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Case Report

A rare incidence of multiple abnormally positioned supernumerary impacted upper teeth: a case report and literature review

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ABSTRACT

Teeth that do not emerge into the dental arch within the typical timeframe are referred to as impacted teeth. The third molars, being the last teeth to develop and erupt in the permanent dentition, are the most frequently impacted. They often become impacted either because of an abnormal position during their development, insufficient space in the dental arch, or a combination of both factors. In this case, we present multiple third molars and supernumerary teeth that are abnormally positioned and impacted. The patient was treated by extracting all third molars and associated impacted supernumerary teeth under general anesthesia.

Keywords: Third molars, Supernumerary teeth, Teeth impaction, Maxillary sinus, Complications

INTRODUCTION

Mead first described an impacted tooth in early 1954, an impacted tooth is one that is hindered from erupting into its proper place due to malposition, space constraints, or other issues.[1] Later, Peterson defined impacted teeth as those that do not erupt into the dental arch in the anticipated amount of time.[2] According to its anatomic position, an impacted tooth is either fully or partially unerupted and is positioned against another tooth, bone, or soft tissue, making future eruption uncertain.[3] The maxillary midline supernumeraries, maxillary fourth molars, maxillary paramolars, mandibular premolars, maxillary lateral incisors, mandibular fourth molars, and maxillary premolars, are the most frequent supernumerary teeth, listed in order of frequency.[4]

A "number" developmental dental anomaly, hyperdontia (also known as supernumerary teeth) is the term used to describe any additional tooth or odontological structure that is not a part of the normal dentition.[5] In permanent dentition, its prevalence ranges from 0.1% to 3.9%, while in primary dentition, it ranges from 0.3 to 1.8%.[5] The prevalence varies depending on the type and location: premolars make up 3%, mesiodens are 36%, upper lateral incisors make up 50%, and central upper incisors make up 11%.[6] The majority of people with hyperdontia only have one or two extra teeth, 76–86% of patients have just one extra tooth, and 12–23% have two extra teeth.

Individuals with two or more extra teeth are exceedingly uncommon, occurring in about 2-8% of instances; patients with five or more extra teeth are much more uncommon, occurring in fewer than 1% of cases with hyperdontia.[5,6] Numerous impacted teeth along with multiple supernumerary teeth frequently indicate specific craniofacial abnormalities, such as tricho-rhino-phalangeal syndrome, Robinow syndrome, and cleidocranial dysplasia (CCD), however, there have been many reports of on the origin of non-syndromic numerous

supernumerary and impacted teeth.[7] Third molars, or wisdom teeth, are a typical occurrence in dentistry and can provide several clinical issues because of their unusual location and risk for impaction.[8] In oral and maxillofacial surgery, the most common procedure is the third molar extraction, when evaluating individuals who come in for a consultation regarding their third molar, panoramic radiography is the gold standard.[8] Periodically, examining a patient's panoramic radiograph reveals the existence of distomolars or fourth molars.[9]

CASE REPORT

25-year-old female patient unaware of any medical history, with no known allergies. The patient came to the oral and maxillofacial surgery clinic for a consultation regarding her third molars. The patient complained of on-and-off discomfort and plaque accumulation in the area of the lower third molars. Upon clinical #18 is fully erupted, however not in functional occlusion. #28 Hypoplasia and not in functional occlusion. #38 partially erupted with pericoronitis. #48 in mesioangular position and partially erupted with pericoronitis. An initial panoramic radiograph was requested and showed multiple impacted supernumerary teeth associated with upper third molars in Figure 1.

The examination consists of CBCT of the maxilla and mandible acquired with a Planmeca ProMax3D max scanner utilizing a 13×9 cm field of view and 0.2 mm voxel size. Sectional images along multiple planes were obtained, including cross-sectional images of the jaws. Tooth #18 is vertically partially impacted with slight buccal tipping and coronal supernumerary tooth. It has three completely formed roots (2 fused mesial and distobuccal and palatal). The root apices of tooth #18 abut the maxillary sinus floor. The follicular space contained a supernumerary tooth that prevented the eruption of tooth #18. The supernumerary tooth is malformed with a molar crown and a single completely formed root. It is positioned coronal to impacted tooth #18 with its root projected palatally and superiorly abutting the palatal cusps of #18. Cervical concavity where the supernumerary tooth abuts the palatal cusps of tooth #18 is present, likely due to external cervical tooth resorption of the supernumerary tooth.

