Case Report

Iatrogenic displacement of impacted mandibular third molars or their roots into adjacent soft tissues and spaces: A report of three cases

ABSTRACT

Iatrogenic tooth displacement is a rather unusual but significant complication during extractions' procedures. The most common anatomic positions of displacement for the lower teeth include the pterygomandibular, submandibular, sublingual, and lateral pharyngeal spaces. A retrospective analysis of three cases of tooth displacement to adjacent anatomic sites is presented. These patients were treated at the Oral and Maxillofacial Surgery Department, G. Papanikolaou General Hospital of Thessaloniki, Greece. Two cases refer to displaced roots in the submandibular space, and one refers to a lower third molar displaced in the lateral pharyngeal space. Third molar displacement is a clinical complication that should be considered during mandibular third molar extraction, and proper preventive measures should be taken into consideration.

Keywords: Iatrogenic disease, third molar, tooth extraction

INTRODUCTION

One of the most common surgical procedures in oral and maxillofacial surgery is impacted lower third molar extraction. However, several complications may occur intraoperatively or postoperatively such as excessive bleeding, tooth fracture, damage of adjacent soft tissues and teeth, bone fracture, displacement of the tooth, paresthesia of lingual or inferior alveolar nerve, and dislocation of the mandible. Accidental displacement of the tooth into adjacent soft tissues is a major complication. Clinically, the patient may observe pain, swelling, trismus, difficulty in swallowing, and respiratory problems. Three cases were collected from the archives of the Oral and Maxillofacial Surgery Department (G. Papanikolaou G. H. of Thessaloniki, Greece), in which displaced lower third molars or their roots were surgically retrieved by adjacent structures under general anesthesia.

CASE REPORTS

Case 1

A 34-year-old male visited the Outpatient Clinic of Oral and Maxillofacial Surgery Department of G. Papanikolaou G. H. of Thessaloniki, Greece, with swelling and tenderness on the left submandibular area commencing 2 weeks ago. The patient had no medical history, although he mentioned a previous unsuccessful extraction effort of an impacted lower left third molar 5 years ago, by his dentist. He visited his dentist who administered amoxicillin with no significant result and then clindamycin that improved his condition. After examination of the pharyngeal space, a hard-tissue mass was palpated intraorally below the left

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medial pterygoid muscle. Orthopantomogram [Figure 1] and computed tomography [Figure 2] revealed #38 (a displaced tooth) at the left parapharyngeal space. The patient was led to the operating room where under general anesthesia, an incision was performed at the retromolar triangle, and a mucoperiosteal flap was elevated. The tooth was located and removed [Figure 3]. A postoperative orthopantomogram was performed [Figure 4]. The patient had normal postoperative healing and is being observed in the outpatient clinic with no postoperative complications.

Case 2

A 23-year-old female presented at our department after lower right third molar extraction by a dental practitioner 7 days ago. She was under antibiotic medication (amoxicillin/clavulanic acid), and she had an orthopantomogram [Figure 5] and a cone-beam computed tomography (CBCT) [Figure 6] that revealed a root fragment in the right submandibular space. Under general anesthesia, an incision was performed, and a lingual flap was raised. The lingual nerve was identified and protected, and the root fragment was located and removed. The patient recovered successfully with hypoesthesia on the right half of the tongue. A postoperative orthopantomogram was performed [Figure 7]. The patient continues the regular visits at the outpatient clinic, appearing significant improvement of the hypoesthesia 1 year after the operation.

Figure 1: Preoperative orthopantomogram, case 1

Figure 3: Intraoperative photograph of location and removal of the dislocated tooth

Case 3

A 24-year-old male was referred to our department with a displaced root fragment in the left submandibular space; an extraction effort of the impacted lower left third molar was previously attempted elsewhere. The patient provided the presurgical orthopantomogram [Figure 8]. A CBCT was performed [Figure 9]. The patient was prescribed ibuprofen and amoxicillin/clavulanic acid, and surgery was arranged 2 days later. Under general anesthesia, an incision was made on the left ramus of the mandible, a flap was elevated, the roots were found into the soft tissues of the floor of the mouth, and they were removed. A postoperative orthopantomogram was performed [Figure 10]. The patient recovered successfully with mild hypoesthesia on the left half of the tongue which shows signs of improvement.

