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A CASE OF IATROGENICALLY DISPLACED MANDIBULAR THIRD MOLAR INTO SUBLINGUAL SPACE: DELAYED ATRAUMATIC RETRIEVAL USING APPROACH BASED ALGORITHM

Maxillofacial Surgery

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ABSTRACT

Background: Iatrogenic displacement of a mandibular third molar into a fascial space is a rare but potentially serious complication of dental extraction. This case report deals with a dislodged tooth in the sublingual space after a previously attempted dental extraction and highlights the importance of the successful retrieval of the tooth using the approach based algorithm. **Methods:** Surgical retrieval of the displaced tooth was performed intraorally using the versatile flap design by means of subperiosteal dissection of the surrounding fibrotic tissue under General Anaesthesia. **Results:** Minimally invasive approach is planned based on depth and position of the tooth within the sublingual region by tactile sensation enhances the surgeon's ability to plan the surgical approach thereby minimizing the risk and potential complications. **Conclusion:** Timely recognition and management of this complication is crucial to prevent further complications in accordance with the minimally invasive approach.

KEYWORDS

Approach based algorithm, Iatrogenic, Mandibular third molar, Minimally invasive, Sublingual space, Surgical retrieval.

INTRODUCTION:

Extraction of the third molar is one of the most commonly performed procedures in the field of oral and maxillofacial surgery, with majority of cases proceeding without any intra or postoperative complications. Complications associated with third molar removal vary in prevalence, ranging from 4.6% to 30.9%. Most frequently reported postoperative complications associated with third molar removal in the literature are localized alveolar osteitis (AO), infection, bleeding and paraesthesia along with major complications such as mandibular fracture and fatal hemorrhage [1].

Iatrogenic displacement of mandibular third molars into anatomical spaces, including the sublingual, submandibular, pterygomandibular and lateral pharyngeal spaces are rare in occurrences with an incidence of <1 % which can lead to clinical symptoms such as pain, swelling, trismus, difficulty in swallowing and respiratory issues along with life threatening complications [2]. In this case report, we present a patient who experienced an iatrogenic displacement of mandibular third molar into the left sublingual space. Remarkably, successful retrieval was achieved using an intraoral technique one month later, with no subsequent complications.

CASE DESCRIPTION AND RESULTS:

A 45 year old male patient presented to the Department of Oral and Maxillofacial Surgery (OMFS) with a primary complaint of persistent pain and discomfort in the lower left posterior teeth region for the past one month. The patient disclosed a history of an attempted extraction of the lower left third molar by a general dentist which was eventful, prompting the general dentist to go for an Orthopantomogram (OPG) revealing the presence of displaced third molar in close relation to the lower border of the mandible. Informed consent was obtained from the patient by the general dentist. Subsequently, the patient reported to our hospital for further management.

Upon clinical examination, the patient exhibited an approximate inter incisal opening of 44mm. Extraorally, tenderness was elicited along the left lower border of the mandible, accompanied by the presence of a single ipsilateral submandibular lymph node measuring approximately 0.5 x 0.5 cm which was firm, tender and not adherent to underlying structures. Intraorally, bimanual digital palpation revealed tenderness along with a palpable mass in the lingual vestibular region. Occlusal view radiography and Cone-Beam Computed Tomography (CBCT) (Figure 1a) confirmed the presence of the displaced mandibular left third molar into the sublingual space.

After obtaining anesthetic clearance, fiber optic intubation was planned inspite of adequate mouth opening mainly to prevent further inadvertent displacement of the tooth due to laryngoscopic compression over the floor of the mouth. Intraoral surgical retrieval of the displaced tooth was planned under general anesthesia. After administration of local anesthesia with adrenaline, a lingual sulcular incision was made from the distal aspect of the lateral incisor to the retromolar region, accompanied by a distal relieving incision which was carefully positioned to avoid damage to the lingual nerve.

A full-thickness flap was raised, followed by subperiosteal dissection with continued minor blunt dissection of the surrounding fibrotic tissue was performed until the tooth became visible within the sublingual space. The retrieval of the tooth was carried out uneventfully using specialized root retrieval forceps (Figure 1b) combined with the support from extra oral digital pressure. After thorough saline irrigation, primary closure was achieved using 3-0 Vicryl suture in a sling fashion (Figure 1c). Subsequent follow-up assessments revealed no signs of lingual nerve injury.

DISCUSSION:

Lingually located or deeply impacted molars pose a higher risk of displacement to other facial spaces, leading to variable symptoms. In 1958, Brauer et al. pioneered the documentation of iatrogenic displacement of the mandibular third molar, citing an incidence below 1% [3]. Howe et al. identified lingual plate fracture or perforation during extraction following distolingual angulation, thin or dehisced lingual cortical plate and excessive force during luxation often attributed to displacement into deeper anatomical spaces [4].