Tooth #28 is vertically impacted, apically displaced, with two supernumerary teeth. It is positioned apical to and abutting the roots of tooth #27 with a blunted distobuccal root apex (due to external apical root resorption). It has three completely formed roots (2 fused and distally dilacerated distal roots and mesial roots). The root apices about the floor of the maxillary sinus. The follicular space is slightly enlarged and jointed with the follicular spaces of the other supernumerary teeth which prevents eruption of tooth #28. The distal supernumerary tooth (distomolar) is similar to the premolar tooth in shape with a single completely formed root. It is at the same level as tooth #28 (root and crown). Another supernumerary tooth is noted distal to tooth #27 and coronal to tooth#28. It is malformed with a completely formed, mesially curved, single root. Its crown abuts the distal coronal third root of #27 and at the level of the crest of the alveolar ridge, and its apex abuts the distal coronal part of tooth #28.

Tooth #38 is partially vertically impacted with distal tipping and 2 completely formed roots. No crestal alveolar bone is covering the coronal part. The remaining distal part of the follicular space appears to be normal with no radiographical signs of pericoronitis. The inferior alveolar canal is lingually abutting the root apices of tooth #38.

Tooth #48 is mesioangular partially impacted with two fused roots. No crestal alveolar bone is covering the cusps of tooth #48. The remaining distal part of the follicular space appears to be normal, with no radiographical signs of pericoronitis. The mesial aspect of the #48 crown is abutting the distal cervical region of tooth #47 with no sign of resorption. The IAC is lingually abutting the root apex of tooth #48.

Upon further discussion with the patient, the treatment plan was determined as the extraction of all third molars and associated impacted supernumerary teeth under general anesthesia. The patient was brought to the theater awake and oriented, placed on the table in a supine position, monitors were connected, anesthesia was introduced, and nasal intubation was on the right nostril.

Eyes were lubricated and taped shut. Then, the patient was prepped and draped in a sterile manner. Lidocaine 2% with epinephrine was injected in all surgical sites. In Surgical sites of #38 and #48, envelope mucoperiosteal flap reflection with distal release incision in the tooth area. Bone guttering is done to expose the tooth luxation, and extraction is done. Irrigation and tooth follicle was removed. Severe bleeding from the socket of #38 was seen, dressing and pressure were applied, and hemostasis was achieved. Suturing using 3/0 Vicryl was done. In the surgical site of #18 and the supernumerary tooth (paramolar), tooth luxation and extraction were done.

Irrigation and hemostasis were achieved. Suturing was done using 3/0 Vicryl. In the surgical site of #28 and supernumerary teeth (paramolar and distomolar), a full mucoperiosteal flap was elevated with a mesial releasing incision. Tooth luxation and extraction were done of paramolar followed by tooth luxation and extraction of distomolar. #28 was luxated. However, difficulty in extraction was encountered. Thus, tooth sectioning was done, which was further complicated by an oroantral communication that was managed by a buccal advancement flap with primary closure. All extracted teeth are present in Figure 9. The patient was then handed to the anesthesia team. Extubated and shifted with no issues. The patient was then seen in follow-up appointments with bilateral mild facial edema soft and nontender and bilateral neurosensory level A for the

lower lip and chin. Surgical sites were intact, sutures were in place, and no active bleeding was noticed. Figure 10 shows a post-operative panoramic radiograph.

Figure 1: Panoramic radiograph.

