some authors consider that mesiodens are followed by distomolars, [25,26] but others [28] found that mesiodens are followed by lateral incisors and premolars. Yusof [1], made a review of the literature and found the premolars were the most frequent supernumerary teeth followed by molars and mesiodens the supplemental tooth which get infected need a proper diagnosis and treatment planning. The teeth which get infected might convert to pathologies, so extraction is the better choice. Most common predilection is seen in males, as this case report also favours. Diagnoses of supernumerary teeth are made by clinical and radiographic examination of dental arches. A supernumerary tooth may remain symptomless or gives rise to a variety of complications. Local disturbances associated with supernumerary teeth include interference with the eruption of permanent teeth, root resorption and rotation of adjacent teeth, malocclusion, unesthetic appearance, crowding, psychological trauma, and even dentigerous cyst formation. [29] Dynamic eruptive alterations, influenced by numeric dental anomalies, can be treated by multidisciplinary planning and early diagnosis. [30]

Conclusion

This case report, radiographs ruled out the presence of anomalies in the permanent dentition. Clinician should be aware of the presence and associated complications of the supernumerary teeth to make a correct decision regarding the management.

References

1. Yusof W.Z. Non-syndrome multiple supernumerary teeth: Literature review. *J Can Dent Assoc* 1990; 56:147-9.
- 2 G. LO GIUDICE et.al Supernumerary and supplemental teeth: case report *EUROPEAN JOURNAL OF PAEDIATRIC DENTISTRY • VOL. 9/2-2008*
3. Liu JF. Characteristics of premaxillary supernumerary teeth: A survey of 112 cases. *ASDC J Dent Child* 1995; 62:262-5.
4. Garvey MT, Barry HJ, Blake M. Supernumerary teeth – An overview of classification, diagnosis and management. *J Can Dent Assoc* 1999; 65:612-6.
5. Primosch RE .et.al: Anterior supernumerary teeth- assessment and surgical intervention in children. *Pediatr Dent* 1981; 3:204-15.
6. Scheiner MA, Sampson WJ. Supernumerary teeth: A review of the literature and four case reports. *Aust Dent J* 1997; 42:160-5. 15:273-81.
7. Rajab LD, Hamdan MA. Supernumerary teeth: Review of the literature and a survey of 152 cases. *Int J Paediatr Dent* 2002; 12:24
8. Hogstrum A, Andersson L. Complications related to surgical removal of anterior supernumerary teeth in children. *ASDC J Dent Child* 1987; 54:341-3.
9. Luten JR. The prevalence of supernumerary teeth in primary and mixed dentitions. *J Dent Child* 1967; 34:346-53.
10. So LL. Unusual supernumerary teeth. *Angle Orthod* 1990; 60:289-92.
13. Stafne EC. Supernumerary teeth. *Dent Cosmos* 1932; 74:653-9.
11. Açikgöz A, Açikgöz G, Tunga U, Otan F. Characteristics and prevalence of nonsyndrome multiple supernumerary teeth: A retrospective study. *Dentomaxillofac Radiol* 2006; 35:185-90.
12. Yonezu T, Hayashi Y, Sasaki J, Machida Y. Prevalence of congenital dental anomalies of the deciduous dentition in Japanese children. *Bull Tokyo Dent Coll* 1997; 38:27-32.
13. Brook AH. Dental anomalies of number, form and size: Their prevalence in British schoolchildren. *J Int Assoc Dent Child* 1974; 5:37-53.
14. Carvalho JC, Vinker F, Declerck D. Malocclusion, dental injuries and dental anomalies in the primary dentition of Belgian children. *Int J Paediatr Dent* 1998; 8:137-41.
15. Mukhopadhyay S, Mitra S. Anomalies in primary dentition: Their distribution and correlation with permanent dentition. *J Nat Sci Biol Med* 2014; 5:139-43.
16. Stafne EC. Supernumerary teeth. *Dent Cosmos* 1932; 74:653-9.
17. Açikgöz A, Açikgöz G, Tunga U, Otan F. Characteristics and prevalence of nonsyndrome multiple supernumerary teeth: A retrospective study. *Dentomaxillofac Radiol* 2006; 35:185-90.
18. Hall A, Onn A. The development of supernumerary teeth in the mandible in cases with a history of supernumeraries in the pre-maxillary region. *J Orthod* 2006; 33:250-5.
16. Shah A, Gill DS, Tredwin C, Naini FB. Diagnosis and management of supernumerary teeth. *Dent Update* 2008; 35:510-520, 514-6, 519-20.

19. Foster TD, Taylor GS. Characteristics of supernumerary teeth in the upper central incisor region. *Dent Pract Dent Rec* 1969; 20:8-12.
20. Patchett CL, Crawford PJ, Cameron AC, Stephens CD. The management of supernumerary teeth in childhood-a retrospective study of practice in Bristol dental hospital, England and West mead dental hospital, Sydney, Australia. *Int J Paediatr Dent* 2001; 11:259-65.
21. Rotberg S, Kopel HM. Early vs late removal of mesiodens: A clinical study of 375 children. *Compend Contin Educ Dent* 1984;5:115-9 Bodin I, Julin P, Thompson M, Hyperdontia I. Frequency and distribution of supernumerary teeth among 21,609 patients. *Dentomaxillofac Radiol* 1978; 7:15-7.
22. Shah A, Hirani S. A late-forming mandibular supernumerary: A complication of space closure. *J Orthod* 2007; 34:168-72.
23. Zmener O. Root resorption associated with an impacted mesiodens: A surgical and endodontic approach to treatment. *Dent Traumatol* 2006; 22:279-82.
24. Sian JS. Root resorption of first permanent molar by a supernumerary premolar. *Dent Update* 1999; 26:210-1.
25. Ferrés-Padró E, Prats-Armengol J, Ferrés-Amat E. A descriptive study of 113 unerupted supernumerary teeth in 79 pediatric patients in Barcelona. *Med Oral Patol Oral Cir Bucal*. 2009; 14:E146-52.
26. Salcido-García JF, Ledesma-Montes C, Hernández-Flores F, Pérez D, Garcés-Ortíz M. Frequency of supernumerary teeth in Mexican population. *Med Oral Patol Oral Cir Bucal*. 2004; 9:407-9; 403-6.
27. Zilberman Y, Malron M, Shteyer A. Assessment of 100 children in Jerusalem with supernumerary teeth in the premaxillary region. *ASDC J Dent Child*. 1992; 59:44-7.
28. Leco Berrocal MI, Martín Morales JF, Martínez González JM. An observational study of the frequency of supernumerary teeth in a population of 2000 patients. *Med Oral Patol Oral Cir Bucal*. 2007; 12:E134-8
29. Garvey MT, Barry HJ, Blake M. Supernumerary teeth-an overview of classification, diagnosis and management. *J Can Dent Assoc*. 1999; 65:612-6.
30. Cozza P, Mucedero M, Ballanti F, De Toffol L. Supernumerary teeth and mental retardation: the importance of early surgical intervention. *Eur J Paediatric Dent* 2006 7(1):45-49.