

Iatrogenic Displacement of mandibular 3rd molar tooth fragment into pterygomandibular space- Case report and Review of Literature

¹Dr. Neelam Shakya, Oral & Maxillofacial Department, Government College of Dentistry, Indore, MP

²Dr. Deepak Agrawal, Oral & Maxillofacial Department, Government College of Dentistry, Indore, MP

³Dr. Prमित Mishra, Oral & Maxillofacial Department, Government College of Dentistry, Indore, MP

⁴Dr. Vidya Balke, Oral & Maxillofacial Department, Government College of Dentistry, Indore, MP

Corresponding Author: Dr. Prमित Mishra, Oral & Maxillofacial Department, Government College of Dentistry, Indore, MP

Citation of this Article: Dr. Neelam Shakya, Dr. Deepak Agrawal, Dr. Prमित Mishra, Dr. Vidya Balke, “Iatrogenic Displacement of mandibular 3rd molar tooth fragment into pterygomandibular space- Case report and Review of Literature”, IJDSIR- November - 2020, Vol. – 3, Issue - 6, P. No. 513 – 516.

Copyright: © 2020, Dr. Prमित Mishra, et al. This is an open access journal and article distributed under the terms of the creative commons attribution noncommercial License. Which allows others to remix, tweak, and build upon the work non commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Dislodgment of tooth/crown into adjacent spaces during surgical removal of mandibular third molar is a rare complication. Following is a case report of iatrogenic displacement of a tooth fragment into pterygomandibular space and its management. Importance of computed tomography (CT) scan for visualization of displaced tooth fragment is also discussed.

Keywords: Iatrogenic, Pterygomandibular space, computed tomography

Introduction

Removal of mandibular third molars is one of the common surgical procedures performed in dental offices of oral and maxillofacial surgeons and dentists alike. Surgical operation have number of intra-op and post-op complications associated with procedure. These include alveolar osteitis, dysaesthesia of inferior alveolar and

lingual nerve, haemorrhage, infection. Other less complications are damage to adjacent teeth, fracture of mandible and periodontal pocket formation distal to adjacent tooth. However accidental displacement of fractured tooth fragment into sublingual, submandibular, pterygomandibular, lateral pharyngeal spaces is an uncommon occurrence. A review of literature revealed very limited information about the incidence, causes and management of displaced tooth/root fragments. Grandini et al¹ reported four cases of tooth/root fragments into adjacent anatomical areas, namely submandibular fossa. The author reasoned that the displacement of teeth/root fragments is due to improper diagnosis, poor selection of surgical technique and incorrect use of surgical instruments.

This paper describes the diagnosis and management of a case of iatrogenic displacement of a fractured mandibular third molar fragment into pterygomandibular space.

Case Report

A forty-year-old male patient visited the outpatient department of government college of dentistry, Indore in oral and maxillofacial surgery department with complaint of post-extraction pain and reduced mouth opening since two weeks. Patient gave history of extraction of lower left third molar two weeks back since then patient noticed persistent pain in that region which did not subside over the period of time. Patient also noticed pain in opening and closing and swallowing. Patient was informed by the dentist about possible lingual displacement of tooth fragment and advised to remove at later appointment. However patient decided to consult in our department of oral and maxillofacial surgery for opinion regarding removal of the same.

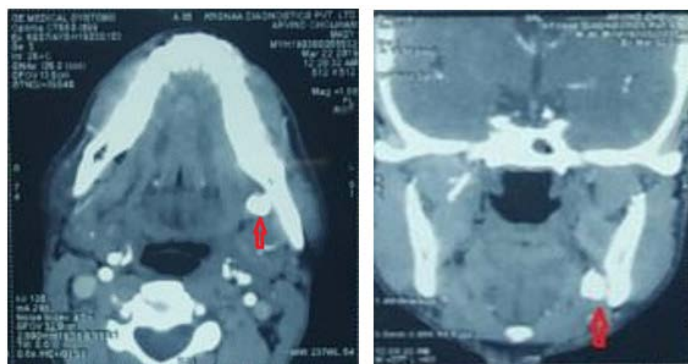
On clinical examination the patient had tender, indurated swelling on lingual aspect of 38 region. Mouth opening of 2 cm (inter-incisal width) with non-contributory medical history. There were no clinical symptoms of dysesthesia of lip and tongue detected. Management regarding removal of tooth fragment was discussed with the patient. An orthopantomogram (Figure1) confirmed the displaced tooth fragment close to inferior border near angle of mandible in 38 region.

Figure 1: OPG showing presence of tooth fragment of 38 near angle region



A computed tomogram (CT) scan (Figure2, 3) was taken to precisely locate the position of tooth fragment in its three dimensions. It confirmed the position of tooth fragment on lateral aspect of medial pterygoid muscle close to its inferior attachment in 38 region.

Figure 2 & 3: CT scan showing precise location of tooth fragment



As discussed with patient, removal of tooth fragment was attempted under sedation three weeks after the initial operation. Extraoral submandibular incision given on left side angle region. The inferior border of mandible near angle was exposed and inferior attachment of medial pterygoid muscle identified. Lateral to it the tooth fragment was present which was retrieved with blunt dissection using fine curved mosquito artery forceps (Figure4). Primary closure was done and the patient was placed on a week long course of antibiotics. Post-operative physiotherapy advised. Post-op recovery was uneventful.

