A Peculiar Case of Non-Syndromic Multiple Impacted Supernumerary Teeth - A Case Report with a total of 64 Teeth

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ABSTRACT

Supernumerary teeth, also known as hyperdontia. It is the presence of the excess number of teeth than that of standard dental formula. Usually, hyperdontia is found in association with syndromes such as Gardner's syndrome, Ehler Danlos syndrome, etc., or conditions like Cleft lip and Cleft palate. Supernumerary teeth, without any associated syndromes, is an uncommon phenomenon. So far, only a few cases of non-syndromic supernumerary teeth have been reported. Hereby, we are documenting a rare case of non-syndromic multiple impacted supernumerary teeth with a total of 64 teeth constituting 24 teeth in the oral cavity (11 retained deciduous + 13permanent teeth), 23 impacted supernumerary teeth and 17 impacted permanent teeth.

KEYWORDS: Impacted, Non-syndromic, Supernumerary teeth

INTRODUCTION

Hyperdontia is scientifically defined as "any tooth or odontogenic structure that is formed from tooth germ in excess of usual number for whichever area of the dental arch".¹ The etiology is unknown, even though numerous theories have been suggested: Tooth germ dichotomy, Hyperactivity of the dental lamina, Atavism, and genetic factors comprising a dominant, autosomal trait characterized by low penetrance.² Their prevalence of occurrence ranges between 0.3% and 0.8% in the primary dentition and 0.1-3.8% in the permanent dentition.²,³ The prevalence of multiple supernumerary teeth in non-syndromic patients is <1%.³,⁴

Now, in this case, the presence of 23 impacted supernumerary teeth makes the case interesting to document. Early diagnosis always gives a better prognosis. Hence, it is necessary to detect this condition as early as possible using adequate radiographic examinations to avoid complications associated with these supernumerary teeth.

CASE REPORT

An 18-year old female patient reported to our department with a chief complaint of food lodgement in the left upper and right lower back tooth region. Familial, medical, and dental histories were non-contributory. The extraoral examination did not reveal any abnormal features (Figure 1), intraoral examination revealed multiple over-retained deciduous teeth in all the four quadrants and some permanent teeth at various stages of development, 14 teeth in the maxillary arch and ten teeth in the mandibular arch are found (Figures 2a,2b). Hence, an orthopantomogram was advised, and surprisingly they revealed multiple impacted permanent teeth of normal series and many supernumerary teeth in maxilla and mandible (Figure 3). As per OPG 6 supernumerary teeth, 9 permanent teeth are found impacted in the maxilla and 11 supernumerary teeth, 8 permanent teeth are found

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impacted in the mandible.

A CBCT of mandibular and maxillary dentition was again advised to rule out any missing supernumerary teeth in the OPG and correct position of the impacted teeth. Consequently, the CBCT revealed 6 additional supernumerary teeth in the patient (3 in the maxillary right distal PA view and 3 in the maxillary left distal PA view) that were missed in the OPG due to overlapping of the osseous and dental structures (Figures 4a, 4b) finally a total of 64 teeth are present in the patient out of which 23 are supernumerary. The presence of multiple retained deciduous, unerupted permanent and supernumerary teeth; thus, a diagnosis of “non-syndromic multiple supernumerary teeth” was made. It was not very easy to differentiate some permanent teeth of normal series from the supernumeraries, and thus an assumption that these extra teeth should be supplemental was made. The association of various permanent teeth with the supernumerary teeth is demonstrated through a schematic diagram (Figure 5).
Teeth arise through a series of interactions among neural crest-derived mesenchyme and the oral epithelium. The exact cause of supernumerary teeth is still obscure, although various theories have been put forward.

- **Phylogenetic theory:** It represents analogous to the anthropoids having a higher number of teeth in the dental setup.
- **Dental lamina hyperactivity theory:** This most accepted theory states that extra teeth are formed as a result of alterations of dental lamina hyperactivity at the initial stage of development of dentition.
- **Dental follicle dichotomy theory:** As stated by this theory, the follicle is divided into two equal or different parts leading to one dysmorphic and one similar tooth or two similar teeth.
- **Genetic factors:** Supernumerary teeth can be associated with a dominant, autosomal, recessive gene. The importance of heredity is supported by the increased number of supernumerary teeth in relatives of those affected.

Supernumerary teeth were classified based on position or form. Based on the position, they are of four types:

1. **Mesiodens** - present in the incisor region.
2. **Paramolars** - present beside a molar.
3. **Disto-molars** - present distal to the last molar.
4. **Parapremolars** - present beside a premolar.

Based on the shape, they can be of four types:

1. **Conical:** peg-shaped teeth.
2. **Tuberculate:** made of more than one cusp or tubercle. They are barrel-shaped, usually invaginated.
3. **Supplemental:** resemble regular teeth morphology. Maybe an incisor, premolar, or a molar.
4. **Odontome:** does not resemble any teeth morphologically.

More than 20 syndromes or other developmental conditions were found to be associated with the presence of supernumerary teeth. Eight syndromes showed a strong association with supernumerary teeth they are; Trichorhino phalangeal syndrome type1, Rubinstein taybi syndrome, Nance-horan syndrome, OpitzBBB/G syndrome, Cleidocranial dysplasia, Familial adenomatous polyposis, Oculo-facio-cardiodental syndrome, Robinow syndrome and several other syndromes with a low-frequency manifestation of supernumerary teeth are Hallermann-seifff syndrome, Fabry disease, Ehler Danlos syndrome, Fabry disease, Crouzon syndrome, Zimmermann laband syndrome, Ellis van crevald syndrome, Kreiborg-Pakistani syndrome, insulin-resistant diabetes mellitus with acanthosis nigricans.

Treatment is partly dependent upon the position and clinical manifestations of the supernumerary tooth. Thus, an early diagnosis is essential in order to decide among extraction, extraction followed by orthodontic treatment, or simply monitoring or control of the supernumerary teeth, with a view to minimizing the risk of complications secondary to the presence of these teeth.

Surgical management, in turn, ranges from removal of the supernumerary teeth to the latter followed by orthodontic treatment aiming to ensure correct occlusion. In the more complex cases, the possible existence of multiple impactions of supernumerary teeth gives rise to destructuring of the dental arch, with numerous malpositioned teeth. These situations require close cooperation among professionals to define combined surgical orthodontic management. In such cases the orthodontist defines the general management lines, specifying which teeth must be removed or preserved to optimize occlusion through orthodontic treatment.

As there is always a danger of damaging some adjacent anatomical structures during extraction, the risk-benefit ratio of tooth removal must be evaluated in all cases. Treatment objective should be corroborated by a multidisciplinary team, where oral surgeon, orthodontist, periodontist, and prosthodontist resolve this medical and dental puzzle by eliminating the pieces that do not fit and searching for new ones to obtain an occlusion that will give the patient normal physiologic conditions associated with esthetic satisfaction.

**CONCLUSION**

Hyperdontia is rarely not associated with complex syndromes. The condition is usually infrequent and is typically asymptomatic. But all of a sudden, they may cause cystic formation. Hence, the dental practitioner should be aware of early identification, proper management, and associated complications to avoid the morbidity occurring to the patient by these supernumerary teeth.

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