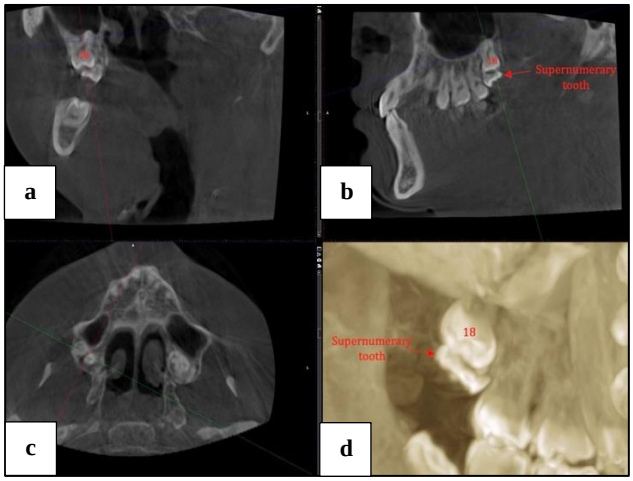

Figure 2 (a-d): Coronal, sagittal, and axial sections, with a 3-D volume rendering, show the position of impacted tooth #18.

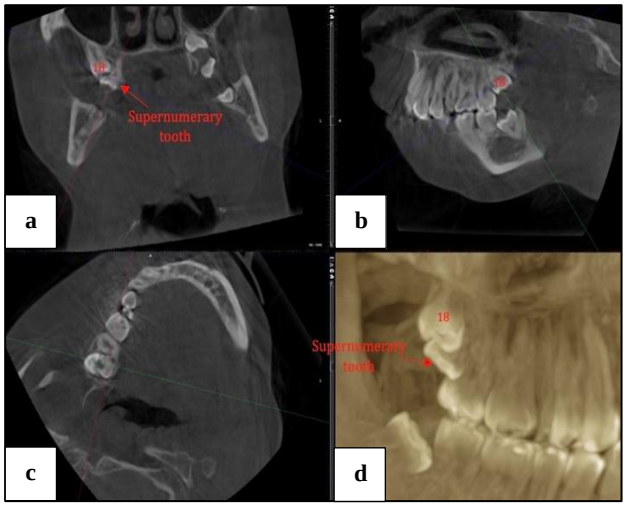

Figure 3 (a-d): Coronal, sagittal, and axial sections, with a 3-D volume rendering, show the position of the impacted supernumerary tooth coronal to #18.

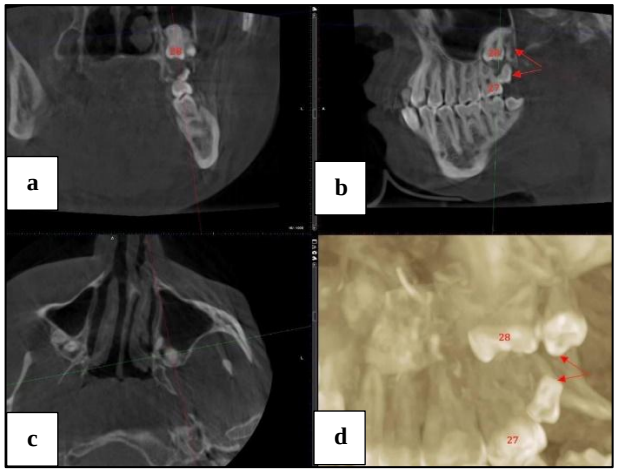

Figure 4 (a-d): Coronal, sagittal, and axial sections, with a 3-D volume rendering, show the position of impacted tooth #28.

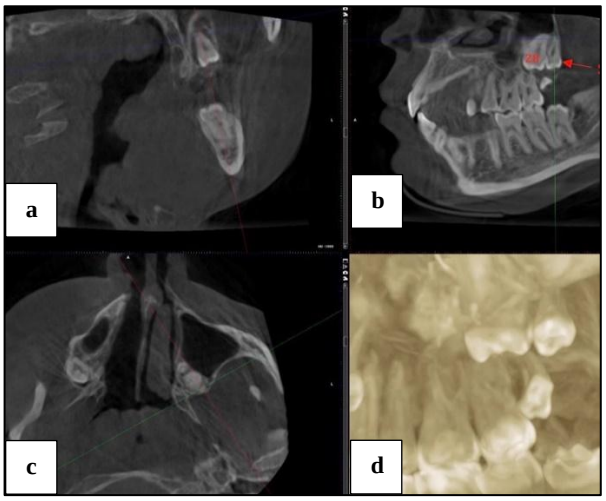

Figure 5 (a-d): Coronal, sagittal, and axial sections, with a 3-D volume rendering, show the position of the supernumerary tooth distal to impacted tooth #28.