DISCUSSION

Accidental displacement of lower third molars or their root fragments into adjacent anatomical spaces is a rare yet possible complication.[1,2] The estimated incidence is <1%. The spaces which third molars can be displaced into are submandibular, sublingual, and lateral pharyngeal spaces.[3] This complication occurs due to lingual plate fracture of

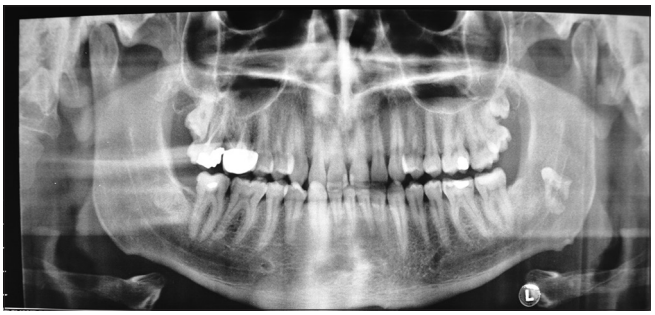

Figure 2: Preoperative computed tomography, case 1

Figure 4: Postoperative orthopantomogram, case 1

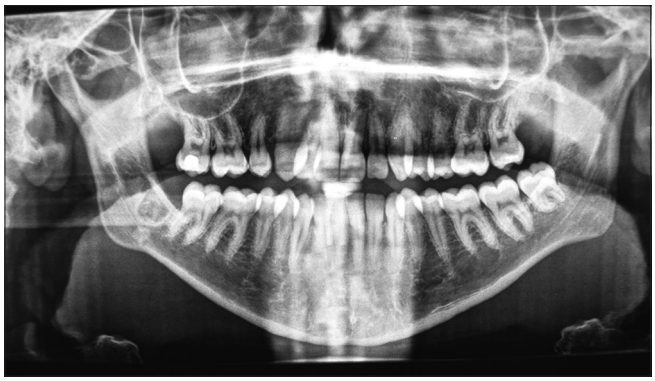

Figure 5: Preoperative orthopantomogram, case 2

Figure 7: Postoperative orthopantomogram, case 2

the mandible or intraoperative perforation.[2] Possible risk factors contributing to this are thin lingual plate, unnecessary excessive forces applied with the elevators, incorrect use of surgical instruments and techniques, inclination, and depth of impaction.

Displacement of third molars may lead to local infection.[2] Furthermore, it is an incidence of great importance due to the proximity of the spaces where the tooth is displaced with the major anatomic elements of the neck.[4,5] Life-threatening complications such as airway obstruction, deep neck infections, erosion of internal jugular vein or carotid artery, and cranial nerve implications may appear.[6] Despite this, it is reported in the literature that many patients are asymptomatic after the displacement. A conservative approach in asymptomatic patients is to be considered in such cases.[7]

The interesting point, in our small case series, is the diversity of symptoms and the patients' time of seeking further medical care. Starting from our third patient, maxillofacial consultation was sought right after the root fragment's dislocation. On the contrary, our first patient was without symptoms for almost 5 years before he was referred to our department for further management.

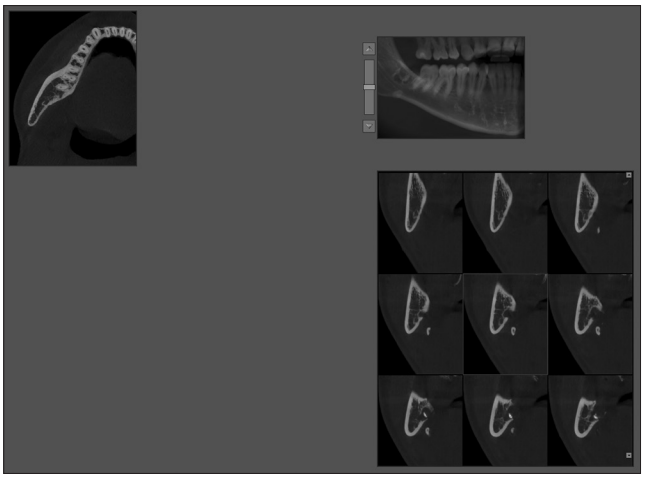

Figure 6: Preoperative cone-beam computed tomography, case 2

Figure 8: Presurgical orthopantomogram, case 3

Thus, we can conclude that there is a wide variety upon time gap and intensity of symptomatology.

