

Complications During and After Extraction of Third Molar

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Summary

Background: The removal of the third molar is one of the most frequent and common procedures in oral and maxillo-facial surgery. Reasons of extraction might be impacted tooth associated with caries, pericoronitis, periodontal defects in the distal surface of second molar, odontogenic cyst and dental crowding. Difficulty of extraction is due to many factors and could happen during and after removal of the third molar, which we are going to represent in this article.

Factors influence the incidence of complications: there are many factors and determinants which have an influence on the incidence of complications. Such as age, gender, depth of impaction, degree of difficulty, experience of the surgeon and patient's medical condition. All of these factors could effect on the successfulness of third molar extraction.

Intraoperative complications: during extraction of third molar, some complications could occur even with an expert surgeon. Examples of complications during extraction of third molar could be nerve damage, mandibular fracture, and displacement of third molar, hemorrhage, subcutaneous emphysema and soft tissue injury. Postoperative complications: complications are not only restricted during extraction, but also it can happen after the extraction. An example of postoperative complications would be localized alveolar osteitis, inflection, bleeding, paresthesia, alveolitis, and trismus and hematoma formation. Advices and habits to avoid: successful of the extraction doesn't depend only on the dentist and his ability, but also depends on patient's cooperation with the dentist. Conclusion: studying the complications of third molar extraction would enhance student's knowledge, and prepare her or him to future challenges. And also learning these complications would support the student's confidence and ability in the future.

Key Words: *Complications, Extraction of Third Molar.*

Introduction:

Tooth extraction requires a lot of skills and experience to be done on a perfect level. However complications during extraction occur with even professional dentists, and in this article we would discuss the factors which have an influence on the complications, and complications that occur during and after third molar extraction, how we can avoid these complications and which advices we should give to the patient.

In general, extraction of third molar is done without complications, but mistakes still exist since we are humans. The rate of complications during extraction of third molar can vary between 2.6% to 30%. This ratio is due to factors which influence the complications of third molar extraction.

Preparing the patient with information about complications during and after extraction is very important, to ensure a comfortable work for the dentist, and to relief the anxiety of the patient.

The dentist should put all of the complications that could occur in his or her mind, so he or she would be prepared for any sudden accident during extraction. Also to achieve the optimum results dentist should support the patient with the appropriate knowledge, whether if its habits which should be avoided or instructions before or after tooth extraction.

Recovery from tooth extraction could be easy if the patient was disciplined in dentist instruction. Such as if the patient is taking his pain medication, eating proper diet,

avoiding physical activity and smoking. All of these advices ensure that the recovery process is as easy as possible.

Factors influence the incidence of complication:

When we are talking about complications and what will happen after the procedure we should realize that the best way of dealing with such complications is to avoid being in such situations which will lead to complications and by putting an appropriate treatment plan, not forget to mention that the professional should be extra careful while operating such an aggressive procedure, but we should put into considerations that there are some factors which influence or provoke the developing of these complications even if we consider all the possible situations, such as:

- ◇ Age of the patient: because the more the age of the patient increases, the more hardening and brittle the bone becomes so the procedure will be more difficult, and there would be more pain and less time for healing;
- ◇ Gender: females more than in males;
- ◇ Type and depth of impaction: the deeper is the impaction the harder the procedure will become because the surgeon needs to remove more bone and it will be more aggressive, so as long as it is aggressive there is more risk to have such complications;
- ◇ Degree of difficulty: the more difficult the procedure is the more the possibility to have mistakes and complications will increase;
- ◇ Experience of the surgeon: and how he or she can manage the steps of the procedure efficiently with the

minimum percentage of mistakes or injury to the patient;

- ◇ Patient's medical condition: and this should be achieved by taking the accurate medical history of the patient to know how to manage the procedure efficiently and without harming the patient.

Complications:

Which are abnormal and unexpected situations and not planned, comes out of a sudden and can cause injuries and even sever injuries to the patient. We can classify those complications into minor or major, according to its severity if it needs treatment or management or not. Also, we can classify them into complications that happened while the surgeon was still operating or complications that appeared after the procedure has been completed.

