Supernumerary primary teeth and the clinical significance: a report of two cases

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Abstract

Supernumerary teeth occur frequently in the permanent dentition but they are rare in the primary dentition. Supernumerary teeth in the primary dentition usually erupt normally and are frequently of the supplemental type. The issue of differentiating the supplemental tooth from the normal series requires careful consideration. Supernumerary primary teeth should be thoroughly investigated and closely monitored. Early intervention is recommended when there are concerns and associated pathologies.

Key words: Supernumerary teeth, supplemental teeth, primary dentition

Introduction

Supernumerary teeth are defined as teeth additional to the normal series[1]. Their presence may be related to certain developmental disorders such as cleidocranial dysplasia, cleft lip and palate, Gardner's syndrome and Ehlers-Danlos syndrome. They may however occur in isolation in otherwise healthy individuals[2-6]. Reports indicate that 90% of all supernumeraries occur in the maxilla with 50% of these found in the premaxilla[7-11].

Several theories have been proposed concerning the etiology of supernumerary teeth. The dichotomy theory suggests that supernumerary tooth occurs when the tooth bud is split to create two teeth[12]. The hyperactivity theory proposed that the supernumeraries are formed as a result of local independent, conditioned hyperactivity of the dental lamina[10]. The genetic theory has been suggested as such teeth have been diagnosed in twins, siblings, and sequential generation of a single family[13,14]. A possible sex-linked pattern of inheritance was suggested because of the higher prevalence in males[15,16].

There are some reports of supernumerary primary teeth[17,18,19,20]. However, there is paucity of information on their occurrence in the Nigerian population.

Anomalies of the dentition may occur in either number and/or morphology, and may involve either the primary and/or permanent dentition. Supernumerary teeth occur more frequently in the permanent dentition but are rare in the primary dentition[21]. In the primary dentition they occur more frequently in the region of the lateral incisors while in the permanent dentition they occur more frequently in the central incisor region[11-17]. Supernumerary primary teeth may be normal in shape (when they are known as supplemental) or conical[22,23]. The supplemental type is the most common supernumerary tooth found in the primary dentition[23]. Primosch[10] reported that majority of supernumerary primary teeth are of the supplemental type and are most frequently lateral incisors. In an epidemiological survey in Denmark, it was reported that only two out of 30 supernumerary primary teeth were canines , the rest being mesiodens or lateral incisors[18].

The frequency of this anomaly in the primary dentition is reported in the range of 0.3 -0.8%[11,21]. The prevalence was found to be 0.3 percent in Swedish children[24] and 0.4 percent in Finnish children[25]. In 1974, Brook reported 2.1% of British children had supernumerary teeth in the permanent dentition, whereas only 0.8% had supernumerary teeth in the primary dentition[11]. In the 1961 review of literature, a prevalence of 0.3-1.7% was found[24]. In 2000, the prevalence of supernumerary primary teeth in Japanese children was evaluated in 8122 children aged 3-6 years. There were only four cases of supernumerary primary teeth among the children examined, and thus the prevalence was found to be 0.05%[26]. In a survey of dental anomalies in the primary dentition of Turkish children the prevalence of supernumerary primary teeth was found to be 0.3%[27].

It has been reported that supernumerary teeth with numerical variation in the primary dentition are located more frequently in the maxilla than in the mandible[24]. Luten in 1967 reported that the prevalence of supernumerary teeth involved in mesiodens was 2% in both the primary and permanent dentition[7].

Supernumerary teeth in both the primary and permanent dentitions in the same individual occur in approximately one third of cases, involving lateral rather than central incisors[17]. Yildiram and Bayrak[20] in 2011 documented a case of bilateral supplemental

primary maxillary lateral incisors which were impeding the eruption of the permanent maxillary lateral incisors and the associated supplemental lateral incisors. When supernumerary primary teeth are detected, parents should be warned of the possible consequences to the permanent dentition as these teeth may be replicated in the permanent series[28]. More recently, Anna et al [29] reported a rare case of a bilateral supernumerary primary maxillary canines with replication in the permanent series of the same individual.

