

Non-syndromic multiple supernumerary teeth: A case report

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Abstract

Background and objective: Supernumerary teeth are known as the teeth in excess of the normal dentition. Multiple supernumerary teeth are usually observed as having syndromes. Conversely, multiple supernumerary teeth without any associated systemic conditions or syndromes are not common.

Case presentation: This article documents an unusual case report, a male patient with non-syndromic 10 supernumerary teeth in both jaws, an incidental finding during routine radiographic examination.

Conclusion: CBCT is the best diagnostic imaging method currently available for determining the relationships of teeth and the surrounding structures in cases with multiple impacted teeth or severe overlapping of impacted teeth

Keywords: Non-syndromic, Multiple supernumerary teeth, CBCT (cone beam computed tomography), unerupted teeth

Introduction

Supernumerary teeth could be defined as the teeth in excess of the normal dentition (1). Such an overplus can also be accompanied by a loss of other teeth. For instance, 32 permanent teeth may be present with five mandibular incisors and only three mandibular premolars. It can be single or multiple, unilateral or bilateral, morphologically malformed or normal in shape and size, and erupted or impacted (2-4). Cases that involving one or two supernumerary teeth most commonly involve the anterior region of upper jaw, and after that the lower jaw premolar area (5). While multiple supernumerary teeth are present (>5), the most common place that affected could be the region of bicuspid teeth (6). Single supernumeraries occur in 76 to 86 percent of cases. Double supernumeraries occur in 12 to 23 percent of cases, and multiple supernumeraries in less than one percent (7-9).

The incidence of supernumerary teeth, according to the literatures, varies between 1.6 and 3.1 percent (10-13). Though they could be found in either the deciduous or permanent dentition, Clayton found them to be twice as often in the permanent dentition (11). They could be seen anywhere, nonetheless, there is a predilection to occur in the anterior maxillary area. Luten found 97 percent of supernumeraries were located in the anterior area while just three percent in the premolar region(13), whereas, Bodin and Thomsson found 10.9 percent of supernumerary teeth representing premolars, and 6.2 percent of the total number of supernumeraries were molar teeth. The most frequent cases were those with single supernumerary even though bilateral cases were seen. There was a higher frequency for males than females of nearly 2:1 with a higher

incidence in the upper jaw in comparison with the lower jaw mentioned at between 6:1 to 11:1(12-15).

There is a number of published report of cases about the occurrence of multiple supernumeraries in the bicuspid teeth area but this anomaly is somewhat rare (16, 17).

The etiology of the supernumerary teeth still remains open to question. Phylogenetic process of atavism (evolutionary throwback) (18), dichotomy theory (splitting of the tooth bud) (19), hereditary and a combination of environmental and genetic factors (20) are among the probable theories that have been pronounced to explain the etiology of supernumerary teeth. The localized and independent hyperactivity of dental lamina could be the most accepted etiology for the supernumeraries' development (19). However, the presence of supernumeraries usually is a part of syndrome and developmental disorders such as Cleft palate and lip, Gardner's syndrome, Ehlers-Danlos syndrome, Cleidocranial dysostosis, Tricho-Rhino-Phalangeal syndrome, Ellis-Van Creveld syndrome, and Incontinentia Pigmenti. It has been reported that the prevalence of non-syndromic multiple supernumeraries is less than one percent (2, 21).

Mainly, supernumeraries could be categorized as either supplemental or rudimentary. Morphologically, supplemental teeth are similar to a normal tooth, but rudimentary teeth are small, conical, or tuberculate (22). In most cases, supernumerary premolars tend to be supplemental (23).

The purpose of this paper is to share radiological documents and assessments of a rare case of a large number of non-syndromic supernumerary teeth.

Case report

A 19-year-old Iranian male presented for an initial dental examination which involved taking panoramic radiograph. The patient had no complaint of pain, no sign of infection and was in good general health, with no other alterations. The patient has the history of bilateral ulnar polydactyly that was removed operatively at his early childhood. This bilateral ulnar polydactyly was not associated with syndactyly and polydactyly of the feet. On intraoral examination there were no abnormalities in the shape or size of the teeth or the relationship between the patient's dental and chronological age. And also, there was no any other specific oral finding and

relevant familial history of dental abnormalities. On clinical examination no craniofacial and skeletal anomaly related to supernumeraries (e.g. craniosynostosis, absence of clavicles, hypertelorism, ear deformity, etc.) was detected. The panoramic radiograph showed the presence of ten supernumerary teeth in all four quadrants (Fig. 1). On clinical examination it was found that all the permanent teeth including the third molars had erupted and the tooth number 36 had been extracted. CBCT (cone beam computed tomography) of the mandible and maxilla was taken to confirm the location of the supernumerary teeth and impact of these teeth on the adjacent teeth (Fig. 2, 3).