Complications during the procedure:

This kind of complications mostly mistakenly done by the professionals themselves, such as:

1. Injury of the soft tissue :

It always happens as a result of the surgeon's insufficient operating and because there is a lack of attention and experience, also unnecessary forced, applied by the surgeon. It's classified to several types;

- ◇ Tearing of Mucosal Flap: because of not well preparation of the procedure and preparing a small inadequate incision for the procedure, so during the procedure the surgeon will rip the flap unconsciously in order to get better visualization
- ◇ Puncture wound: totally the surgeon fault because of the surgeon uncontrolled force and inappropriate use of the instrument so mistakenly this will injure the patient and cause puncture in the mucosal tissue , to avoid this type of injury the dentist should use a controlled force and he or she should stabilize the finger rest to support the handle of the instruments
- ◇ Stretch or abrasion: an injury in the mucosa of the lower lip or at the corner of the mouth happens because of the unawareness of the surgeon and assistance of the location of the shank of the bur while operating.

2. Problems with the tooth being extracted

- ◇ Root Fracture: one of the most common problems during the extraction because of the variety of the root morphology between the teeth. Roots can be curved, angled, long and divergent and these shapes are hard to extract without further damage to the surrounding structure. For that reason the surgeon usually choose to extract the tooth by open or surgical extraction to avoid root fracture and not to mention that the surgeon should do an x-ray to support the operation.
- ◇ Lost of the tooth in the pharynx: sometimes it hap-

pens accidentally that after delivering the tooth from the socket, it slips from the forceps and goes to the pharynx and the patient accidentally swallow it , in this case we should transfer the patient to emergency department and put him or her under observation also do an x-ray cause this could lead to serious problem if the tooth goes to the respiratory air way.

3. Injury to adjacent teeth:

- ◇ Happens because of the lack of attention of the surgeon and the unawareness of the adjacent teeth while focusing on the tooth which is the preparation done on , this will lead us to the point that the surgeon should always take care and attention not only on the extracted teeth but also to their adjacent teeth
- ◇ Fracture or Dislodgment of an Adjacent Restoration: happens because of uncontrolled force applied while operating , the instrument might slip and cause a damage to the adjacent tooth, the dentist should tell the patient that this might happen and as an operator should be careful of the applied force . the damage could happen in the neighbor tooth or even in the tooth on the opposite arch so the surgeon should support the opposite arch tooth to prevent such damage
- ◇ Luxation of an Adjacent Tooth: sometimes while trying to luxate the tooth in order to extract it you might luxate the adjacent tooth as well because of the surgeon uncontrolled force, usually happened in the lower incisor because the teeth might be crowded there and the area is too narrow, in this situation comes the point of choosing the right forceps. I such case happened we should reposition the tooth ,support and stabilize it until it heals and recovered
- ◇ Extraction of the Wrong Tooth: surprisingly it happens because of the inadequate attention of the dentist and the assistant. it might happens when a dentist is extracted instead of other one , The use of differing tooth numbering systems, changing in the radiographs accidentally , all these reasons can easily lead to the operating dentist to misunderstand the instruction and end up to such complication, for prevention a careful preoperative planning should take into consideration, clear communication with referring dentists. If the there is such case and the dentist realize it quickly he or she should replace the tooth back again immediately but if the patient notice after going home there is nothing to do to correct the situation.

5. Injuries to osseous structure

- ◇ Fracture of the Alveolar Process: In some situation when the dentist should expand the bone fractures and it will remove with the tooth in delivery step. Instead of causing such damage it's better to make

an incision and alter the close to open extraction procedure to control the amount of removed bone and to avoid further damage. To avoid such complication, a careful examination and radiographs should be taken before the procedure to ensure a successful procedure.

5. Injury of adjacent structure

- ◇ Injury to Regional Nerves: involves a damage to the lingual nerve because of its critical location in the retromolar pad region and its rarely generate in case of a damage . and the inferior alveolar nerve damage is the most sever and common type of injuries because of lack of attention of the surgeon.

Post-operative complications:

1. Bleeding

- ◇ A common complication because of the hemostatic mechanism of the body. It involves many reasons like the oral tissue is highly vascular , and because there is an opening wound without any dressing material for enough pressure and to cover it , not to mention that the patient will explore this area by tongue because of the discomfort and that will surly lead to secondary bleeding because the clot will be removed . also salivary enzymes might lyses the formed clot
- ◇ To prevent such complication the history of the patient included medications and family history should be taken carefully to know if the patient has such factors that can trigger the bleeding
- ◇ The patient who is suspected to have coagulopathy should be evaluated according to laboratory tests to be aware of the patient's situation
- ◇ The surgeon should take into consideration all the possibilities of prolonged bleeding. He or she should cause the lest traumatizing surgery, clean the incision and gentle manage of the soft tissue, smooth the sharp boney edges, curette the granulation tissue. If we have bleeding artery we can use direct pressure if it failed, by cumping the artery with hemostat and ligating it with non resorbable suture.
- ◇ Bleeding of the bone have to be checked because if we have such bleeding the foramen can be crushed closing the vessel. To manage it we should cover the bleeding socket with damp gauze, tells the patient to bite for 30 min. The initial control should be accomplished at that time so we will replace the gauze with another one. According to that we should keep the patient in the clinic until we are sure that everything is good. Several different materials can be used help gain hemostasis like the absorbable gelatin.
- ◇ Sponge (but it becomes friable when wet and cannot be packed into a bleeding socket) , oxidized regenerated cellulose (but it can cause delay healing), topical thrombi (convert fibrinogen to fibrin

and collagen (can provoke platelet aggregation) .

