

Impacted Third and Fourth Molars: A Case Series

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ABSTRACT

We present short literature review, summary of patients' clinical presentations and radiological images of a case series of impacted mandibular fourth molars. Supernumerary impacted mandibular molars are a rare dentofacial anomaly, which are usually accidental clinical findings when asymptomatic. These may result from the dichotomy of tooth-bud or extra tooth-bud formation during dentition evolution. Keywords: Supernumerary, non-syndromic, mandible, third molar, fourth molar.

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INTRODUCTION

Supernumerary teeth are extra teeth to a normal dentition complement¹⁻³. They may occur both in permanent or deciduous dental series and in any segment of the dental arch, but mainly in the anterior maxillary dentoalveolar segment^{2,3}. The prevalence of supernumerary teeth is high in permanent dentition, about 0.3- 3.8% and male: female ratio is 2:1⁴. The occurrence of supernumerary teeth is ten times more in the maxilla than the mandible⁵. It is estimated that 90-98% of supernumerary teeth occur in the maxilla⁴. Supernumerary teeth occur in the following descending order of frequency: maxillary midline supernumeraries, maxillary fourth molars, maxillary paramolars, mandibular premolars maxillary lateral incisors, mandibular fourth molars and maxillary premolars⁵. Supernumerary teeth may be single or

multiple; unilateral or bilateral. Multiple supernumerary teeth are frequently associated with disease or syndrome like Gardner's syndrome, Cleidocranial dysostosis, cleft lip and palate; and Ehlers-Danlos syndrome or in association with metabolic disease; but may also occur in healthy person^{2,3,7-8}. However, the occurrence of multiple supernumerary teeth in individual without associated metabolic disease or syndrome is rare^{2,5}.

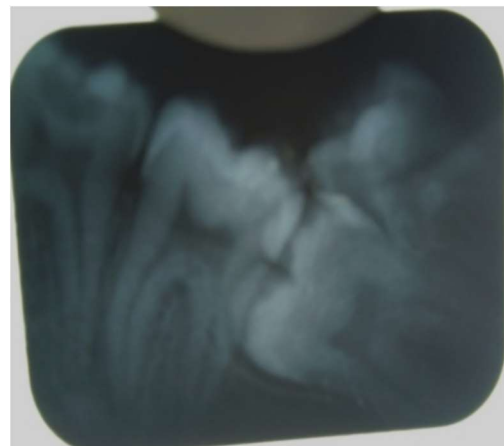
The development of supernumerary is explained by etiologic theories such as the **Aberration** theory which affirms that supernumerary teeth develop when tooth bud splits to create two teeth. Other suggested theories include the following **Atavism or reversion, Heredity, Progress zone** and **Unified etiologic** theories²⁻⁷. Supernumerary teeth associated with third molars may be classified on basis of Location; number or morphology^{5,7,8}.

Positional variation may be distomolar or paramolar. Morphological variations include the followings: conical, tuberculate, odontomes or supplemental. Supplemental closely resembles a normal tooth in the dental arch⁸. Supernumerary teeth may be single or multiple^{5,7}. The

occurrence of mandibular supernumerary molars is rare and the presence of fourth molar is commoner in black than in white population⁶. We present five cases of supernumerary impacted fourth and third molars, tabulated below:



Case 1



Case 2

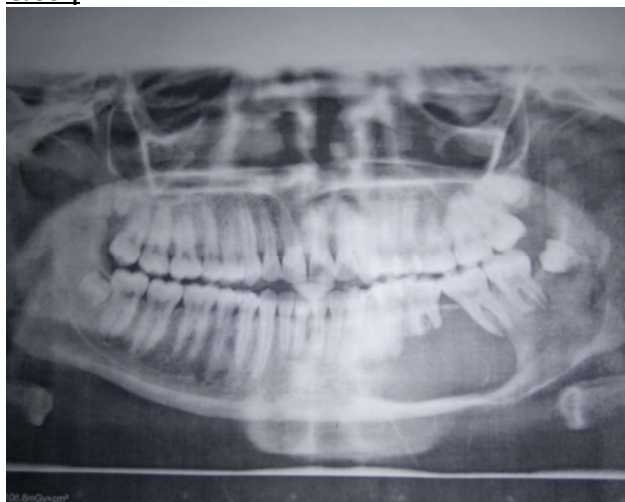
CASE	AGE (years)	HISTORY	CLINICAL FINDINGS	RADIOLOGIC FINDINGS	SURGICAL TREATMENT	MEDICATION	OUTCOME	COMPLICATION
1	50	2-week history left mandibular severe toothache	A submerged left mandibular third molar with partially erupted crown and inflamed pericoronal flap.	A mesioangularly impacted distomolar and horizontally impacted third molar on the left mandible.	Surgical disimpaction of both distomolar and third molar under L.A	Amoxil ; flagyl ; t.d.s; Naproxen sodium ; Prednisolone 40mg(stat); Neurobion .	Satisfactory	Inferior Alveolar nerve paraesthesia for 3/12 ; with gradual recovery
2	26	A-week history of painful last gum on both sides of the mandible	Bilaterally erythematous and swollen opeculum around the retromolar area.	Bilateral Mesioangularly impacted supplemental molar and horizontally impacted third molar.	Surgical disimpaction of the both impacted teeth under L.A	Amoxil 500mg; flagyl 400mg; t.d.s; Naproxen sodium 550mg b.d x 5/7	Satisfactory	None
3	34	A-week history of toothache on the right mandible	A carious partially submerged right mandibular third molar	Mesioangularly impacted mandibular third molar with tuberculate tooth mesioapically displaced.	Surgical disimpaction of the both the mandibular and the tuberculate	Amoxil 500mg; metronidazole 400mg tds x5/7 Naproxen sodium 550mg bdx4/7; Prednisolone 40mg stat	Satisfactory	None
4	35	2-week history of upper anterior dentoalveolar swelling.	Swollen and hyperaemic upper anterior mucolabial fold and missing upper left central incisor.	Multiple odontomes and impacted upper left central incisor; bilateral impacted distomolars and third molars.	Surgical excision of the odontomes and upper central incisor.	Augmentin 625mg bdx5/7; Ketovail 200mg dailyx4/7	Satisfactory. Extraction was not done	None
5	28	A six-month history of slow growing, painless left mandibular swelling	A non-tender buccolingual swelling of left mandibular with ping-pong consistency on palpation and loosed associated teeth.	Unilocular mandibular radiolucency with root resorption of the associated premolars and first molar.	Segmental resection of the left mandible with reconstruction plate.	IV Augmentin; metronidazole; Dexamethazone Paracetamol and diclofenac.	Satisfactory recovery	None