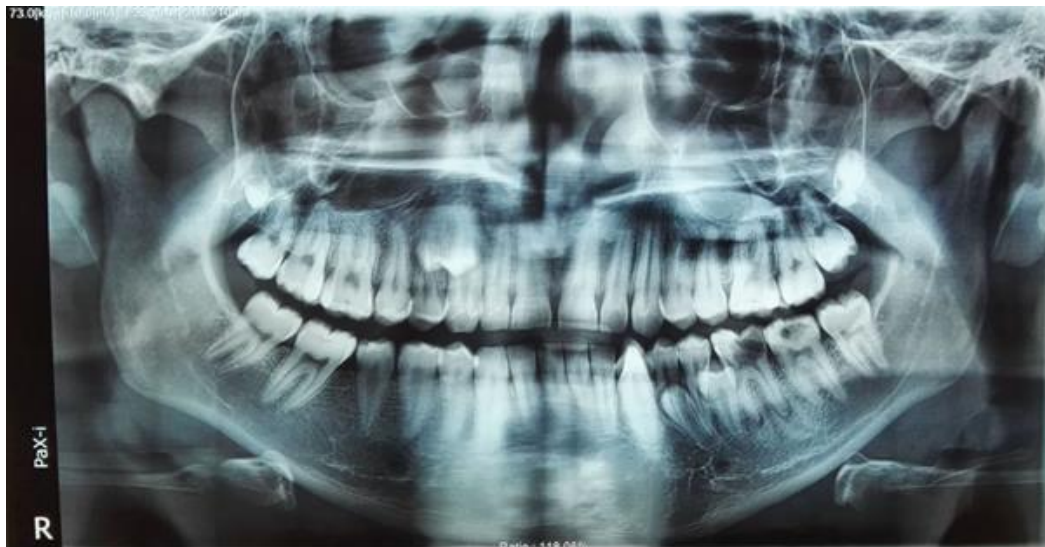


Fig1. The panoramic radiograph showed the presence of ten supernumerary teeth in all four quadrants