As it depicts by our experience gained through these cases, it is preferable to retrieve the dislocated teeth/fragments, the sooner after the incidence, since the majority of complications can be avoided. If the patient has any of the symptoms aforementioned, the immediate removal is of paramount importance.

The efficiency of this procedure relies on the adequate radiographic assessment using panoramic imaging and/or CBCT and CT evaluation when needed which provide a more detailed evaluation of tooth's or fragment's location.[4] The timing of fragment's extraction is quite controversial. Several surgeons insist on an immediate removal of the residual tooth, while others recommend extraction after 3–4 weeks of the incident.[8,9] The advocates for delay of extraction state that the established fibrosis will ease the fixation of the tooth in its dislocated site, easing the retrieval. However, possible migration of the tooth in a

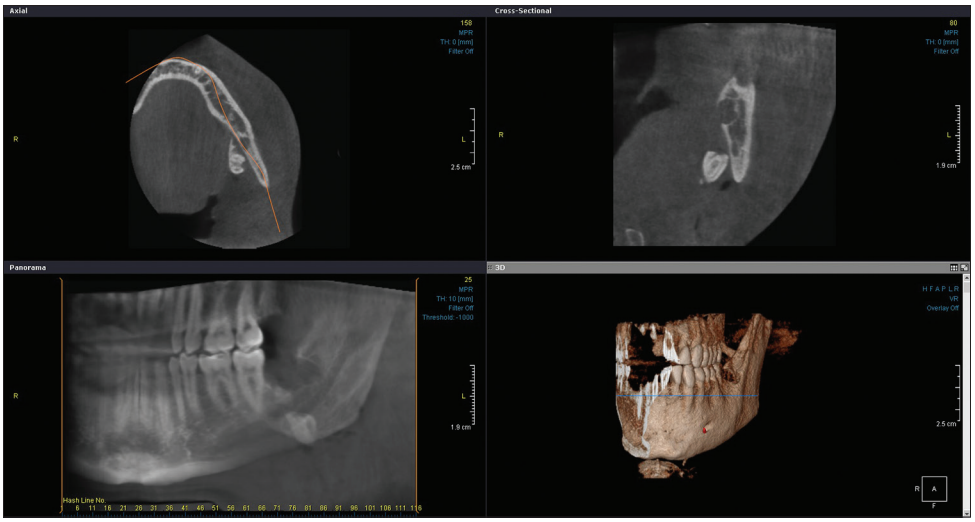

Figure 9: Preoperative cone-beam computed tomography, case 3

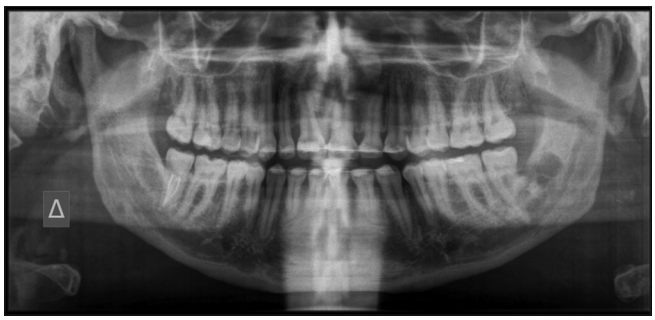

Figure 10: Postoperative orthopantomogram, case 3

deeper plane and concomitant infection or even airway obstruction is a major argument supporting the immediate surgical retrieval.

The surgical approach of tooth's fragment removal is mainly intraoral, while an extraoral or even a combined intraoral/extraoral technique is preferable in some cases; for example, when the displaced fragment is located in the lateral pharyngeal or deep cervical space.[10] It has even been described a sagittal split approach to the mandibular angle to remove a displaced third molar.[11]

All our patients underwent a successful surgical management of removal of dislocated fragments or tooth through an intraoral approach. In other studies, cases of patients who underwent surgical exploration of adjacent structures but were unable to retrieve the fragments are reported.[7]

The treatment of dislocated teeth is not without complications itself, since nerve damage is not infrequent. Two of our three patients showed nerve hypoesthesia postoperatively, both in a reversible condition, as recorded on the follow-up.

CONCLUSIONS

The management of this complication should be performed by experienced oral and maxillofacial surgeons. A thorough preoperative assessment of third molars with possible high risk of complications is of imminent importance, and the proper measures should be taken by the clinician to minimize those complications.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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