

TRANSORAL RETRIEVAL OF A DISPLACED MANDIBULAR TOOTH IN THE PARAPHARYNGEAL SPACE: A PATIENT WITH CLINICAL UNUSUAL FINDINGS

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ABSTRACT

Accidental displacement of the lower third molar is a fairly rare complication, but may cause tissue injury and considerable functional incapacitation when it occurs. We report this particular case to remind clinicians on the ways to manage this complication, highlighting the use of basic imaging and simple surgical techniques.

Key words: displaced mandibular tooth, parapharyngeal space

INTRODUCTION

Extraction of third molars is associated with a moderate incidence (1.1% - 4.6%) of intraoperative complications, more so when impacted (Ross, 1998, Ataog'lu et al., 2008, Kunkel et al., 2007, Chuang et al., 2007). However, dislodgement of lower third molar teeth into the parapharyngeal space is rarely encountered. When a third molar is displaced posteriorly into the surrounding tissue space, the surgeon should try to manipulate the tooth back into the socket with finger pressure .If unsuccessful, the surgeon can attempt to recover the tooth by placing the suction tip into the socket or the tract created during the

displacement. If both of these maneuvers are unsuccessful in recovering the tooth, localization by use of appropriate imaging and subsequent surgical methods are employed. The timing of the retrieval attempt is controversial. It is always best practice to act to prevent potential complications such as this by being vigilant at all times. When the extracted tooth goes under the mucoperiosteum, it may be possible to retrieve it out before it goes further into any of the tissue spaces. It is prudent to grasp the loosened tooth after elevating it with forceps for the final extraction from its socket.

CASE CLINICAL HISTORY

A 33 year old man presented to the maxillofacial consultation clinic at the University of Nairobi Dental Hospital, complaining of a left sided mandibular swelling for a period of one week, following a difficult extraction with loss of the tooth. The extraction had been done in a rural clinic by a dentist. The patient had not been informed of the missing tooth after extraction. The past dental and medical history was unremarkable. There

was pain and trismus. The patient had mild facial swelling. Intraoral examination revealed an extraction socket of a third molar (38). The displaced tooth was not palpable. There was no pain upon mandibular movements. There were no radiographs prior to surgery therefore an orthopantomogram (OPG) was requested.

The radiographic imaging revealed the third molar was still present superimposed

on to the ramus lying upside down. Further images that included a lateral oblique and an occipitalmental view (OMV) were taken. The patient could not afford computerized tomographic (CT) scans. The tooth was found to be displaced medial to the ramus of the mandible in the parapharyngeal space.

The patient was admitted and taken to theatre for exploration under general anaesthesia. The surgery was done intraorally. A lingual mucoperiosteal flap was raised, while protecting the lingual nerve, a tract that had been formed by

the displaced tooth was identified. It was carefully examined, and the tooth was retrieved using a dissecting forceps and artery forceps. The patient continued on antibiotics and analgesics. The pain, swelling and trismus had subsided significantly by the fourth day when the patient was discharged. The patient was followed up at the outpatient clinic. Subsequent visits revealed good progress with improvement in mouth opening.

Radiographic examination revealed a complete molar tooth lying in the region of the parapharyngeal space (Figure 1, 2).



Fig 1: OPG of the patient showing a superimposed tooth placed upside down.



Fig 2: lateral oblique view. Difficult to tell the exact position of the tooth

DISCUSSION

Few cases have been published on this topic. We report this unique case to remind clinicians on ways to prevent and manage this complication. Displacement of mandibular third molars into the fascial spaces is associated with lack of the basic principles of surgical technique such as poor anatomic knowledge, inadequate flap and decreased visibility during surgical extraction and incorrect extraction technique (Chuang et al., 2007, Yeh 2012, Aznar-Arasa et al., 2002).

It is imperative for the dental clinicians to be open to the patients when such complications occur and seek further help. If it does happen, the patient should be told and the clinician should act appropriately and promptly. In the case

reported by Grandini et al., the dentist persisted for 6 hours trying to retrieve the fragment, which resulted in severe tissue injury. Attempts at retrieval by dental clinicians with limited training may result in the tooth being pushed deeper into the tissue. We recommend that the dentist halts the procedure and refer the patient as soon as possible to an oral and maxillofacial surgeon together with all relevant information, including the radiographic films. In case it is impossible to get the care of a surgeon immediately, the area can be cleaned, sutured, and antibiotics administered, and a transfer organized at a convenient moment. Prophylactic wide spectrum antibiotics such as that cover against oral pathogenic microorganisms alongside local cleaning

are mandatory to prevent onset of deep fascial space infection. Unfortunately, in this case, the dentist neglected to remove or localize the displaced tooth and did not check the image to see where the fragment was, and such occurrences may cause infection.