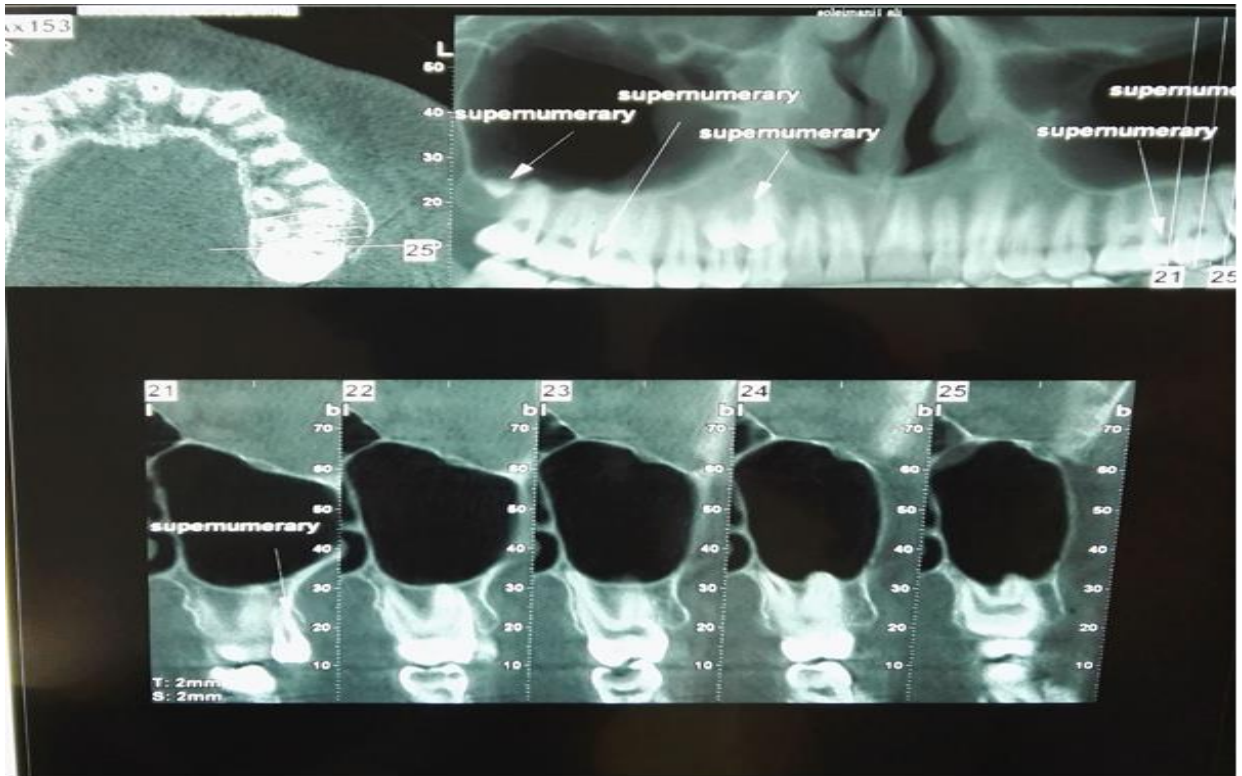


Fig2. Axial, cropped reconstructed panoramic and cross sectional CBCT views of the maxilla

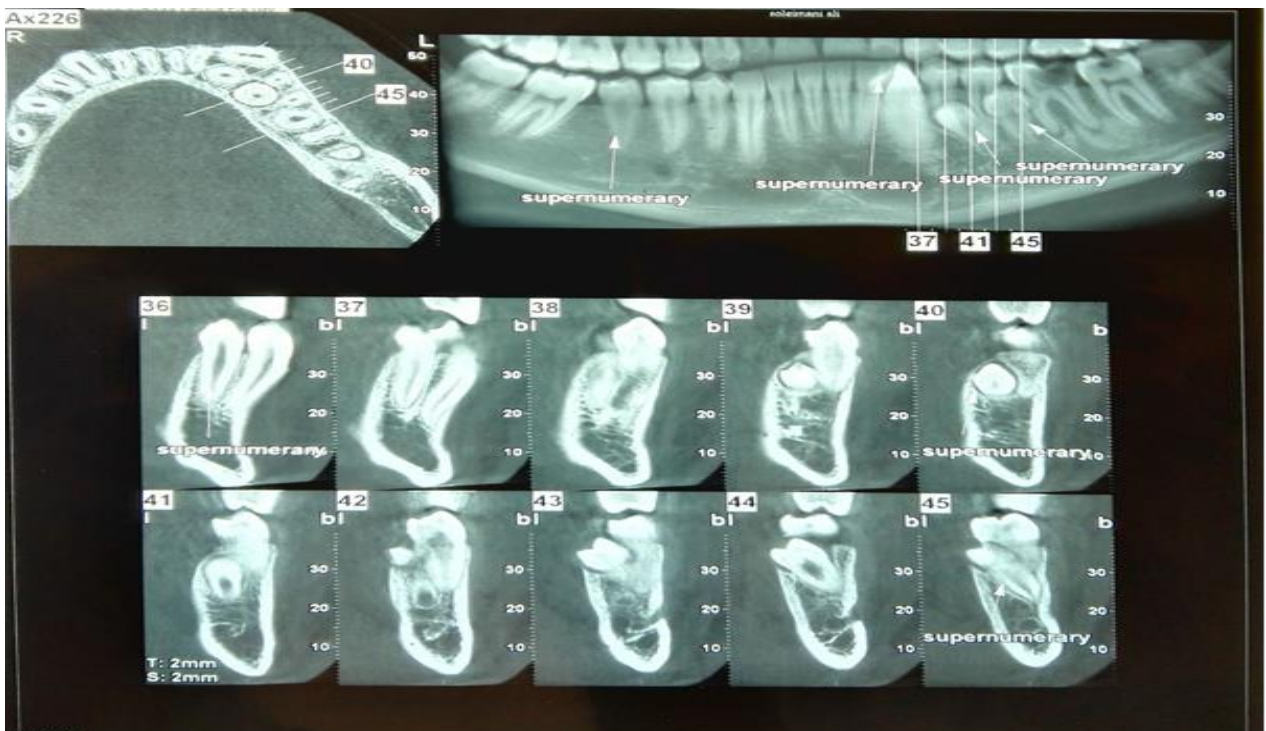


Fig3. Axial, cropped reconstructed panoramic and cross sectional CBCT views of the mandible