Bimanual examination and imaging techniques like Computed Tomography (CT) scanning, aids in localizing fragments with wide visualization and formulation of treatment plan. Assessing the depth

and position of the tooth within the sublingual region by tactile sensation enhances the surgeon's ability to plan the surgical approach and minimize the risk and highlights the potential of minimally invasive approach [5]. Various retrieval techniques, including intraoral and extra oral approaches are employed based on the individual case requirements. In our study, we formulated an algorithm based on the selection of approach depending upon various clinical situations (Figure 2).

Complications after retrieval, such as paresthesia and hemorrhage, are generally uncommon, however protective measures are recommended. Chubb DWR, et al in 2020 in their study proposed a lingual flap approach that prevents injury to lingual nerve by minimizing soft tissue retraction [6]. Based on this result we proposed a modification of the lingual flap design making its course from the distal aspect of mandibular third molar region running along the crevices upto the cuspid region. This design is versatile in providing adequate visibility thereby minimizing soft tissue retraction which in turn avoid lingual nerve damage (Figure 3). Chattopadhyay et al.,(2020) suggested a combination of intra and extra oral approaches when a tooth fragment is displaced within deep spaces necessitating its retrieval [7].

Accurate intraoperative prediction remains elusive and the timing of retrieval is a subject of debate. Huang et al., in 2019 states that some authors support for immediate retrieval to prevent worsening complications whereas others opt for postponing surgery in order to promote fibrosis aiding in stabilization of the tooth fragment [8]. Jonathan R. Bensing et al.,(2021), usage of 3-dimensional surgical navigation systems, may contribute to decreased postoperative sequelae by providing accurate location of displaced tooth along with clear idea on adjacent anatomical structures.

CONCLUSION:

The rare complication of tooth displacement into tissue spaces requires early diagnosis and management to minimize morbidity. If inadvertent displacement occurs during extraction, informing the patient is essential. The treating surgeon should assess the exact location through examination and imaging and devise a treatment plan based on clinical factors, size, location along with adjacent structures.

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DECLARATION OF THE PATIENT CONSENT:

Patient consented to clinical case report and images be used and discussed as part of this publication.

CONFLICTS OF INTERESTS:

We declared that no known competing financial interests or personal relationships appeared to influence the work reported in this paper.

FIGURES:

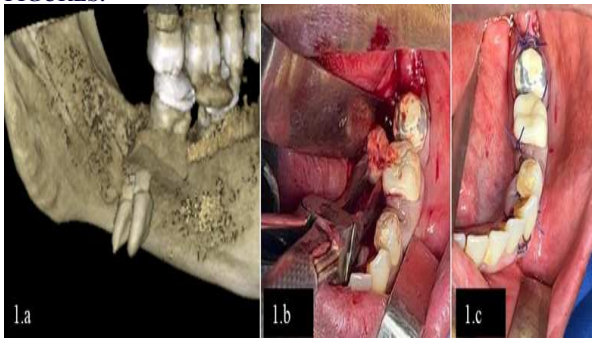

Figure 1: Pre-operative and intra-operative images (a) CBCT depicting buccally angulated 38 positioned in the soft tissue lingual to the angle of mandible with laterally placed crown and root facing medially; (b) Blunt dissection done intraorally and retrieval of the tooth was carried out uneventfully using specialized root retrieval forceps; (c) Primary closure was achieved using 3-0 Vicryl sutures in a sling fashion.

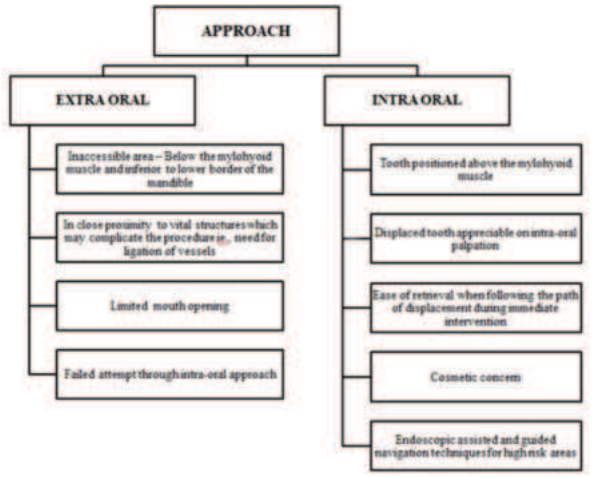

Figure 2: Approach selection algorithm

Figure 3: Modified lingual flap design

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