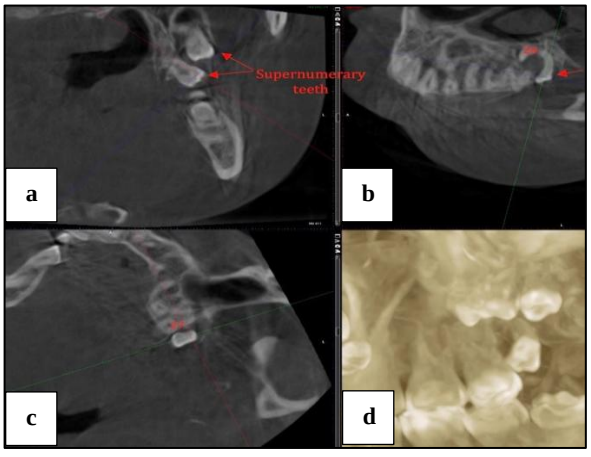

Figure 6 (a-d): Coronal, sagittal, and axial sections, with a 3-D volume rendering, show the position of supernumerary tooth coronal to impacted tooth #28.

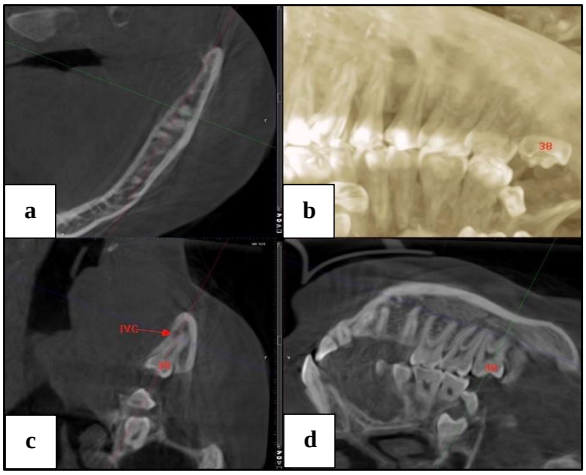

Figure 7 (a-d): Coronal, sagittal, and axial sections, with a 3-D volume rendering, show the position of impacted tooth #38.

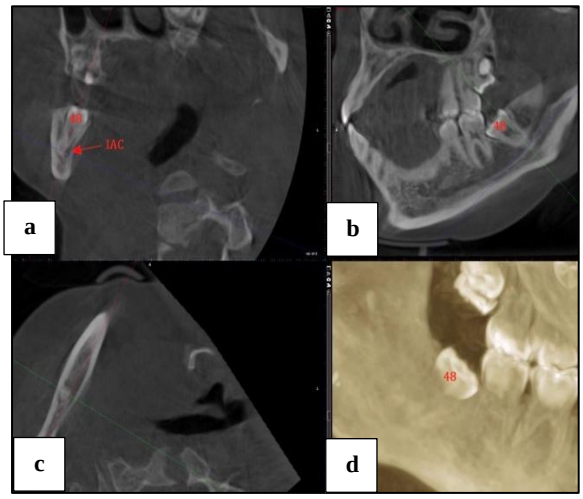

Figure 8 (a-d): Coronal, sagittal, and axial sections, with a 3-D volume rendering, show the position of impacted tooth #48.

Figure 9: Demonstration of all extracted teeth.

Figure 10: Demonstration of post-operative panoramic radiograph.