Supernumerary primary teeth usually go unnoticed because they often erupt normally, are often normally shaped and frequently appear to be in proper alignment[7,11]. However, the clinical complications associated with supernumerary teeth are well documented in literature. These include delayed or impaired eruption of the permanent teeth[20,28,30], displacement or rotation of permanent teeth([30,31], development of abnormal diastema or space closur[e32], dilaceration, delayed or abnormal root development or resorption of adjacent teeth[30,33,34], cystic lesions[35] and aesthetic problems including those associated with crowding[36].

Early diagnosis, timely and appropriate intervention chould reduce or eliminate the need for orthodontic treatment, prevent complications[37,38] and allow spontaneous correction of clinical complications[10,20].

Two cases of supernumerary primary teeth with different presentations are reported in this paper.

Case Reports

Case A

A 7-year-old girl accompanied by her mother presented at the orthodontic clinic of the Lagos University Teaching Hospital complaining of extra teeth erupting behind the upper front teeth and poor aesthetics in the anterior segment of her maxilla. The familial, medical and dental history were non-contributory. Extraoral examination did not reveal any abnormalities. Intraoral examination revealed mixed dentition consisting of:

6 E D C S B 2 1	1 2 S C D E 6
6 E D C 2 1	1 2 C D E 6

The maxillary lateral incisors were palatally displaced and in crossbite. The primary teeth present in the maxillary right anterior segment include: the maxillary right primary lateral incisor, a supernumerary maxillary right primary lateral incisor, a maxillary right primary canine **(Figure 1).** Careful examination of the maxillary left anterior segment showed recent exfoliation of a tooth which is presumed to be the maxillary left primary lateral incisor. On further enquiry, the girl and her mother revealed that such a tooth had exfoliated a week before their clinic attendance. In addition, a supernumerary maxillary left primary lateral incisor and a maxillary left primary canine were present in the maxillary left anterior segment **(Figure 2).** The clinical morphology of the supernumerary teeth showed resemblance to a primary lateral incisor.

A panoramic radiograph showed the erupted supernumerary primary teeth which had normal crown and root formation. However, it did not reveal any succedaneous supernumerary teeth **(Figure 3).** Upper and lower alginate impressions were taken for study models. Intra oral clinical photographs were also taken which showed the palatally displaced maxillary permanent lateral incisors and crowding in the maxillary anterior segment.

Extraction of the supernumerary primary lateral incisors and maxillary right primary lateral incisor was carried out with the consent of the patient and her mother under local anaesthesia. Haemostasis was achieved with a pack of gauze and manual pressure. Healing of the extraction sites was uneventful **(Figure 4).**

Orthodontic alignment of the palatally displaced maxillary lateral incisors was planned for the patient. The patient and mother gladly accepted the plan but thereafter failed to attend subsequent clinic. It is possible that the high cost of orthodontic treatment may have contributed to their failure to return for further treatment.

Figure 1. Pre-treatment photograph showing the palatally displaced maxillary permanent lateral incisors

Figure 2. Pre-treatment photograph showing the supernumerary maxillary right primary lateral incisor

Figure 3. Pre-treatment photograph showing the supernumerary maxillary left primary lateral incisor

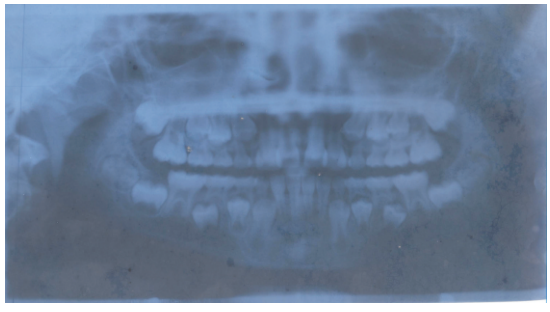

Figure 4. Showing the panoramic radiograph

Figure 5. Post-extraction photograph

Case B.