Exact localization of the displaced tooth is difficult to determine clinically. To determine the localization of the displaced teeth CT scan or cone beam volumetric tomography (CBVT) provides a superior imaging of the region, gives the precise and detailed location of the dislodged tooth. CT provides excellent tissue contrast, eliminates blurring and overlapping of adjacent teeth. It is important that radiographs should be obtained immediately before surgery because the position of the tooth may change over time. CT analysis provides superior imaging of the region and therefore is strongly recommended (Selvi et al., 2011, Campbell and Costello, 2010). However the CT scan may be inappropriate in claustrophobic patients or may not be available in some centres in the developing world. In this case multiple different types of plain radiographs at right angles would be required for localization. These include occlusal, OPG, OMV, and lateral oblique radiographs. An OPG alone may not be sufficient due to superimposition of the anatomic structures located at the site of the infratemporal fossa and the parapharyngeal region. In this case the patient could not afford CT scans, and multiple plain radiographs were utilized to give the position of the tooth. Three-dimensional localization of the tooth is strongly advocated.

The management protocol is varied (Kunkel et al., 2007, Chuang et al., 2007, Selvi et al., 2011, Campbell and Costello 2010). Retrieval time of the displaced tooth is controversial. Some authors propose to deliver the tooth immediately because of the risks, whereas others suggest to wait for 3 to 4 weeks to allow

fibrosis to occur and stabilize the tooth in a firm position. Delay may allow the displaced tooth to migrate, leading to an easier surgical access later on. This, however, last option can trigger infections, foreign body reactions, or migration of the root into deeper spaces. Delay may affect the patient psychologically (Selvi 2011, Campbell and Costello 2010). Nevertheless, some studies show that when the fragments are small (5 mm), most patients remain asymptomatic, and retrieval may not be a priority (Aznar-Arasa et al., 2002).

Surgical retrieval of a tooth from the parapharyngeal space through the extra oral approach may require an extensive surgical approach and could entail serious risk of vascular or neurologic injury and may ultimately fail to deliver the tooth. However, simple and basic transoral techniques may suffice in some cases where the tooth is accessible, for instance use of external pressure to push the fragment into the oral cavity. Intraoral approach with the removal of a lingual plate or reflection of the oral mucosa and detachment of the mylohyoid muscle to gain access has also been employed (Yeh 2012, Aznar-Arasa et al., 2002, Alif et al., 2011).

The mylohyoid muscle divides the sublingual space and the submandibular space. The sublingual space is located superior to the muscle and submandibular space, inferior to the muscle but superior to the hyoid bone. There are no posterior fascial borders limiting the sublingual and submandibular space. In addition, no fascial border separates these spaces from the inferior parapharyngeal space allowing free communication (Ertas et al., 2002).

A number of sophisticated conventional techniques have been described, moreover if the tooth is displaced far posteriorly for instance the infratemporal foss. For instance the use of extraoral approach such as the hemicoronal approach, or Gillies's approach, or use of a Caldwell-Luc approach through the

maxillary sinus after removal of the whole posterior wall, and resection of the coronoid process to gain access may be required. Use of an 18-gauge spinal needle introduced at the temporal region deep to the zygomatic arch; with utility of the image-intensifying cineradiography for retrieval have also been proposed, because of the possibility of missing the tooth during surgery (Aznar-Arasa et al., 2002, Alif et al., 2011, Huang et al., 2007, Sverzut et al., 2009).

This case reminds us that the best way to prevent a displaced mandibular third molar is to evaluate the condition of the tooth carefully preoperatively, select adequate instruments and technique, and take good care during extraction. All patients with the requirement of a third molar extraction should be carefully evaluated in advance and significant risks

should be included in the informed consent discussion. Abnormal root morphology can increase the risk of displacement of tooth or fragment. Dentists attempting these extractions should follow the general rules regarding adequate access, appropriate instruments, and avoidance of excessive force, and finger guidance should be used to prevent dislocation of the tooth to the lingual side.

In conclusion there is no conventional treatment that applicable to displaced mandibular third molars and the maxillofacial surgeon can choose which treatment is most appropriate for each case. Three dimensional imaging is paramount for appropriate localization. Transoral approach offers a simple and safe approach for retrieval of accessible and well localized displaced mandibular molars in the parapharyngeal space.

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