LATE EMERGING SUPERNUMERARY TEETH – A DECADE OF ANALYSIS

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ABSTRACT:
Supernumerary teeth are a developmental anomaly which have been known to be caused due to multiple etiologies. They can either erupt or remain embedded. They can cause a variety of complications in the developing dentition. When it remains embedded, it may cause disturbance to the developing teeth. The erupted supernumerary tooth might cause aesthetic problems. The following case report is of a patient where deep rooted supernumerary teeth were left as such. After the patient finished orthodontic treatment , the teeth were seen to be erupting and which later caused some problems.

Key words: supernumerary teeth, orthodontic treatment

INTRODUCTION:
A supernumerary tooth is one that is additional to the normal series and can be found in almost any region of the dental arch.1 Supernumerary teeth can be single or multiple, unilateral or bilateral, and seen in one or both jaws. The reported prevalence of this abnormality varies between 1.5% and 3.5% in the permanent dentition in comparison with 0.3 to 0.6% in the deciduous dentition. Supernumerary teeth are more frequent in males than in females in a proportion of 2:1.2

The most common location of supernumerary teeth is at the premaxillary region and it may cause pathological condition such as failure of eruption of the maxillary incisors, displacement or rotation of the permanent tooth.

The etiology of supernumerary teeth have never been fully understood. Several theories have been put forward. One theory suggests that the supernumerary tooth is created as a result of a dichotomy of the tooth bud.3Another theory, well supported in the literature, is the hyperactivity theory, which suggests that supernumeraries are formed as a result of local, independent, conditioned hyperactivity of the dental lamina3. According to this theory, a supplemental form would develop from the lingual extension of an accessory tooth bud, whereas a rudimentary form would develop from the proliferation of epithelial remnants of the dental lamina. Although all theories are hypothetical because of the inability to obtain sufficient embryological material, most literature supports the dental lamina hyperactivity theory.4

FIG 1: Extraoral photograph (frontal view)

Genetic factors are also considered important in the occurrence of supernumerary teeth. Many cases have been reported of recurrence within the same family.5 A sex-linked inheritance has been suggested by the observation that males are affected approximately twice as often as females.4,5

The following case report is of a patient who reported for orthodontic treatment and in whom supernumerary teeth were present and were decided to be left as such as they were not causing any problem.

CASE REPORT
A 12 year old female patient reported to the clinic in January 2004 with the chief complaint of forwardly placed upper front teeth (**figure 1**). She had a fractured and discoloured 21 with a history of trauma few years back. She had a convex profile with potentially competent lips. She was diagnosed to have an Angle's class II bimaxillary protrusion.

All routine diagnostic records including orthopantamogram (OPG), lateral cephalogram, study models and facial photographs were adviced.

On OPG analysis, it was observed that there were three supernumerary teeth present in the lower jaw (**figure 2**). Two of the teeth were present in the left quadrant in relation to the canine and the premolar and one supernumerary tooth was present in relation to the right quadrant, also apical to the canine and premolar.

In February 2004, apicectomy was done in relation to 21. As bone grafting was also done so the tooth was re-evaluated after 9 months in November 2004 for bone status and root length. After that an oral surgeon was consulted regarding the extraction of the supernumerary teeth, but as these teeth were not causing any immediate problem to the patient, and also because the oral sur-

geon suggested that their extraction could be traumatic because of their deep underlying nature, it was decided not to extract them and leave them as such.

All first bicuspid extraction was the treatment plan of choice for the patient to correct her orthodontic problem. The bicuspids were extracted in January 2005.

The upper arch was bonded and treatment started only in the upper arch first while waiting for spontaneous eruption of the supernumerary teeth in the lower arch following the bicuspid extraction .

After six months of treatment, in june 2005, radiographs were advised to evaluate the status of the supernumerary teeth. The x rays revealed no change in the status of these teeth and hence the lower arch was bonded and treatment started. The treatment was finished in may 2007 (**figure 3**).

After the completion of orthodontic treatment the patient was put on upper and lower bonded fixed lingual retainers extending from canine to canine in both the arches. Two treatment options for 21 was presented to the patient. Extraction of the supernumerary tooth as well as the extraction of 21, followed by autotransplantation of the supernumerary tooth into the socket of 21, or extraction of supernumerary and going for laminates in relation to 21.

Patient was asked to be on a six month follow up but did not report for five years.

Approximately 5 years after the treatment , the patient reported back with the complaint of re-opening of spaces. At that time intraoral examination and radiographic examination showed the eruption of the supernumerary teeth, which in turn were the causative factor behind the relapse (**figure 4**)

Extraction of the supernumerary followed by re-orthodontic treatment was planned for the patient.