- ◇ The patient might have secondary bleeding so we should tell them to rinse the mouth
- ◇ gently with chilled water and then to place a wet gauze over the area and bite on it for 30 minutes If the bleeding persists, the patient should repeat the cold rinse and bite
- ◇ down on a damp tea bag. The tannin in the tea helps stop the bleeding. If neither of these techniques is successful, the patient should return to the dentist.
- ◇ According to the dentist plan, we should clean the area, inspect the area, if it's generalized oozing the bleeding side should be covered with wet gauze and press it with dentists finger for 5 min, if didn't stop the dentist will apply a local anesthesia then gently curette the extracted socket, inspect the bleeding area and again repeat the using of the above mentioned steps and materials
- ◇ The final bleeding complication is the appearance of bruising and it will disappear after 2-5 days.

2. Delay healing and infection

- ◇ **Infection:** it's a rare complication usually happened if the is reflecting of the soft tissue flap and bone removal. For prevention the dentist should do careful asepsis and wound debridement of the area. If the infection occurs after the procedure the dentist should prescribe prophylactic antibiotics peri-operatively.
- ◇ **Wound Dehiscence:** condition of separation of the wound edges firstly because If a soft tissue flap is replaced and sutured without an adequate bony foundation the soft tissue will separated along the incision line and secondary because the dentist sutured to wound under pressure because the incision is closed only under the tension of the suture to prevent such complication we should always close the wound firmly not under tension. There is two ways to deal with such complication: first is to leave the projection alone and second is to smooth it with bony file . if left without management the bone will slough off after 2-4 weeks
- ◇ **Dry socket:** the appearance of the tooth extraction socket and bone when the pain begins because of the loss of the blood clot. This is not related to any infection appears of the 3rd or 4th day , sever pain can be radiated to the ear and bad smell in the socket area . No clear reason but some say it's because of the high levels of fibrinolytic activity (lysis blood clot). Rarely to occur but frequently after the extraction of the 3rd molar. For prevention the dentist should cause the minimal trauma during the surgery and clean the area and apply small amount of antibiotics, gelatin sponge and pre and post-operative rice with antimicrobial mouth wash.

the treatment plane will focus on relieving the pain and irrigation, avoid curetting the area because this will increase the exposed bony area, gauze soaked in or coated with the medication (principal ingredients: eugenol) is inserted into the socket with a small tag of gauze left trailing out of the wound. a topical anesthetic (benzocaine; and a carrying vehicle such as balsam of Peru). The dressing is changed every other day for the next 3 to 6 days, depending on the pain severity. Once the patient's pain decreases, the dressing should not be replaced because it acts as a foreign body.

- ◇ **Additional:** Also as a common complication the patient might have temperature, alveolitis, paresthesias or abnormal feeling of the tongue, lips or full jaw probably because of the nerve damage caused by needle during injecting the anesthesia.

Advices and habits to avoid:

Successful extraction doesn't depend only on the dentist's skills and talent to extract the tooth, but also the patient should be part of the successfulness of the extraction procedure by keeping in mind the instructions and advices given by the dentist. For example, the patient after the extraction should:

- ◇ Drink and eat cold food and drinks that do not require chewing such as yogurt and ice cream;
- ◇ Avoid smoking and drinking alcohol;
- ◇ Avoid strenuous physical activity, to avoid increase in blood pressure which could lead to bleeding;
- ◇ Use ice packs to reduce swelling and pain if needed;
- ◇ Brush the teeth very carefully and avoid brushing extraction site for at least few days;
- ◇ Avoid anxiety because of swelling or pain because its normal complications occur in few days and disappear (temporary complications).

Conclusion:

After all, third molar extraction complications are not a common accident to happen. But the knowledge of these complications and the knowledge of the management of these complications are essential for the dentists; so they can control any urgent situation during extraction procedure, and improve their clinical performance. And to guarantee optimum results, the patient must cooperate with the dentist, by being discipline in the given instructions and advices from the dentist.

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