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CASE REPORT

Impacted Supernumerary Mandibular 'Distomolar' – A Unique Identification Tool in Forensic Crime Investigation

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ABSTRACT:

A supernumerary tooth is an odonto-stomatologic anomaly which is characterized by an excess number of teeth that are present compared to what is expected in the normal dentition. The prevalence rates of supernumerary teeth, reported in literature, vary between 0.1% to 3.8% of the general population, and are seen more commonly in the permanent dentition. Due to this rarity, supernumerary teeth can be a useful tool in forensic odontology particularly focusing on identification and sorting of individuals both clinically and radiological assessment in forensic evaluation.

Keywords: Supernumerary, distomolar, mandibular third molars, surgical extraction, impacted teeth, Forensic odontology

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INTRODUCTION

Supernumerary teeth are developed as a result of splitting of a single tooth germ, excessive activity of the dental lamina, or a genetic phenomenon that does not follow typical inheritance patterns.[1] Increased prevalence of supernumerary teeth can also be linked to individuals with birth defects, such as cleft lip and palate and cleidocranial dysplasia, or genetic disorders, such as Gardner syndrome.[2]

The prevalence of supernumerary teeth is reported between 0.1% and 3.8% of the general population with most identified in the permanent dentition. [1,4] Supernumerary teeth are present in the maxilla more commonly than the mandible at a ratio of 8.2:1.3-5 The supernumerary tooth found in the central incisor region of the maxilla, also called mesiodens, has the highest occurrence rate at around 51.2%. The mandibular premolar region is the second most common site with an occurrence rate of 22.6%. The third most common site is the distomolar region in the maxilla with a rate of 9.1%.[6] The supernumerary fourth molar incidence rate is close to 2%. Fourth molars, or distomolars, occur most frequently in the maxillary region with a rate of 93%.[7] Among unerupted supernumerary teeth, the incidence of fourth molars is 0.12%, with 0.03% in the lower jaw and 0.09% in the upper jaw.[7] A distomolar is a supernumerary tooth and fourth molar that is located immediately distal to the third molars. They have been found to occur equally in the left and right regions of both arches. Among supernumerary teeth that remain impacted, the premolar and the lowest incidence with distomolar.[8]

Documentation of super numerary in the electronic dental records can play a crucial role in any forensic investigation and will be an unique identifier in casualty.

UNIQUE CLINICAL PRESENTATION

A 34-year-old African American male presented for a limited dental exam to Oral & Maxillofacial Surgery (OMFS) Specialty Care Unit (SCU). Patient reported pain on his left mandibular third molar closer to the retromolar pad. Upon clinical examination, tooth #17 (fully erupted lower left third molar) presented with a large carious lesion bearing a temporary restoration. A periapical and panoramic imaging of #17 revealed an unusual dental anatomical variation. A supernumerary impacted third molar in the shape of a premolar just distal to #17. The clinical and radiographic evidence showed presence of first and second mandibular premolars in the right and left quadrants. This classifies the supernumerary tooth as a distomolar, an additional molar located behind the normally located third molar. A periapical radiolucency was also detected on #17, that approximated the root structure of the supernumerary tooth. The panoramic radiograph revealed a partially dentulous dentition, confirmed the presence of a periapical radiolucency associated with #17, and demonstrated no evidence of additional supernumerary teeth in other quadrants or congenitally missing permanent teeth. The supernumerary tooth was classified as number 67 in compliance with the American Dental Association's Universal Tooth Numbering System.[9] The angulation of the impacted fourth molar was recorded based on Winter's classification and determined to have characteristics of disto-angular impaction.[10]

The OMFS faculty member recommended that #17 be extracted due to the fractured crown, severe caries, and diagnosis of irreversible pulpitis with apical periodontitis. Extraction of #67 was concurrently recommended due to the close proximity between the location and positioning to #17 and possible future risk of passive eruption.

The patient's health history was reviewed. No significant medical conditions were noted. An informed oral surgery consent form was obtained. The patient was administered a left inferior alveolar nerve block and long buccal nerve block using 4% Articaine HCL with 1:200,000 Epinephrine (Septocaine®, Novocol Pharmaceutical of Canada, Inc.). A periosteal elevator was used to relieve the mucogingival tissues surrounding #17. Concurrently, a distal crestal incision was made using scalpel # 15 to expose the distal alveolar bone covering impacted #67. A series of elevators were then used to luxate the #17 and was extracted with mandibular molar extraction forceps. Following the extraction of #17, the crown of #67 was identified

distally impacted in the alveolar bone. Straight surgical drill (Bien Air, ChiroPro L, 1:2) was utilized to carefully expose the bone covering the impacted distomolar # 67. Following the removal of the bone, #67 was luxated and extracted with forceps. After extraction, the supernumerary tooth was evaluated due to its rarity and unique presentation. Upon examination, #67 was found to have a premolar like appearance coronally and occlusally with a fully formed root. The remnant follicular tissue was meticulously curetted. The surgical site was irrigated with normal saline irrigation and a hemostatic agent was placed to achieve hemostasis. The flap was approximated with two interrupted sutures using 3-0 chromic gut.

