

Elevator Tip Retrieval from Periapical Region of Mandibular Molar Socket- A Case Report

Dr. Priyesh Kesharwani^{1*}, Dr. Swetha Palem², Dr. Rahul Vinay Chandra Tiwari³, Dr. Abhishek Patley⁴, Dr. Swati Sahu⁴, Dr. Nandini Dayalan⁵

¹MDS Oral and Maxillofacial Surgeon, Consultant and Private Practitioner DENT-O-FACIAL Multispeciality Clinic, Mira Road, Thane-Mumbai, India
²MDS, Department of Oral Medicine & Radiology, Sri Sai College of Dental Surgery, 1-2-64/1&2, Kothrepally, Vikarabad, Telangana 501102, India

³FOGS, MDS, Assistant Professor, Department of Oral and Maxillofacial Surgery, Sri Sai College of Dental Surgery, 1-2-64/1&2, Kothrepally, Vikarabad, Telangana 501102, India

⁴Postgraduate Fellow, OMFS, New Horizon Dental College & Research Institute, Sakri, Bilaspur, Chhattisgarh 495001, India

⁵Senior Lecturer, Department of OMFS, Dr. Syamala Reddy Dental College Hospital & Researches Center, Bangalore, Karnataka, India

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Abstract

In this present scenario of oral surgical intervention proper instrumentation and technique holds a superior position which comes with experience of the operator, despite that, some accidents may happen when defective instruments are unknowingly used. This article reports a case of a retained fractured dental elevator tip during surgical extraction of impacted mandibular third molar. The vast majority of cases reported in the literature occur during endodontic treatment, and this is an accepted common risk within the endodontic specialty. However, there is very little literature regarding instrument fracture and management of cases following simple or complex exodontia. Although this is a rare incident, it reinforces the importance of checking instruments pre- and post-surgery by both the dental surgeon and assistants.

Keywords: surgical intervention, fractured dental.

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INTRODUCTION

Fracture of instruments during exodontia is very rare. At present, only three cases have been reported in the literature [1-3]. Accidents can take place during surgery due to a number of factors including operator technique and sub-standard or aged instruments. Manufacture is strictly controlled, particularly in the case of dental, medical and surgical instruments which could cause serious injury to patients if they proved to be faulty. Occasionally, however, alterations in manufacturing technique or ineffective quality control occur and they are employed unknowingly [4]. Retained fractured instrument fragments have the potential to cause pain or trigger a foreign body reaction, therefore can act as a source of infection. Swallowing or aspiration of broken pieces can be the other possible complications.

The aim of the present article is to report the unusual fracture of a dental elevator during the extraction of horizontally impacted right mandibular third molar.

Case Description

A healthy 29-year-old female presented to the department of oral and maxillofacial surgery with a complaint of pain, swelling and restricted mouth opening. Radiograph suggested horizontally impacted right mandibular third molar with Pederson's difficulty index score of 7. Under aseptic condition surgical removal of mandibular third molar was planned. The extraction of an impacted third molar in a horizontal position is considered quite difficult and must be treated with particular care. After making a standard ward's incision, the mucoperiosteal flap was reflected. The bone covering the tooth was removed using a round bur, and the area was irrigated with a steady stream of saline solution, until the crown was entirely exposed. A groove was then created vertically to the long axis of the tooth using a fissure bur, at the cervical line of the tooth, to separate the crown from the root. The straight elevator was used, after being placed in the groove created earlier, to separate the crown from the root with a rotational movement. Crown was removed and attempt was made to retrieve the roots of third molar. It was noticed that the tip of the straight angled elevator got broke. Attempt was made to localise the metallic tip of elevator but due to limited accessibility retrieval was

not possible. Roots of sectioned third molar were removed from the socket using coupland elevator. Primary closure was done and patient was asked for orthopantomogram radiograph. Incidence of broken instrument was informed to the patient and she was assured about the outcome and removal after radiographic confirmation. On radiographic interpretation it was observed that the metallic tip was positioned in an oblique fashion with the tip directed distally (Figure-1). The tip of the elevator had a good

clearance with the Inferior Alveolar Nerve. Metallic tip was lying close to distal root apex of second molar. Second surgery was planned for removal of broken tip under guidance of radiograph and antibiotic coverage. Tip as mentioned earlier was localised near the distal root tip of second molar in buccal position. Extraction socket was explored and metallic tip was retrieved. The tip was retrieved using artery forceps and the area thoroughly curetted. The tissue was closed with sutures. The healing was uneventful (Figure 2 & 3).