A 5-year-old Nigerian girl presented with her father at the Orthodontic clinic complaining of irregularly arranged teeth in the maxillary anterior segment and poor aesthetics. Medical and dental histories were non-contributory. On examination, the patient presented with Angles class 1 malocclusion complicated by crowding in the maxillary anterior segment, and maxillary midline shift to the left. The primary teeth present in the maxillary anterior segment include: maxillary right central and lateral incisors and canines; maxillary left central and lateral incisors and canines. There was a supernumerary tooth labially positioned between the maxillary right primary central and lateral incisors which resembled an incisor **(Figure 6).** The crown of the supernumerary tooth was similar in shape and colour to the adjacent primary lateral incisor. A periapical x-ray showed that the root of the supernumerary primary tooth was about same length as the adjacent maxillary right primary lateral incisor. In addition, the periapical radiograph revealed the presence of another supernumerary tooth in relation to the unerupted maxillary right permanent lateral incisor **(Figure 7).** There was no family history of supernumerary teeth. The supernumerary primary tooth was then extracted under local anaesthesia **(Figure 8).** The patient was subsequently kept under follow up review to monitor the eruption of the permanent teeth and render appropriate treatment when required.

Figure 6. the labially displaced supernumerary maxillary right primary lateral incisor

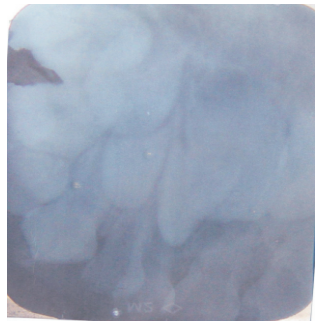

Figure 7. Supernumerary maxillary right primary lateral incisor and the succedaneous supernumerary right permanent lateral incisor

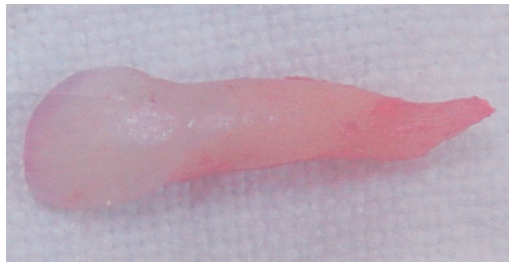

Figure 8. Extracted supernumerary primary lateral incisor

Discussion

Supernumerary teeth in the primary dentition are rare and when present are often overlooked because of their normal shape[19]. The majority of supernumeraries found in the primary dentition are of the supplemental type and are mostly lateral incisors[10]. The supernumerary teeth in these two cases were of the supplemental type which agree with earlier reports[10,11,19,25] that the most common type is the supplemental form. Most supernumerary primary teeth are asymptomatic and erupt into good arch alignment[7,11,24] as was presented in Case A. Most of the primary supernumeraries erupt normally and may even exfoliate without being recognized as supernumeraries[10]. The supernumerary primary teeth in Case A may have gone unnoticed but for the occlusal derangement created by the palatally displaced maxillary lateral incisors. The high incidence of eruption of supernumerary primary teeth is probably due to the space created in the primary arch by normal growth[10,28]. The frequency of erupted primary supernumerary teeth is said to be much higher than that of erupted permanent supernumeraries (73 percent versus 25 percent)[13,19].

Supernumerary teeth in the maxillary anterior region is of great concern to both dentist and patient because it can lead to delay/failure of eruption of adjacent teeth, crowding, diastema, rotation of teeth, dentigerous cyst formation and poor aesthetics[28,30-36]. They may also erupt into the antrum and the nasal cavity[15]. Early diagnosis is essential to prevent these problems and avoid complications. The major complications found in these two cases were poor aesthetics, food impaction and crowding.

