

Extraction of A Maxillary Molar Tooth-Simplified (A Case Report)

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Abstract: Atraumatic dental extraction requires a complete preoperative assessment of the patient prior to surgery. The clinician must know the patient's medical status, and assess the level of difficulty of the extraction. During the extraction procedure, basic atraumatic surgical techniques must be followed and the clinician must be prepared to manage complications should they arise

Keywords: Maxillary molar extraction; Dentoalveolar trauma; Conservative approach

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I. Introduction

Simple extraction of maxillary first and second molar teeth that are heavily restored can often be difficult. Teeth with large restorations or root canal fillings can fracture during a forceps extraction and a surgical technique must then be used. These extractions are further complicated by the tooth's close proximity to the maxillary antrum. Nowadays, atraumatic extraction techniques to preserve buccal bone are imperative as more patients are opting to restore the space with an implant. Raising a buccal flap is often unnecessary and may also lead to the loss of some buccal bone. This technique will describe the atraumatic removal of an upper maxillary molar tooth. Almost daily, each dentist may deal with some aspect of oral surgery in his or her practice. It may be a single tooth extraction, an infection, the extraction of third molars, or a biopsy. In this article, we will focus on extractions. For any practitioner, whether a general dentist or a dental specialist, the most important aspect of any surgical procedure is the preoperative assessment. This assessment begins with a thorough medical history and physical examination. An accurate medical history is important to help the practitioner decide whether a patient is able to undergo a surgical procedure. Included in this exam are the patient's chief complaint, history of chief complaint, medical history, and review of systems.

Step-by-step instructions for maxillary molar extraction

Step 1

Pre-operative assessment of the patient's medical and social history should be carried out, ensuring that there are no contraindications for extraction. The OPG (**Figure 1**) must be examined looking at the state of the tooth crown, the shape and length of the tooth roots, proximity to the maxillary antrum and adjacent teeth. In a heavily restored maxillary molar tooth (**Figure 2**), a surgical extraction must be planned for at the start of the procedure. A written consent form is signed discussing the normal surgical risks, including postoperative bleeding, swelling, bruising, infection, damage to adjacent teeth, creation of an oro-antral communication and the possible need for further surgery.

Step 2

Assuming that there are no medical contraindications, 400mg ibuprofen and 1g paracetamol are given to the patient preoperatively. If there is any sign of preoperative infection, 500mg amoxycillin may also be used before the procedure starts.

Step 3

Local anaesthetic should be administered to the buccal and palatal aspects of the tooth. There is no need to raise a buccal flap for extraction of the tooth. Section the tooth crown/restorative material off first to gain visual access to the roots (**Figure 3**). Then section the roots to make the shape of an inverted 'Y' (**Figure 4**) with a surgical fissure bur attached to a surgical drill and motor with sterile saline irrigation (**Figures 5** and **6**). An air rotor drill should not be used, as this can cause the serious complication of surgical emphysema.

Step 4

Use a large elevator (**Figure 7**) to fracture the roots into three separate pieces.

Step 5

Use a periostome to separate the periodontal ligament circumferentially around each root (**Figures 8, 9 and 10**).

Step 6

Elevate each root separately with luxators, taking care to keep the buccal and interradicular bony support intact. When there are curved, thin, non-vital, or bulbous roots, significant mobility of each should be achieved before attempted extraction from the socket (**Figures 11, 12 and 13**). A root forceps may be used to remove each root from its socket (**Figure 14**). In this case there is no need for a suture as no surgical flap has been raised.

Step 7

Appropriate postoperative analgesia and antibiotics (amoxycillin 500mg tds 5/7) should be prescribed. The patient may be followed up in one week if necessary. This technique should result in reduced postoperative pain and swelling while preserving vital bone volume.



Figure 1: OPG showing the upper right first molar tooth (1.6) before extraction. It has a large restoration in place



Figure 2: Occlusal view of tooth 1.6.

Figure 3: Restorative material removed from the tooth



Figure 4: Cuts made in the shape of an inverted 'Y' to separate the three roots of the maxillary molar.

Figure 5: Surgical motor and drill with saline irrigation



Figure 6: Surgical fissure bur in handpiece

Figure 7: Using a large elevator to separate the Three roots

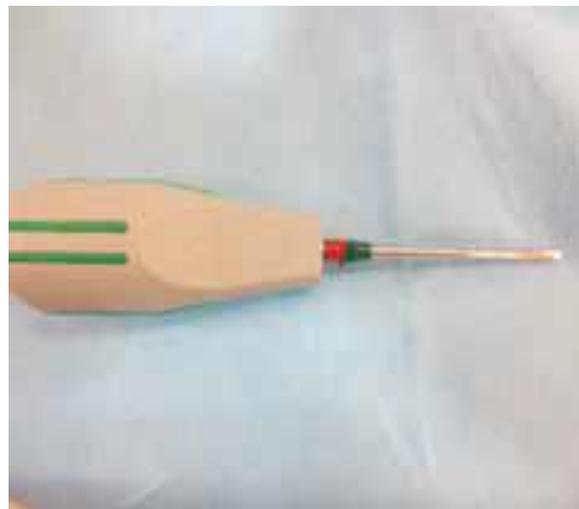
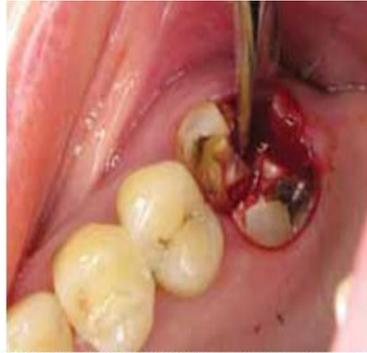


Figure 8: Luxator



FIGURES 9 AND 10: Using a luxator/periosteal elevator to break the periodontal ligament circumferentially around each root



FIGURE 11: Palatal root.



FIGURE 12: Distobuccal root.



FIGURE 13: Mesiobuccal root



FIGURE 14: Socket site at the end of surgery.

II. Discussion

The maxillary first molar can be a very difficult tooth to extract atraumatically. The normal root morphology includes a very divergent root pattern with a very thick palatal root. The curvature of the roots may create the effect of an anchor. The buccal plate is thin. The combination of thin buccal plate and large palatal root can lead to buccal plate fracture. The tooth is rolled to the buccal along the path of insertion of the palatal root. If the tooth is not luxated after using a reasonable amount of force, a surgical approach should be used. The crown should be removed at the CEJ to expose the root stump. The roots should be sectioned in a Y-shaped pattern. The roots can then be elevated individually with a straight elevator or periosteal elevator as described previously. This tooth is adjacent to the maxillary sinus and thus is the most common cause of oral-antral communication. One must be cognizant, if root fracture occurs, to not apply too much apical pressure, as this may push the root into the sinus. It is important to check the socket for oral-antral communication after extraction. In routine clinical practice as the patient are becoming more apprehensive towards extraction and if such kind of emergency happens in the private practice and when we do not have access to speciality doctor these technique can be used but with utmost care. Care must also be taken as not to use routine handpiece or airroater as it may lead to post operative swelling.

III. Conclusion

Proper preoperative evaluation is important to avoid complications due to health problems. A full assessment will help the practitioner avoid difficulties. With the ability to replace extracted teeth with dental implants, careful thought and planning must be taken when planning an extraction at a future implant site. Using proper instrumentation and knowing when to refer, are both very important aspects of efforts to give a patient the best possible outcome.

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