FIG 2: Post treatment extraoral frontal view

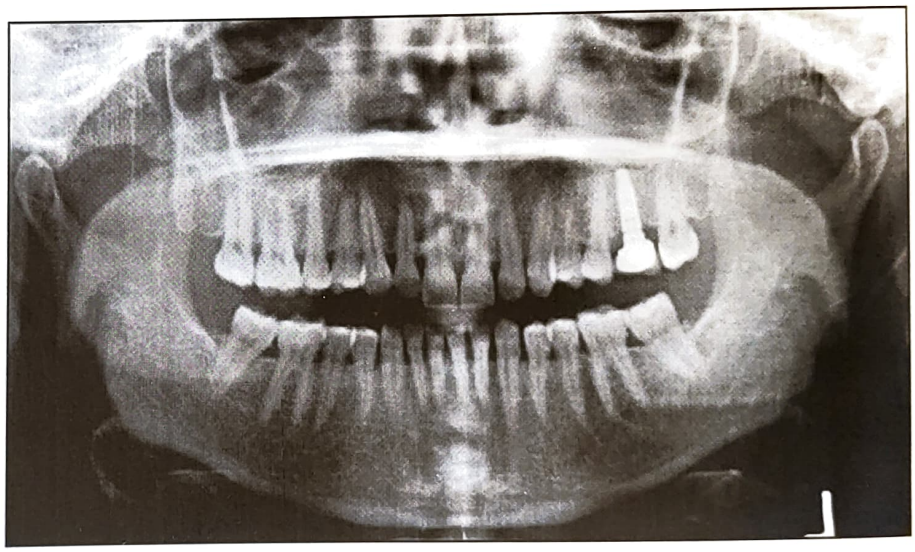

FIG 3: Mid treatment OPG

DISCUSSION

Genetics normally determines formation of thirty two teeth to compose normal human permanent denture. However, developmental dental abnormalities, such as anomalies of number, shape and size of teeth may affect patients even without genetic syndromes.

It is essential not only to enumerate but also to identify the supernumerary teeth present

clinically and radiographically before a definitive diagnosis and treatment plan can be formulated6. Supernumerary teeth, or hyperdontia, may manifest in any region of the dental arches. Multiple supernumerary teeth that are not related to any syndrome are very rare; in these individuals supernumerary teeth are frequently found in the premolar area.7

Multiple hyperdontia can be associated with Gardner syndrome, Fabry-Ander-son syndrome, Ehlers-Danlos syndrome, facial fistulas or cleidocranial dysplasia.8

Stafne in 1932 did a survey of full mouth radiographs of 48,550 adults. A total of 500 supernumerary teeth were identified (1%) including nine maxillary and 33 mandibular premolars (8.4% of all supernumerary teeth identified). Whether some subjects had multiple supernumeraries is not clear. With 42 supernumerary premolars per 48,550, the calculated

occurrence rate would be 0.09%, assuming that Stafne did not discover any cases of multiple supernumerary premolar formations. Stafne also states that, unlike other supernumeraries, supernumerary premolars, as well as being more likely to develop in the mandible than in the maxilla, usually resemble normal premolars in shape and size.9

Tooth autotransplantation refers to the extraction of a tooth from one location and its replantation in a different location in the same individual. The new location may be a fresh extraction socket after extraction of a nonrestorable tooth, or an artificially drilled socket on an edentulous alveolar ridge. Its definition also encompasses the surgical repositioning of a tooth within the same socket. Cost effectiveness is the obvious advantage of this procedure which en-

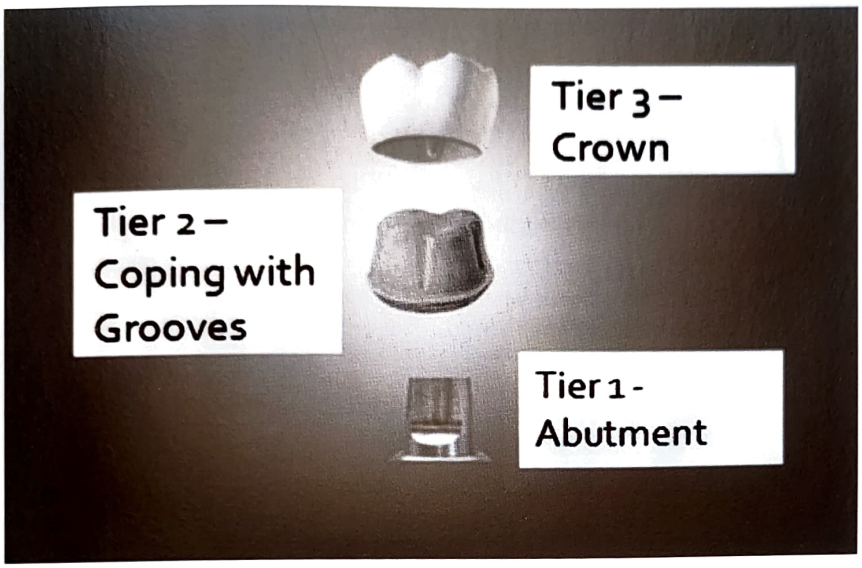

FIG 4: Post treatment intraoral left buccal view

ables the utilisation of a tooth that is hitherto non-functional (usually third molar tooth) to be transferred to a functional position to replace a lost tooth in the same person. The main disadvantages are surgical involvements, technique sensitivity, relatively low versatility in their applications (e.g. tooth and space size discrepancy) and more importantly low predictability in results compared to conventional prosthetic (implants, bridge, dentures) restorations.10

CONCLUSION

Supernumerary teeth can cause a variety of complications including deviations in the eruptive pattern. Late developing or late erupting supernumerary teeth have a limiting effect on the developing dentition.Thus it is essential that necessary investigations be advised and they be identified and diagnosed with caution.

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