DISCUSSION

In this case report, a very rare and unique finding of an impacted, asymptomatic, unilateral, left mandibular distomolar was presented and surgical implication discussed. The presence of supernumerary teeth is relatively rare and found in only 0.1% to 3.8% of the population.14 The presence of a distomolar is further rare. In a case series study, the presence of a distomolar was found to be between 0.03% and 2.1% with the majority of cited studies reporting distomolar prevalence far below 1%.11 The case series cited that distomolars are generally found in one of three different forms: 1) a premolar shape with one root, 2) a premolar shape with only a crown and no root, or 3) a rudimentary conical shape.11 In all the cited studies, the majority of distomolars were identified in the maxilla, making a mandibular distomolar, a rare and unique finding.

Comprehensive evaluation of the panoramic radiograph is critical in the diagnosis of impacted supernumerary teeth. Due to the relative non-invasive nature of panoramic radiographs and ability to cover most the maxillofacial region, they serve as a reliable method to screen patients for such pathology.16 Each supernumerary tooth provides a unique descriptive point of position, relation and orientation to help in forensic identification of individuals. Due to the vast area in the maxillofacial region where a tooth can erupt, a patient can present with symptoms related to resorption of roots, loss of vitality of adjacent teeth, dilaceration of roots, pericoronitis and possibility of a periodontal abscesses. A patient seeking examination concerning these possible causes would then allow a patient record to be created. Once a radiograph is taken for the patient, it will be documented as part of the patient's dental record, thus serving as an information tool in case of forensic odontology identification needs that may arise in the future. Gupta et al have shown that the sensitivity of panoramic imaging provides 88.5% sensitivity in detecting supernumerary teeth and 94.2% specificity of patients not having supernumerary dental structure in a panaromic image[17]. Another study by Multani et al revealed that a high positive correlation exists between personal identification and supernumerary teeth presence. This feature can be utilized as a tooth in crime investigation using dental records[18].

CONCLUSION

The prevalence rates of supernumerary teeth, reported in literature, vary between 0.1% to 3.8% in the general population, and are seen more commonly in the permanent dentition. An impacted morphologically altered supernumerary tooth, resembling a premolar is an uncommon anatomical variation in the mandible. Dental records and the use of panoramic imaging can be useful in forensic crime investigation and criminal identification due to the rarity of impacted supernumerary teeth and the specific position, relation and orientation that each tooth may present that is unique to each individual.

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Conflicts of interest - There are no conflicts of interest

REFERENCES

1. Wang XP, Fan J. Molecular genetics of supernumerary tooth formation. Genesis. 2011; 49(4), 261–277. doi:10.1002/dvg.20715

2. Garvey MT, Barry HJ, Blake, M. Supernumerary Teeth -An Overview of Classification, Diagnosis and Management. J Canadian Dent Assoc. 1999; 65(11). https://www.cda-adc.ca/jcda/vol-65/issue-11/612.html

3. Luten JR. The prevalence of supernumerary teeth in primary and mixed dentitions, J. Dent. Child. 1967; 34, 346-53.

4. Stafne EC. Supernumerary teeth, Dent. Cosmos. 1935; 74, 653-659.

5. Timocin N, Yalcin S, Ozgen M, Tanyeri H. Supernumerary Molars and Paramolars. J Nihon Univ School of Dent. 1994; 36(2), 145–150. doi: 10.2334/josnusd1959.36.145

6. Mcbeain M, Miloro M. Characteristics of Supernumerary Teeth in Nonsyndromic Population in an Urban Dental School Setting. J Oral Maxillofacial Surg. 2018; 76(5), 933–938. doi: 10.1016/j.joms.2017.10.013

7. Grover PS, Lorton L. The incidence of unerupted permanent teeth and related clinical cases. Oral Surg Oral Med Oral Pathol. 1985; 59, 420-425.