The first quadrant showed the presence of three supernumerary teeth. One of them was a distomolar (fourth molar), exhibiting a microdent tooth without complete root formation which lied in the right maxillary tuberosity at the apical region of the 18. A supernumerary premolar had buccally erupted between the 16 and 17. This tooth was normal in size and morphology as a premolar. Another supernumerary premolar was also found palatally to and at about the middle premolar as well. It seems that this supernumerary tooth had resorbed the palatal root of the 14. The gingiva around these teeth appeared healthy, with periodontal probing depths of 2 mm and no bleeding. There were also two supernumerary molars in second quadrant at the level of apical third of the roots of the 28. Both of these exhibit microdontia without complete root formation. These two supernumerary teeth seem to have close proximity with each other. One erupted supernumerary tooth was found in the second quadrant, buccal to and between the 26 and 27. These teeth had fully formed crown and root with normal morphology and size of a premolar. In the left mandibular premolar region there were three supernumerary teeth, all with fully formed crowns and roots. Two of these were unerupted and similar to normal premolars in size and morphology. One of them was between 35 and 36 lingually that resorbed lingual region of the root of 35 and mesial root of 36 at the middle third of it. The other was between 34 and 35 lingually and resorbed lingual part of the 34 and 35 in their root region too. Another erupted supernumerary tooth which found between 33 and 34 buccally exhibited the normal morphology and size as a canine. One supernumerary tooth was found in the right mandibular quadrant in the premolar region between 45 and 46. This erupted tooth had

fully formed crown and root, and resembled the size and morphology of a normal premolar as well.

Discussion

The etiology of supernumerary teeth remains unclear, but several theories have been offered for it. The localized and independent hyperactivity of the dental lamina is the most accepted cause for the development of supernumerary teeth (2-24). Multiple supernumerary teeth without any syndromic association are very rare (6). An unerupted supernumerary tooth may be found by chance during radiographic examination, with no effect on adjacent teeth (2). If teeth are not causing any complications and are not likely to interfere with orthodontic tooth movement they could be radiographically observed every year. The patient needs to be informed about likely incoming problems and complications, such as migration and cystic change with damage to adjacent roots. It is reasonable to extract supernumeraries, if the patient does not accept such risks and problems. If supernumeraries are associated with the roots of permanent teeth, it may be logical to await full root development before removing the supernumerary teeth to decrease the chances of root damage (25).

The case that described here shows a sample of some features for cases with supernumeraries. It is indispensable to list and identify the teeth present clinically and radiographically before any diagnosis and treatment planning.

Supernumeraries usually are removed surgically, because of retention of permanent teeth in that area. A conservative approach is considered while the supernumeraries do not make change in the position, eruption, and integrity of the permanent dentition (26).

Therefore, each case should be examined individually concerning retention of permanent teeth, tendency for cyst formation and malocclusion. The most common complications associated with the supernumeraries in the bicuspid teeth area are damage to neighboring teeth (13%) and cyst formation (9%) (27). Some studies reported displacement, rotation, ectopic eruption, and malocclusion in their cases (28). But in our case, occlusion was normal and no discrepancies observed.

Conclusion

In cases with multiple impacted teeth or severe overlapping of impacted teeth, determining the relationships of teeth and the surrounding structures in 3D space is very difficult (29). Close observation with regular radiographic controls is recommended. CBCT is the best diagnostic imaging method currently available; it provides better resolution for hard tissues and also correctly localizes the retained teeth and determines their relationship with adjacent tissues.

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Declarations

Ethics approvals and consent to participate: This manuscript has been approved by the research ethics committee of Ahvaz Jundishapour University of Medical Sciences. The code of Ethics is IR.AJUMS.REC.1399.395

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