Case Report

Inverted and impacted mandibular third molar: A rare case report

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ABSTRACT

A tooth is considered to be impacted when it fails to erupt fully or emerge partially. Impaction is most common with wisdom teeth because they are the last tooth to erupt in the oral cavity. An impacted tooth is embedded within soft tissue or bone for various reasons. Tooth may also become twisted, tilted, or displaced as they try to emerge in closed space resulting in impaction. A tooth is said to be inversed when it is placed reversed and seated upside down. In the mandible, ascending ramus is the most common site for third molars. Inversion of the impacted tooth is a rare condition. In this literature, a very rare case of inverted and impacted mandibular third molar has been reported in a 28-year-old female patient with swelling and pus discharge, considering the associated symptoms, surgical removal was performed.

Key words: Cone-beam computed tomography, Impaction, Inverted tooth, Orthopantomograph

The tooth is said to be impacted when its path of eruption into the occlusal plane is obstructed by the presence of another tooth, bone, or soft tissue. The word impaction is derived from the Latin word "Impactus" meaning cessation of eruption [1]. Mandibular third molars are the most frequently impacted tooth approximately 98% of all impaction [2], followed by the maxillary third molars, maxillary canines, and mandibular premolars. There is a variation in the frequency of third molar impaction among different populations and was reported to range from 18% to 70% [3]. American Dental Association (ADA) and the American Association of Oral and Maxillofacial Surgeons classify the impacted tooth as ADA codes [4]. Despite the fact that maxillary and mandibular molars are the most often affected teeth, there have been only a few documented instances of an inverted impaction of teeth [5]. Inversion is a malposition of a tooth where it has reversed in the upside-down position [6]. In the maxilla, the impacted teeth may be displaced as far as the floor of the orbit whereas in the mandible, the most common location of the inverted 3rd molar is in the ascending ramus [4].

This case report describes the uncommon case of inverted and impacted unilateral mandibular third molar.

CASE REPORT

A 28-year-old female patient was reported to the department of oral and maxillofacial surgery, with complaints of pus discharge, foul taste in the oral cavity, and swelling in the lower left back tooth region for 3 days and also complaints of pain for the last week. The pain was dull and intermittent in nature and the severity increased gradually, aggravated while having food, and radiated to the ear region. Swelling also increased at the same time inside the oral cavity.

On examination, pus discharge was seen from the lower left third molar region, the swelling was seen in the vestibular region, and the superficial mucosa was erythematous (Fig. 1). On palpation, the swelling was soft and tender. Medical history was non-contributory.

On radiographic evaluation, an inverted impacted mandibular third molar (38) was detected (Fig. 2).

Considering the signs and symptoms, surgical removal of the inverted impacted tooth was planned. All the possible complications were explained and written consent was obtained. The removal of the tooth was done under local anesthesia using 2% lidocaine hydrochloride (1:200000 Adrenaline). Inferior alveolar nerve block, lingual nerve block, and buccal nerve block were administered. Modified ward's incision was given. Buccal guttering was done using 703 burs. More amount of bone was sacrificed (Fig. 3). Root splitting was done and the crown was removed. Suturing was done using a 3–0 silk suture. During the procedure, the lingual cortical bone seemed to be resorbed and the patient was informed about the chances of lingual nerve paresthesia. Suture removal was done after 1 week and healing was satisfactory and no other post-operative complications were reported.

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Figure 1: Pus discharge and swelling over the third molar region

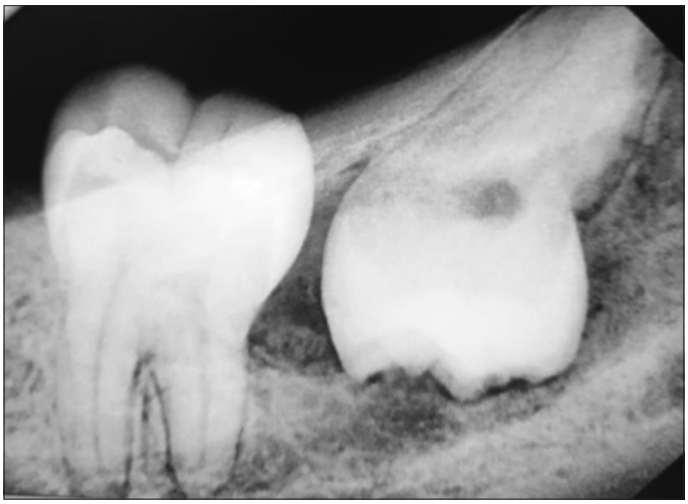

Figure 2: The radiographic image of the inverted impacted mandibular third molar

Figure 3: The surgical removal of the impacted mandibular third molar

DISCUSSION

Third molar impaction is the most commonly reported impaction among all impacted teeth. An impacted tooth is one, which fails its normal path of eruption in the dental arch due to obstruction in the eruptive pathway or lack of space in the arch [7]. There is an increased incidence of unerupted third molars may cause many complications, for better patient management, assessment of third molars in terms of their position, angulation, and level in relation to the arch is necessary [3].

