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Extraoral Extraction of Ectopic Left Mandibular Ramus Impacted Cystic Third Molar

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Abstract: *Extra-oral disimpaction of ectopically placed third molar is an exceptional surgical procedure. Though ectopic impacted third molar more often is an accidental clinical finding when asymptomatic but may present as an idiopathic facial pain. This patient presented with left ectopically placed third molar in the mandibular ascending ramus and right distoangularly impacted third molar both associated with a dentigerous cysts. The positions of the impacted teeth were the determining factor in choice the surgical approach employed to extract the impacted teeth.*

Key words*: Ectopic, impaction, mandibular third molar, ascending ramus, dentigerous cyst.*

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I. Introduction:

Ectopic teeth are often impact in odd positions or away from their normal anatomic position. They may be deciduous, supernumerary or permanent. Eruption of a tooth ectopically into dental structures does occur, but its eruption into other site is rare. Ectopic sites include mandibular condyle and ascending ramus, coronoid process, palate, maxillary antrum, nasal cavity, orbit or via the skin[1,2]. Most cases of ectopic mandibular third molars are discovered by serendipity during routine clinical and radiologic investigation, and are usually asymptomatic[2]. The prevalence of ectopic tooth is 1% in the general population[3], and patient morbidity increases with concomitant cystic lesion[3]. The aetiology of ectopic eruption is not clear but adducible reasons include abnormal displacement of tooth bud in embryonic life due to long eruption pathway; obstruction of the eruption path which may be due to supernumerary teeth, odontomas, scar tissue, odontogenic tumours or cysts. Others are defects in the follicle or periodontal ligament due to trauma, surgery, congenital disease or other cases[2,4-5].

Intraoral disimpaction of impacted mandibular third molar is a frequent routine outpatient dental surgery[6-7]. However, there are cases where ectopic third molars are placed in deeper tissues like ascending ramus, condyle, coronoid process or inferomedial to the inferior dental nerve; extraoral approach becomes indicated to prevent restriction of surgical field[6]. Extraoral disimpaction of an ectopically displaced mandibular third molar is a peculiar surgical intervention which may results in complications like neurovascular injuries, mandibular and joint damage and extraoral scar[6,8]. Some indications for extraoral surgical approach of ectopic mandibular third molar extraction include deeply displaced impacted mandibular third molar with dilacerated and hypercementosed roots; when there is severe trismus and the lower third molar is to be extracted; and where access and visibility is very poor. Others include where concomitant pathologies like cysts and tumours are associated with the impacted tooth and excessive bone removal is anticipated[3,8-10].

We hereby present a rare case of left mandibular ramus impacted third molar and simultaneous distoangular impaction of right third molar; both with concomitant cystic lesion .

II. Case Report

A 31-year old man was referred to our maxillofacial clinic of General hospital Lagos Island with bilateral mandibular pain which occasionally is sharp, but there was no associated swelling. Patient complained that he had deeply buried teeth in his lower jaw bone, and wanted these teeth removed. There was nothing contributory in his past medical and social history, except for the initial visit he had to a general practice dentist.

Clinical examination revealed healthy looking young man with neither facial asymmetry nor palpable submandibular lymph nodes. Intraoral examination revealed healthy oral mucosa and missing left mandibular third molar and slightly visible crown of the right mandibular third molar. An orthopanthomogram revealed a distoangularly imparted mandibular right third molar and ectopically placed left third molar in the mandibular ascending ramus with cystic sac. A diagnosis of ectopically placed left mandibular third molar in the mandibular ascending ramus and distoangular impaction of right mandibular third was made.

Extraoral extraction of the ectopic third molar with enucleation of the cystic lesion under general anaesthesia was planned as this allow for adequate access to surgical site and minimize damage to vital structure. After induction of the patient a submandibular incision was made and with careful dissection, the facial artery ligated and sectioned until the ramus was exposed. Peripheral osteotomy was done over the bony bulge created by the ectopic third molar midway on the mandibular ramus. Cystic enucleation and extraction of the ectopic tooth was done. A thorough irrigation with normal saline was carried out and a synthetic bone substitute was placed to fill the residual bony cavity. Meticulous suturing was done to close the wound. Patient was nursed to full recovery and discharged to go home after 7 days. The right impacted mandibular third molar was extracted two months later after patient's full recovery; using routine outpatient intra-oral surgical approach with complete enucleation of the associated cyst. Both specimens were sent for histopathologic evaluation, and a diagnosis of dentigerous cyst associated with both teeth was made.

III. Discussion:

Extra-oral extraction of ectopic third molar in mandibular ramus with concomitant enucleation of associated dentigerous cyst is an atypical oral surgery procedure.

This present case is agreeable with the theories postulated by Thoma[11] and Stafne[12] that the pressure of cystic sac around the tooth crown might be responsible for the displacement of the tooth germ during the sixth week of embryonic development; which further confirms the reviews by Iglesias-Martin et al[13] and Apaydin et al[14] and was also reported by Joy et al[15], that dentigerous cyst is culpable in the pathogenesis of this heterotropic position. Hanisch et al[6] further reported a radiolucent 'path' created on the radiographic panoramic image of the mandible suggesting the path of displacement of the ectopic tooth by the cystic sac, this, however, not consistent with this present case.

To the best of our knowledge, this is first case of ectopic tooth in the mandibular ascending ramus ever to be reported in the literature in Nigeria population. The extraction and enucleation of this ectopic cystic impacted third molar exposed the inferior alveolar neurovascular bundle as it descends into the inferior alveolar canal at the lingula, though this was promptly identified and avoided during the procedure. Three-dimensional computerized axial tomogram[6] would have been the ideal imaging technique rather than two-dimensional panoramic radiograph that was employed in investigating this case. The former would have adequately prepared the surgeon for any eventuality due to the close proximity of the impacted cystic third molar with vital structures, but cost is of essence in a resource scarce environment as we are.

