CASE REPORT

Non-syndromic multiple supernumerary teeth: report of a case with 13 supplemental teeth

Afroz Alam Ansari,¹ Seema Malhotra,² Ramesh Kumar Pandey,¹ Kusum Bharti¹

¹Department of Pediatric and Preventive Dentistry, King George's Medical University, Lucknow, Uttar Pradesh, India

²Department of Pediatric and Preventive Dentistry, Saraswati Dental College, Lucknow, Uttar Pradesh, India

Correspondence to

Dr Afroz Alam Ansari,
afrozalamansari@rediffmail.com

SUMMARY

The presence of supernumerary teeth (STs) may give rise to a variety of clinical problems. These include failure of a tooth to erupt, delayed eruption, ectopic eruption, diastema, rotation of adjacent teeth, displacement of teeth and crowding. This case describes a 14-year-old male patient who presented with the complaint of pain in the left mandibular posterior region. Intraoral examination revealed the presence of carious retained deciduous second molar in this region. An orthopantomogram was advised which 'initially' revealed 11 STs, positioned in all four quadrants in posterior regions. Two more STs were detected in the following investigations totalling 13. Dental literature rarely reports presence of STs in such a large number. The objective of this case is to report detection of STs, radiographic examination, extraction of the retained deciduous molars and STs in the mandible to facilitate eruption of mandibular premolars.

BACKGROUND

Supernumerary teeth (STs) are defined as developmental alterations of number and morphology that result in the formation of teeth in excess of the usual number.¹ They may occur as single, multiple, unilaterally or bilaterally, and in one or both jaws.² Non-syndromic multiple STs are most commonly seen in mandibular premolar region. Though they are usually detected coincidentally during routine radiographic examinations, their full detection is best achieved by thorough clinical and radiographic examinations. Cases involving one or two STs most commonly occur in anterior maxilla, followed by mandibular premolar region.³ The single supernumeraries occur in 76–86%, double in 12–23% and multiple in less than 1% of the cases.⁴ Very rarely, three or more STs are seen in the same individual.⁵ Such multiple STs are usually associated with developmental disorders or syndromes like cleidocranial dysplasia.⁶ Multiple STs are rare in individuals with no associated disease or syndromes.⁷ The aetiology of STs is not well understood. The development of STs is not clear. Though, many theories have been proposed to explain the anomaly based on developmental interference and heredity; environmental factors, phylogenetic process of atavism and syndromes may also play a part.² The development of STs may also be owing to dichotomy of tooth bud or owing to hyperactivity theory, suggesting that they are formed as a result of local independent, conditional hyperactivity of dental lamina.⁸ The judicious decision on retention or extraction of the STs is the

Figure 1 Preoperative intraoral photograph of the patient.

most crucial part of the comprehensive treatment plan. The present article reports diagnosis, investigations, and treatment plan in a non-syndromic patient having 13 STs.

CASE PRESENTATION

A 14-year-old man reported to the Pediatric Dental Clinic of King George's Medical University, Lucknow, Uttar Pradesh (India) with the chief complaint of pain in the left mandibular region. Medical/family history was non-contributory. Clinical oral examination showed proximal caries in 75 and silver amalgam restorations in 36, 46 (figure 1). The dentition of the patient was as follows:

17	16	15	14	13	12	11	21	22	23	24	25	26	27
46	85	43	42	41	31	32	33	74	75	36			

Hence, retention of 74, 75 and 85 was noticed.

INVESTIGATIONS

Since the patient had already attained the age of 14 years, a panoramic radiograph or orthopantomogram (OPG) was advised to see the status of

Figure 2 Preoperative orthopantomogram of the patient.

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Figure 3 Orthopantomogram after extraction of supernumerary teeth in mandibular premolar regions.

unerupted underlying teeth and extent of carious lesion on the affected teeth. OPG revealed carious exposure of 75 and intraosseous presence of 11 STs resembling premolars (one in upper right (ST1), three in upper left (ST2, ST3, ST4), four in lower left (ST5, ST6, ST7, ST8) and three in lower right (ST9, ST10, ST11) posterior regions) which were radiographically showing various stages of root completion (figure 2). Two more STs ((one in lower left (ST12) and one in lower right (ST13) posterior regions) were detected when dentascan was advised.

TREATMENT

On the basis of dental findings and the absence of any associated disorder or syndrome, a diagnosis of 'non-syndromic multiple supernumerary teeth' was made. Patient had retained 74, 75 and 85; underlying these teeth were STs preventing the eruption of premolars in both quadrants of the mandible. The 74, 75, 85 and STs underlying these teeth were extracted (figure 3). The extracted STs closely resembled premolars (parapremolar) whose roots were not formed completely. In the mandibular molar regions and in both the quadrants of the maxilla since molars and premolars had already erupted, respectively, and the patient was not having any problem in relation to these regions, the STs in these regions were left as they were. Following extractions, a functional space maintainer was placed in the edentulous areas in the subsequent dental visits. The patient was recalled after 3 months for review examination.

OUTCOME AND FOLLOW-UP

The patient visited nearly after 6 months. An OPG was obtained to see the status of unerupted mandibular premolars, which revealed no movement of the teeth. Rather, little space closure was noticed (figure 4). Thorough history revealed that the

Figure 4 Orthopantomogram 6 months after extraction of supernumerary teeth in mandibular premolar regions.