Fig-1: OPG showing broken elevator tip on distal of periapical region of 47



Fig-2: Operative Clinical View of tip removed



Fig-3: Broken tip fragment of elevator

DISCUSSION

It is always advisable to retrieve broken burs, endodontic files and occasionally other instruments break during surgical procedures which is quite common in endodontic procedures [5]. In this particular case was characterized situation was quite unusual, but fortunately, with the help of radiograph and second surgery that small metallic tip was successfully removed. The location of fragments was impossible to trace during surgery due to broken instruments is not a common problem in dental practice [4].

Till date, only four papers were found about broken surgical instruments during extraction procedures [1, 4, 3, 6]. One of the paper reported broken extraction elevators in tree cases, later on which was found to defective material wise. The instruments had broken during routine usage on three different patients on the same day and the fragments were found in the aspiration bottles, and were retrieved making unnecessary to radiate the patient to locate the fragment [4]. Another article reported two cases of broken dental forceps. Later broken fragment was removed from the patient's mouth uneventfully, and in the other, the hinge pin came out of the forceps and was swallowed by the patient [3]. One of the paper reported the retrieval of an elevator's end that broke during the extraction of a lower right third molar, and was found with the aid of a metal detector [6]. Most recent paper reports to describe an unusual case of a retained tip of an elevator in the left mandibular molar region and remained asymptomatic for ten years till it was diagnosed during routine radiographic examination for rehabilitation of some other tooth. If instrument breakage occurs, always look first in the extracted tooth leaving the tooth's socket as the last option. Radiographs are helpful to locate the metal fragment, and early removal is desirable always taking care to maintain the integrity of the vital structures near [6]. With the advancement in the field of dentistry other options like use of a metal detector has proved to be effectively to pinpoint the metal presence in a surgical area. When placed near metal, the detector probe measures the change in the inductance, emitting different tones, thus locating the foreign body. The detector can also distinguish between different metals (steel, brass, aluminum, lead) emitting different signals, which can prove to be useful in a

clinical situation [6]. Since metal detector was unavailable in the department so only radiographic image was used to localise the metallic tip. Despite all the difficulties that could emerge during a broken fragment removal, it is always prudent to try to remove the fragment in order to prevent it from migrating into a neighbouring space. Although metallic fragments could be enclosed in a fibrous tissue capsule when recognized by the organism as a foreign body, objects dislodged into the soft tissues on the lingual side of the mandible may gain access to the submandibular and parapharyngeal spaces [6]. Two main causes of instruments' breakage are wrongful use of the instrument by the dentist and defective manufacturing [4, 7, 8]. A safe and effective elevator should have extreme values for torque, and high stress values [9]. Although metal instruments used in clinical practice may be subjected to fatigue from sterilization [6], the elevator used in the present case was a brand new and used for the first time. Accidents like the one described in this report generally places impacted teeth with difficulty index more than 6 puts operator in a difficult situation increasing his responsibility. These accidents may result in litigation although it is impossible for dentists to prevent them from happening or to warn parents about them. In the present case report, although the accident may be attributed to a defective instrument and greater resistance during elevation of impacted tooth, the patient or his guardian has the right to prosecute the professional. Despite being a particular situation, it should be stressed out that accident like the one here described should be dealt according to the different laws adopted by different countries.

CONCLUSION

In dentistry is always advisable to use good quality and reliable brands for any instrument. Whenever any retention of a broken metal instrument is suspected an imaging radiological study will indicate its position and help avoid potential surgical complications. Preoperative and postoperative check-ups of instruments are also essential. Dental and oral surgeons should be particularly careful when metal instruments deployed with strong forces are used in poorly visible areas such as the third molar region. If an unexpected accident takes place during a surgical procedure the patient should be informed in accordance

with ethical codes, and suitable measures adopted to resolve the issue.

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