The presence of a supernumerary tooth in the primary dentition should not be ignored. It should however, alert the clinician for a thorough examination since there is an increased chance of supernumerary teeth in the permanent dentition[25]. It is interesting to note that in approximately 30 percent of cases, supernumerary teeth in the primary dentition are superseded by extra teeth in the same location in the permanent dentition[29]. Interestingly, this was the finding in Case B which had a supernumerary tooth associated with the maxillary right permanent lateral incisor. Previous reports on supplemental primary incisors indicate that they are either well aligned in the arch or palatally positioned. Case B was unusually labially positioned. In Case B, the plan was to observe the patient for eruption of the permanent lateral incisor and the associated supernumerary tooth and render appropriate treatment when required.

Detection of supernumeraries is best carried out through clinical and radiographic examination. The management depends upon the type and position of such teeth and their effect or potential effects on adjacent teeth. The management of a supernumerary tooth should form part of a comprehensive treatment plan and should not be considered in isolation[33]. The best time for removal of a supernumerary tooth depends on careful evaluation of each situation[33,37].

A supernumerary tooth should be extracted immediately if any of the complications is present[38]. Munns[38] stated that the earlier the offending tooth is removed the better will be the prognosis. In the two cases, due to aesthetic and occlusal concerns, it was decided to extract the supernumerary teeth to allow for proper alignment of the permanent teeth.

This report indicates that supernumerary primary teeth can cause occlusal and aesthetic problems. Early diagnosis of such conditions is crucial for minimal complications, timely intervention and a favourable prognosis.

References

1. Cho SY, SO FHC, Lee CK, Chan JCU. Late forming supernumerary tooth in the premaxilla: A case report. Int J Paed Dent 2000; 10: 335-340.
2. Richardson A, Deussen FF. Facial and dental anomalies in cleidocranial dysplasia: a study of 17 cases. Int J Paed Dent 1994; 4: 225-231.
3. Vichi M, Franchi L. Abnormalities of the maxillary incisors in children with cleft lip and palate. J Dent Child 1995; 62: 412-417.
4. Duncan BR, Dohner VA, Priest J H. Gardner's syndrome: need for early diagnosis. J Paed 1968; 72: 497.
5. Dais PF. Hypodontia and hyperodontia of permanent teeth in Hong Kong School Children. Community Dent Oral Epidemiol 1987; 15: 218-220.
6. Frame K, Evans RI. Progressive development of supernumerary teeth in cleidocranial dysplasia. Br J Orthod 1989; 16: 103-106.
7. Marya CM, Kumar BR. Familial occurrence of mesiodentes with unusual findings: case reports. Quint Int 1998; 29:49-51.
8. Von Arx T. Anterior maxillary supernumerary teeth; a clinical and radiographic study. Aust Dent J 1992; 37: 189-195.
9. Buenvijae TM, Rapp R. Dental anomalies in children: a clinical and radiographic survey. J Dent Child 1984; 51: 42-46.
10. Primosch RE. Anterior supernumerary teeth – assessment and surgical intervention in children. Paediatr Dent 1981; 3: 204-215.
11. Brook AH. Dental anomalies of number, form and size. Their prevalence in British School Children. J Int Assoc Dent Child 1974; 5: 37-52.
12. Liu. Characteristics of premaxillary supernumerary teeth. A survey of 112 cases. J Dent Child 1995; 62: 262-265.
13. Batra P, Duggal R, Parkash H. Non-syndromic multiple supernumerary teeth transmitted as an autosomal dominant trait. J Oral Pathol Med 2005; 34:621-625.
14. Langowska-Adamczyk H, Karmanska B. Similar locations of impacted and supernumerary teeth in monozygotic twins: a report of 2 cases. Am J Orthod Dentofac Orthop 2001; 119: 67-70.
15. Osuji OO, Hardie J. Dental anomalies in a population of Saudi Arabian children in Tabuk. Saudi Dent J 2002; 14: 11-14.