DISCUSSION

Teeth that do not erupt into the dental arch within the expected range of time are known as impacted teeth. Teeth usually become impacted either due to their abnormal position during development, or due to inadequate space in the dental arch, or a combination of both. The third molars are the last tooth in the permanent dentition to develop and then erupt. Subsequently, they are the most commonly impacted teeth as frequently there is inadequate space for them in the dental arch.[10]

Impacted third molars, if not removed, can cause a multitude of issues, including pain and discomfort, damage to adjacent teeth, crowding of the dental arch, and infection that may later develop into a cyst.[11] A study conducted in 2023 to assess the relationship between different skeletal facial types and third molar impaction in the maxillary and mandibular arches, evaluated 198 CBCTs where the mean age of patients was ±34.2 years. 54.5% were female. The study used Archer's (I and II), and Pell & Gregory's classification of third molar impaction. It was found that in the upper third molars, the most common impaction was type A of Archers I and vertical of Archers II. 46.5% of the lower third molars were Pell & Gregory Class I and type A. There was no statistical difference between the impaction of the left and right third molars.

Furthermore, there was no significant statistical association between facial forms (mesiocephalic, brachycephalic) and type of impaction. However, Type A Archers I impaction of the upper third molars was common in dolichocephalic facial forms. In the lower third molars, the vertical type of Archers II was commonly observed in Class II and Class III skeletal profiles. Class II skeletal profiles showed almost equal frequencies of vertical and distoangular impacted lower third molars. Impaction of the upper and lower third molars showed no significant statistical association with the length of the maxilla and mandible, respectively.[12]

Another study conducted in 2020 to evaluate the prevalence and clinical presentation of impacted third

molars in the Jazan region of Saudi Arabia evaluated 1200 radiographs, amongst which 291 patients had impacted third molars. Females showed the highest prevalence of impaction (54.5%). 41.6% had one impaction, 30.9% had 2, 14.4% had 3, and 13.1% had 4. The most common type of impaction was vertical impaction in the maxilla (50%), followed by mesioangular impaction in the mandible (48.35%). Bilateral impaction in the maxilla was seen in 8.8% of patients, and in the mandible in 7% of patients. Impaction was found to be deeper in females than males. Most cases were asymptomatic, with only 4.5% of patients presenting with pain.[13]

In 2016, a retrospective study was conducted on 1109 patients who underwent surgical removal of impacted third molars to determine if prophylactic removal in younger patients should be supported. The average age of participants was 29±10.2 years, with an almost equal male-to-female ratio. The participants were divided into 5 age groups (G1: <20, G2: 21-25, G3:26-30, G4: 31-40, G5: >41).

The chief complaint varied among the groups; G1 was prophylactic removal for other dental treatment, G2 and G3 were discomforts, whilst in G4 and G5, the major chief complaint was pain. The older the patients, the higher the number of cases that underwent removal for therapeutic rather than prophylactic reasons. In therapeutic removal, specific pathological conditions were reported, the most common of which being Pericoronitis. In G1, G2, and G3, the second most common condition was follicular space widening or dental caries. In G4 and G5, the second most common pathology was resorption of the adjacent tooth's root or infection.

The study concluded that just because a tooth is asymptomatic does not mean it is disease-free and that prophylactic removal of impacted teeth that could cause or undergo pathologic changes can improve a patient's dental health and quality of life.[14] The clinical management of impacted supernumerary teeth depends on their position and the possible complications they could cause, and it typically comes down to two options: observation or extraction. If the tooth is asymptomatic and unlikely to interfere with the treatment of adjacent teeth or cause complications, then it can generally be left alone with no interference aside from periodic monitoring. If it is likely to cause issues, then it is indicated that extraction, whether simple or surgical, is dependent on the position of the supernumerary.[15]

Whilst impacted third molars are generally asymptomatic and are frequently an incidental finding during a routine examination, if left untreated, they can cause a host of issues as listed above. Therefore, the general recommendation is to have them removed. Different types and clinical presentations of impacted third molars may be associated with different malocclusions. It is important to keep in mind that not all third molars need to be extracted, and the final decision comes down to multiple factors that need to be evaluated on an individual basis.

CONCLUSION

In this case, we present supernumerary teeth that are abnormally positioned and impacted. The patient was treated by extracting all third molars and associated impacted supernumerary teeth under general anesthesia with careful identification of near vital structures, such as the maxillary sinus. Timely identification and management of impacted teeth, including supernumerary teeth, are crucial to prevent potential complications. Surgeons should keep in mind the proximity of these teeth to vital structures, including the maxillary sinus and inferior alveolar nerve to prevent undesired injuries.

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