Case 3



Case 4



Case 5

DISCUSSION

The occurrence of non-syndromic impacted supernumerary mandibular molars is a rare clinical

phenomenon and only few have been reported in the literature^{4,6,8}. To the best of our knowledge this is first reported cases in literature in Nigerian population. The development of human dentition commences from the sixth to fourteenth week of embryonic life when there is invagination of the ectomesoderm into the oral epithelium⁹⁻¹⁰. It is characterized by five stages which are as follows: the initiation stage (**Bud stage**); the proliferation stage (**Cap**); histodifferentiation stage (**Bell stage**); the **appositional stage** and **calcification stage**. In these present cases, these supernumerary teeth could have occurred from either division of the tooth bud in the Initiation stage or excessive proliferation of the dental lamina in the Cap stage during the tooth development in utero as stated above. This, however, is consistent with the observation of Christopher et al⁸. It is noteworthy that in the case1, case3, case4 and case5 the division of the tooth bud during odontogenesis would have been of unequal size, giving rise to a smaller tooth buds growing into the conical and tuberculate supernumerary teeth; and bigger tooth bud growing to be the substantive third molar. This is contrary to the observation in case2, where it could be deduced that developing tooth bud might have divided into two equal sizes; comparing the sizes of the supplemental fourth and the substantive third molars. Orthopantomogram is the choice radiographic view, as seen in case4 and case5 but where patients are resource-limited as seen in case1, case2 and case3; periapical radiographs were utilized and it still rendered effective radiographic diagnosis for the treatment for these patients only that it may not show other developing anomaly in other part of the jaws as seen in the panoramic radiograph. Supernumerary teeth pose varying degree of dental complications ranging from impaction, teeth displacement, delayed eruption; adjacent teeth root resorption, cyst formation, separation, compromise space closure, abnormal eruption sequence, neuralgia, dental caries etc^{1,2,5,6,11}. In case1, case2 and the left side of case4, the presence of these supernumerary teeth might have led to the horizontal and mesioangular impaction of the substantive third molar teeth, which may be due to pressure exerted by mesial drift of the developing supernumerary tooth buds on the growing normal third molars in these cases. This is consistent with observations by several other authors^{2,5,6,8}. However, in case3 the substantive third molar exerted much pressure on tuberculate supernumerary leading to its complete mesio-inferior displacement just superior to inferior alveolar canal and apical to the roots of both the second and third molars. Another reason that could be responsible for the impaction of the substantive third molar is angle of placement of the developing tooth-buds in the mandible. This is demonstrated in case4 and case5 where the

supernumerary tooth grew at right angle towards the occusal plane, though into ascending ramus; on the left and right sides on the mandible respectively, and the substantive third molar growing into occlusion. The contrariwise was observed on the right and left sides in case₄ and case₅ respectively where the developing tooth buds were placed at an acute angle making the substantive third molar to succumb to mesial pressure of the growing fourth molar, pushing the third molar into mesioangular impaction in case 4. In case₅, however, the developing tooth bud of the supernumerary is growing mesioangularly very well apart from the substantive third molar in the mandible and distoangularly bilateral in the maxillae. Treatment option to be instituted for impacted fourth and third molars depends on the timing and case presentation¹¹. Treatment options may include maintaining the impacted tooth in-situ; extraction if followed by pathological changes; or institute an orthodontic treatment⁷. In these present cases with the exception of case₄ and case₅, surgical extraction was the treatment instituted because these patients were already symptomatic of acute pericoronitis, therefore, these teeth were extracted. In case₅, the patient was prepared for segmental mandibulectomy with immediate reconstruction with titanium plate. Extraction with Orthodontic treatment could have been considered if the supernumerary teeth had been detected in the early years of these patients.

CONCLUSION

The occurrence of mandibular fourth molar is a rare dental phenomenon that is often an accidental clinical finding during routine dental radiological examination; and treatment option is based on case presentation.

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