Inversion is an aberrant position of a tooth where it has reversed in the upside-down position [5]. Inverted impacted teeth may persist within the jaws over an extended period, with non-specific manifestations. However, it may result in headache, crowding, diastema, late or ectopic eruption, expulsion of teeth into the floor of the nasal cavity, loss of adjacent teeth, and worsening of existing conditions [8]. Incisors, canines, and premolars have all been reported to have inverted impactions [9-11]. Inversion of the tooth is due to a peculiar growth of odontogenic epithelium before the formation of the tooth bud [5]. A tooth in the maxilla may be displaced anywhere between the gums and the orbital floor. However, the most typical site of the third molar in the mandible is the ramus [6]. The inverted impaction is classified as complex due to the distinctive orientation of the crown and root.

Impaction of the tooth can be caused by a number of underlying systemic conditions, including genetics, endocrinology, radiation, cleidocranial dysplasia, febrile illness, Down syndrome, and other factors such as an abnormal eruptive pathway, supernumerary teeth, malposed teeth microorganisms, retention of deciduous teeth, deficiency of arch length, odontogenic tumors, and cleft lip/palates [12]. When it comes to surgical removal of impacted teeth, radiographic imaging plays a significant role in determining the precise location and their interaction with critical anatomic structures. Moreover, this enables minimum surgical trauma [2].

Periapical radiograph plays a major role in detecting the position of these impacted teeth in relation to other anatomic structures. For proper surgical planning, the location of the impacted molar with its surrounding bone, mandibular canal, and adjacent tooth is important. Orthopantomograph (OPG) can be used whenever we want to see a large specific region. With low radiation exposure, a large coverage of oral structures can be seen using OPG. Both periapical radiograph and OPG represent a two-dimensional view of three-dimensional anatomic structures and OPG also fails to show the accurate buccolingual relationship between the tooth and the inferior alveolar canal. Cone-beam computed tomography (CBCT) can be used as a technique of choice where three-dimensional view of the mandibular third molar and its adjacent anatomical structures are required [3]. Hence, CBCT provides optimal risk assessment and adequate surgical planning.

The National Institute for Clinical Excellence (NICE) guidelines for the management of third molars discourage the routine prophylactic extraction of asymptomatic impacted third molars. According to NICE guidelines, extraction is warranted only in cases presenting with specific pathology, such as unrestorable caries, untreatable pulpal and/or peri-apical pathology, cellulitis, abscess, osteomyelitis, internal or external resorption of the tooth or adjacent teeth, recurrent episodes of pericoronitis, fracture of the tooth, disease of the follicle including cyst or tumor, teeth impending surgery, or reconstructive dentistry. Third molars that

are partially or completely impacted by soft tissue are predisposed to plaque accumulation and pericoronitis [2]. The extraction of an inverted impacted tooth becomes more complicated considering the age of the person and deeper positioning of the inverted tooth than the extraction of a normally impacted tooth. The teeth are firmly set inside the bone, necessitating substantial bone removal during the procedure. Several methods such as rotary burs, chisel mallets, lasers, and piezosurgery, may be employed to facilitate the extraction process. During the removal of impacted maxillary third molars, complications such as oroantral fistula formation or inadvertent displacement of tissue into the sinus, nasal cavity, or infratemporal fossa may arise [13].

One of the most important essential stages in removing the inverted tooth is the osteotomy procedure; however, there are a variety of possible approaches, and they may be harmful if employed by an inexperienced practitioner. Rotating cutting machines, on the other hand, are undeniably harmful since the excessive heat they produce, generally while cutting the bone, may lead to moderate osteonecrosis and slow down the healing process [14]. Before any surgical removal, the risks involved should be fully explained to the patient, and they should sign a written consent form acknowledging that they understand the potential consequences of the surgery.

CONCLUSION

Inverted and impacted maxillary or mandibular third molars are uncommon clinical conditions. The dentist should, therefore, be aware of them and should be able to assess the level of difficulty posed by each case to facilitate the planning of treatment and definitive patient management.

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