Figure 5 Intraoral photograph showing placement of a fixed space maintainer with bilateral open spring coils.

patient hardly wore the appliance, which was expected to be the cause of space closure. Therefore, a fixed space maintainer was placed with bilateral open spring coils (figure 5) and the patient was recalled after every 2–3 weeks for adjustment of the appliance. After 6 months though space was regained with slight movement of the premolars (figure 6), it was too little to accommodate the erupting premolars. It was presumed that distalisation of the molars was restricted by the heavy bulk of the STs in mandibular molar areas. Thus, STs and third molars of these regions were planned for extraction. After extraction of one ST and the third molar in the right and two STs (buccally placed) in the left region a dentascan was advised to see the interrelationship of the second molar with the third molar in the left mandibular region. The dentascan incidentally revealed two more STs, one on each side, which were hidden behind the second molar in the left and third molar in the right regions (figures 7 and 8) and were not evident owing to two-dimensional image of the OPG. After extracting all the STs (figure 9) a fixed space maintainer was placed with open spring coils and lingual holding arch (figure 10) to maintain and slightly regain the space and to align the second molars. At this stage, there is a shortage of space in retro molar area and since the patient has not attained the age of 18 years further growth of mandible is still expected. If no sufficient space is created by this treatment for the erupting premolars. The treatment will be postponed till the age of 18 years when complete growth of the mandible is presumed. The resorption of the anterior border of the ramus will lengthen the alveolar area. The upward and outward movements of the alveolar process in this area will further

Figure 6 Orthopantomogram 6 months after placement of a fixed space maintainer.

Figure 7 Panoramic view of dentascan showing hidden supernumerary teeth (STs) (ST13 and inset shows ST12).

accommodate erupting premolars and mal aligned molars. Till then space for the erupting molars will be maintained.

DISCUSSION

STs are the teeth in excess of the normal dental series, independent of their location and form. Rajab and Hamdam's reviews on STs showed the majority of the subjects having only one supernumerary element.⁹ Regarding location, there was a strong predilection for the maxillary arch, for the anterior region of the arch, more specifically, for the midline. Supernumerary premolars are said to represent 8% of all STs. Salcido Garcia *et al*¹⁰ in their study, reported supernumerary premolars as the second most common ST after mesiodens with a reported incidence of 0.09–0.64%. In our case all the 13 STs were of premolars variety. Yusof *et al*¹¹ in his study observed, the premolar region of the mandible is the preferred site of multiple STs occurring in the absence of any syndrome, a pattern

Figure 8 Occlusal view of dentascan showing hidden supernumerary teeth (STs) (ST12 and ST13).

Figure 9 Orthopantomogram after extraction of all mandibular supernumerary teeth and mandibular third molars.

observed in eight of 13 STs in our case. However, two STs were found in the mandibular region, which is again a rare finding.

Most of the time, STs are asymptomatic and may be within the jaws and are diagnosed by chance when radiographs are taken as observed in our case. Though they may remain within the jaws for years without pathological manifestation, several complications may develop. These include failure of a tooth to erupt, delayed eruption of permanent teeth, ectopic eruption, diastema, rotation of adjacent teeth, displacement of teeth and crowding. Delayed eruption of the teeth was seen in our case too as lower premolars were not erupted owing to the presence of overlying STs; however, the upper premolars erupted normally. The lower molars also erupted normally despite the presence of STs except for minor buccal displacement of second molars in these regions (figure 10). Others problems include periodontitis, dilacerations, dentigerous cyst formation, root resorption of adjacent teeth, occlusive disturbance and unaesthetic appearance¹² which are altogether absent in our case. In clinical practice, dental procedures such as implant site preparation, orthodontic tooth movements; alveolar bone grafting may be affected when STs are present. Therefore, early diagnosis, proper evaluation and appropriate treatment are essential. It is difficult to formulate an ideal treatment with STs. It may vary from just extraction of STs to extraction followed by orthodontic correction to establish a good occlusion.¹³ Garvey *et al*¹⁴ recommended monitoring of STs in the following situations; satisfactory eruption of the succeeding teeth, absence of any associated pathological lesions and risk of damage to the vitality of the related teeth. According to Sood PB *et al*¹⁵ if an ST does not cause any symptoms or when there is an elevated size of

Figure 10 Placement of a fixed appliance with lingual holding arch.

damaging the development of a permanent tooth it is advisable to avoid the therapeutic approach and instead adhere to periodic clinical and radiological examination. Hence, in our case too STs in upper arch were not extracted; rather, the patient was advised for a check up every 6 months to evaluate any damage to adjacent tooth/teeth or adjoining structures.

Supernumeraries can cause a variety of complications. The clinician should recognise signs suggesting the presence of STs, particularly aberrations in the eruptive pattern, and perform all relevant investigations. When diagnosis is made, each case should be managed properly to minimise complications to the developing dentition including consultation with an orthodontist.

Learning points

- ▶ Early detection and management of all supernumerary teeth (STs) is a necessary part of preventive dentistry. The importance of early radiographic investigations of suspected cases cannot be underrated.
- ▶ Dental practitioners should be aware of their clinical signs and the treatment options as presence of undiscovered ST/STs, particularly a late forming premolar, may obstruct orthodontic space closure. Early diagnosis and appropriate management can minimise the potential complications caused by STs.
- ▶ The patient should be informed that if you have extra tooth/teeth, do not be alarmed! You can work with your dentist to find out solution for the tooth/teeth. The patients must be counselled properly as they may have impression of too many extractions, which according to them may be unwanted.
- ▶ Management part depends on the location of the STs and their effect on the adjoining teeth. Extraction is not always the treatment of choice for STs. In cases where they are asymptomatic and do not cause any problem, satisfactory eruption of related teeth has occurred, no active orthodontic treatment is envisaged, there is no associated pathology, no displacement of teeth, no hindrance in the eruption of the teeth and removal would prejudice the vitality of the related teeth, they should be monitored without removal.
- ▶ The extraction of those STs, which hinder the permanent teeth, should not be postponed to adulthood, which may further complicate the already existing orthodontic problems.

Competing interests None.

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