This ectopic impacted cystic mandibular third molar was extracted using extraoral approach in that it presented a good surgical field and lessens collateral damage to vital structures[10]. This left the patient with an extra-oral scar[6,10,14], a disadvantage of this approach. The offending tooth was delivered, the dentigerous cyst enucleated and bony cavity filled with synthetic bone substitute to close the bony defect and reinforce the ramus. Preauricular surgical incision is another method of extra-oral incision that could have been employed, but the possibility of damage to integrity of the facial nerve is imminent with this incision[7,14].

In this present case, it was intended that the entire impacted third molar extracted simultaneous under general anaesthesia, but the patient took an informed decision preferring[16–17] to have the heterotopically placed third molar extracted under general anaesthesia and the other impacted third molar by intra oral approach under local anaesthesia one after another as he deemed fit.

Other methods for extraction of ectopic mandibular third molar include trans-oral/intra-oral and endoscopic approaches[6–5,7]. Trans-oral/ intra-oral method is the conventional and most common method of mandibular third molar disimpaction. This can be by buccal, lingual approach or sagittal split osteotomy procedure[7]. This presents with good aesthetics without extra-oral tissue scarring. It is noteworthy that this method was engaged to extract the right distoangularly impacted third molar, thus saving the patient the agony of both the cost of general anaesthesia and length of time the patient will have to be excused from duty. The shortcoming of the buccal or lingual method include the following: deeply impacted mandibular third molar; increased risk of damage to inferior alveolar neurovascular bundle and adjacent teeth; mandibular fracture and restriction of the surgical field[7]. Sagittal split was introduced to reduce the amount of alveolar bone removal, allow direct visualization and good exposure of the surgical site, but also there has been reported incidence of inferior alveolar nerve damage and the occlusion [7,10]. These were not used to extract the ectopic tooth because of the earlier mentioned indications for extra-oral approach. Endoscope assisted third molar disimpaction using fibre optic assisted surgical technique, is more conservative and gives access to surgical site which may be difficult to reach by trans-oral / intra-oral approach. This gives good

illumination and magnification of the surgical site, minimises scar formation and diminishes the risk of adjourning nerve damage[7]. However, this is expensive and requires great expertise[2]. The lack of this high-technological equipment limits its use in our centre.

IV. Conclusion

The method of surgical procedure applied in disimpacting impacted mandibular third molar is dependent on case presentation, the expertise of the operator and the tools available. Extra-oral extraction of ectopic impacted mandibular third molar provides the operator with good surgical field.

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Figure 1: Ectopically impacted left third molar in the ascending ramus of the mandible and the distoangularly impacted right mandibular third molar teeth.

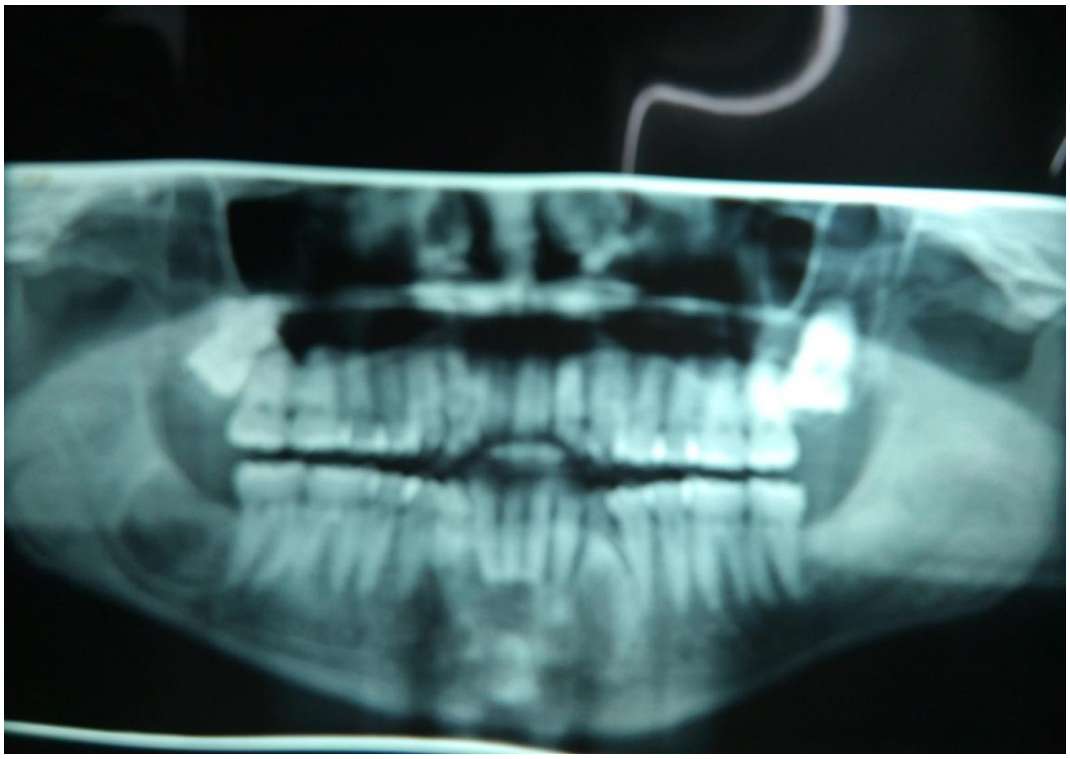

Figure 2: Note the completely restored left ascending ramus of the mandible and the healing socket of the intra-orally disimpacted right third molar tooth. Three months after removal of the impacted third molars.

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