8. Gurler G, Delilbasi C, Delilbasi E. Investigation of impacted supernumerary teeth: a cone beam computed tomograph (cbct) study. J Istanbul Univ Faculty of Dent. 2017; 51(3), 18–24. doi:10.17096/jiufd.20098

9. American Dental Association. (2012). ADA Dental Claim Form Completion Instructions. http://www.ada.org/~/media/ADA/Member%20Center/FIles/ada_dental_claim_form_completion_instructions_2012.ashx

10. Yilmaz S, Adisen M Z, Misirlioglu M, Yorubulut S. Assessment of Third Molar Impaction Pattern and Associated Clinical Symptoms in a Central Anatolian Turkish Population. Medical principles and practice : Int J Kuwait Univ Health Science Centre. 2016; 25(2), 169–175. doi:10.1159/000442416

11 .Arandi NZ. Distomolar. An overview and 3 case reports. Dent Oral Craniofacial Res. 2017; 4(1). doi: 10.15761/docr.1000236

12. Parolia A, Kundabala M, Dahal M, Mohan M, Thomas MS: Management of supernumerary teeth. J Conserv Dent. 2011; 14(3), 221–224. doi:10.4103/0972-0707.85791

13. Reddy GS, Reddy GV, Krishna IV, Regonda SK. Nonsyndromic bilateral multiple impacted supernumerary mandibular third molars: a rare and unusual
case report. Case Rep Dent. 2013; 857147. doi:10.1155/2013/857147

14. Parolia A, Kundabala M. Bilateral maxillary paramolars and endodontic therapy: a rare case report. J Dent (Tehran) 2010;7 (2):107-11. Brook AH. Dental anomalies

15. Subasioglu, A., Savas, S., Kucukyilmaz, E., Kesim, S., Yagci, A., & Dundar, M. (2015). Genetic background of supernumerary teeth. European journal of dentistry, 9(1), 153–158. https://doi.org/10.4103/1305-7456.149670

16. Anthonappa RP, King NM, Rabie AB, Mallineni SK. Reliability of panoramic radiographs for identifying supernumerary teeth in children, Int J Pediatric Dent 2012; 22: 37-43.

17. Baskarraj M, Gupta YM, Kumari RR, Samuel AV, Kannan SS, Mahesh R. Forensic odontology: Supernumerary teeth, their importance, and a radiographic study in identifying supernumerary teeth. International Journal of Forensic Odontology. 2016 Jul 1;1(2):39.

18. Multani RK, Sangeri KK, Ramalakshmi M, Pavithra S, Rajesh M, Singh LG. Supernumerary teeth: an investigating tool in forensic crime investigation. Journal of International Oral Health: JIOH. 2015 May;7(5):56.

Photographs

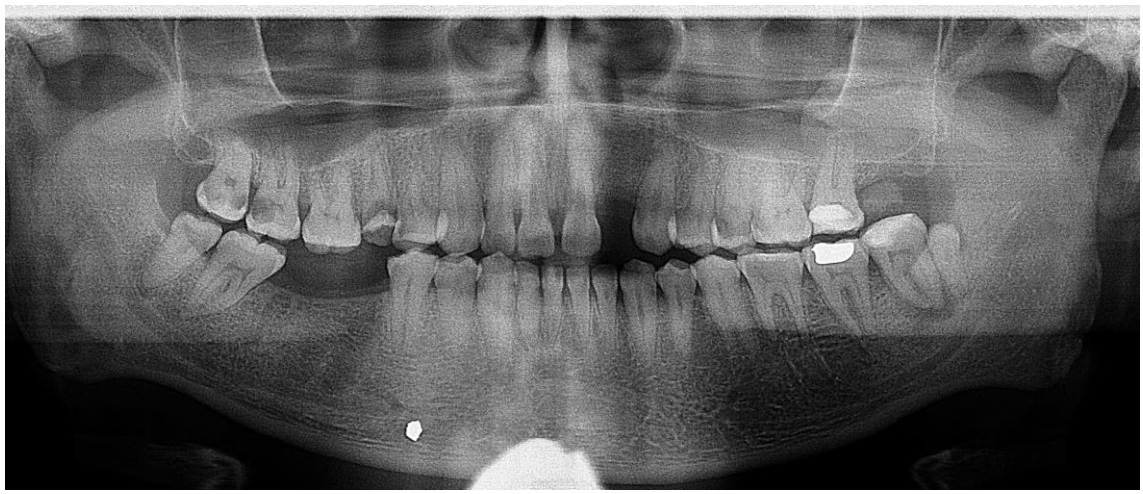

Fig 1. Panoramic radiograph showing impacted supernumerary 'distomolar' adjacent to mandibular left third molar with periapical pathology

Fig 2. Periapical PA showing close proximation of distomolar at the cemento-enamel junction

Fig 3. Successful surgical removal of teeth of impacted supernumerary 'distomolar' shaped to a mandibular premolar

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