Figure 4: Retrieval of tooth fragment



Discussion

This paper describes the management of uncommon complication of tooth fragment displacement into pterygomandibular space near inferior border. This space which is between pterygoid musculature (lateral pterygoid and medial pterygoid) and medial surface of ramus of mandible, is very familiar to dentists as it is the site of injection of inferior alveolar nerve and lingual nerve blocks. Superiorly it is bound by inferior head of lateral pterygoid muscle, medially and posteriorly by interpterygoid fascia extending between base of skull, condyle to angle of mandible². In this case the tooth fragment was pushed into pterygomandibular space near to inferior border adjacent to attachment of medial pterygoid muscle. Weakened or thin lingual plate, lingual obliquity of impacted tooth, insufficient reflection of overlying muco-periosteum, inadequate bone removal, excessive or uncontrolled force during elevation are considered main cause of this accident³. Kay⁴ in a study of dried jaw specimens in a mixed population of African, Egyptian, British, Australasian and Mexican mandibles, noted fenestrations on lingual aspect of mandible in third molar region. Of the 2496 lower third molar sites studied only six sites had fenestrations on lingual aspect of mandible in third molar region. In contrast, a more recent study⁵ of 85 dried mandibles, in north Croatian population, found no osseous defects on lingual plate of mandibles. Kay⁴ considered conventional radiography to be unpredictable in the diagnosis of fenestrations as the density of tooth structure masks these defects. It is likely that these fenestrations may be due to some pathological resorptive process, such as periapical infection leading to resorption of bone in the apical area of roots, or they may have been present as a variation of normal anatomy. Gay-Escoda and associates(1993)⁶ reported a case in which a patient underwent extraction of displaced mandibular third

molar that was found below platysma and sternocleidomastoid muscle. It was removed via transcutaneous approach. Esen and colleagues(2000)⁷ described a case in which a patient presented months after attempted extraction of mandibular third molar with progressive limitation in mouth opening and dysphagia. Patient who visited our department also presented with restricted mouth opening and dysphagia. Ortakoglu et al (2002)⁸ reported a case of displacement of lower third mandibular into lateral pharyngeal space during surgical removal. The radiographic examination included panoramic, occlusal, and CT views to precisely locate the tooth fragment. Removal of tooth under local anesthesia via lingual approach was performed.

Some authors suggest that displaced tooth fragment must be removed at initial surgical attempt to avoid development of infection. However, other propose a three-four week waiting period to allow development of fibrous tissue around the tooth thereby immobilizing it. This will enable its removal in second attempt³. Such a line of management has possibility of development of infection. Delayed intervention in the event of displaced tooth into lateral pharyngeal spaces carries the risk of infection, thrombosis of internal jugular vein, erosion of carotid artery or one of its branches and interference with cranial nerves IX to XII (Bouloux et al, 2007)⁹. In our case patient had clinical symptoms of dysphagia and restricted mouth opening after 2 weeks of initial operation.

A CT scan of mandible (figure2&3) revealed displaced tooth fragment on lingual side in 38 region. Slightly above the root on medial aspect bony defect either dehiscence or breach in lingual plate created during the attempted removal of the tooth. Incorrect use of elevators resulting in unfavourable direction of force can easily push the tooth into adjacent anatomic spaces. When there is a risk that tooth/ tooth fragments maybe displaced adequate

reflection of overlying gingiva and placing a finger over the wisdom tooth to assess its movement during elevation can help to a great extent to prevent this complication.

Surgical access to inferior aspect of pterygomandibular space can be achieved via intra-oral or extra-oral approach. However if displacement of tooth fragment is deeper near inferior border of mandible extra-oral approach may provide better access. Surgical retrieval could result in complications such as nerve damage, displacement into deeper tissue. These possible outcomes should be taken into consideration when making a decision about the management of displaced tooth fragment into an adjacent tissue or anatomical spaces.

References

1. Grandini SA, Barros VM, Salata LA, Rosa AL, Soares UN. Complications in exodontia –Accidental dislodgment to adjacent anatomical areas. *Braz Dent J* 1992;3:103-112.
2. Barker BCW, Davies PL. The applied anatomy of pterygomandibular space. *Br J Oral Surg* 1972;10:43-55.
3. Varghese KG. Practical guide to management of impacted teeth. 1st edition:Jaypee,2010:123-152.
4. Kay LW. Some anthropologic investigations of interest to oral surgeons. *Int J Oral Surg* 1972;10:43-55
5. Jorgic-Srdjak K, Plancak D, Bosnjak A, Azinovic Z. Incidence and distribution of dehiscences and fenestrations on human skulls. *Coll Anthropol* 1998;22(suppl):111-116.
6. Gay-Escoda C, Berini-Aytes L, Pinera-Penalva M. Accidental displacement of lower third molar: report of a case in the lateral cervical position. *Oral Surg Oral Med Oral pathol* 1993;76:159
7. Esen E, Aydogal LB, Akcali MC. Accidental displacement of an impacted mandibular third molar into the lateral pharyngeal space. *J Oral Maxillofac Surg* 2000;58:96
8. Ortakoglu K, Okcu KM, Karasu HA, Gunaydin Y. Accidental displacement of impacted third molar into lateral pharyngeal space. *Turk J Med Sci* 2002;32:431-33.
9. Bouloux GF, Steed MB, Perciaccante V J. Complications of third molar surgery. *Oral Maxillofac Surg Clin N Am* 2007;19:117-28.