16. Hatab FN, Yassin OM, Rawashdeh MA. Supernumerary teeth: report of three cases and review of the literature. ASDC Dent Child 1994; 61: 382-93.
17. Douglas Beere, J. Anthony Hargreaves, Geoffrey H. Sperber, Peter Cleaton-Jones. Mirror image supplemental primary incisor teeth in Twins: Case Report and Review. Pediatr Dent 1990;12:390-392.
18. Roberts A, Barlow ST, Collard MM, Hunter MI. An unusual distribution of supplemental teeth in the primary dentition. Int J Paed Dent 2005; 15: 464-467.
19. Humerfelt D, Hurlen B, Humerfelt S. Hyperdontia in children below four years of age. A radiographic survey. J Dent Child 1985; 52:121-124.
20. Yildirim G, Bayrak S. Early diagnosis of bilateral supplemental primary and permanent lateral incisors: A case report. Eur J Dent 2011; 5:215-219.
21. Winter G.B., Brook A.H. Tooth abnormalities in Clinical Dentistry, ed. Rave A.H.R., Alexander G. John B. Blackwell Scientific Publications, 1986;Pg 55-103,.
22. Mitchell L. An introduction to orthodontics 1st ed. Oxford University Press, Pg 23-25,1996.
23. Andlaw RJ, Rock WP. A manual of Paediatric Dentistry. 4th ed. New York: Churchill Livingstone; Pg 156,1996.
24. Grahnen NH, Granath L. Numerical variations in primary dentition and their correlation with the permanent dentition. Odont Revy 1961; 12:348-357.
25. Jarvinen S, Lehtinen L. Supernumerary and congenitally missing primary teeth in Finnish Children. Acta Odontol Scand 1981; 39: 83-86.
26. Miyoshi S, Tanaka S, Kunimatsu H, Murakami Y, Fukami M, Fujisawa S. An epidemiological study of supernumerary primary teeth in Japanese children: a review of racial differences in the prevalence. Oral Dis 2000; 6:99-102.
27. Beere D, Hargreaves JA, Sperber GH, Cleaton-Jones P. Supplemental primary incisor teeth in twins: Case report and review. Pediatr Dent 1990; 12:390-392.
28. Nik-Hussein NN, Majid ZA. Dental anomalies in the primary dentition : distribution and correlation with the permanent dentition. J Clin Pediatr Dent 21: 15-19.
29. Anna PP, Ammari Michelle M, Junior Joseph Capelli. First report of bilateral supernumerary teeth associated with both primary and permanent maxillary canines. J Oral Sci 2009; 51:145-150.
30. Gomes CO, Drummond SN, Jham BC, Abdo EN, Meesquita RA. A survey of 460 supernumerary teeth in Brazilian children and adolescents. Int J Paed Dent 2008; 18:98-106.
31. Turkkahraman H, Yilmaz HH, Cetin E. A non-syndrome case with bilateral supernumerary canines: report of a rare case. Dentomaxillofac Radiol 2005; 34:319-321.
32. Roychoudhury A, Gupta Y, Parkash H. Mesiodens: a retrospective study of fifty teeth. J Indian Soc Pedod Prev Dent 2000; 18:144-146.
33. Garvey MT, Barry HJ, Blake M. Supernumerary teeth - an overview of classification, diagnosis and management. J Can Dent Assoc 1999; 65: 612-616.
34. Zilberman Y, Marlon M, Shteyer A. Assessment of 100 children in Jerusalem with supernumerary teeth in the premaxillary region. J Dent Child 1992; 59:44-47.
35. Lustmann J, Boner L. Dentigerous cysts associated with supernumerary teeth. Int J Oral Maxillofac Surg 1988; 17: 100-102.
36. Rajab LD, Hamdan MAM. Supernumerary teeth: review of literature and a survey of 152 cases. Int J Paed Dent 2002; 12:244-254.
37. Munns D. Unerupted incisors. Br J Orthod 1981; 8: 39-42.