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ATRAUMATIC METHODS OF REMOVING RETAINED WISDOM TEETH

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Abstract: This topic discusses the atraumatic methods used in the surgical removal of retained wisdom teeth in oral and maxillofacial surgery. Retained wisdom teeth may remain partially or completely unerupted due to lack of space, abnormal tooth position, dense bone structure, or obstruction by adjacent teeth. If not treated properly, they may cause pain, inflammation, infection, periodontal complications, and damage to neighboring teeth. Atraumatic removal aims to extract the tooth with minimal injury to soft and hard tissues, preserve anatomical structures, reduce postoperative pain and swelling, and support faster wound healing. The topic also emphasizes careful diagnosis, proper surgical planning, gentle soft-tissue handling, conservative bone removal, controlled tooth sectioning, correct use of instruments, and postoperative care.

Keywords: Retained wisdom tooth, impacted third molar, atraumatic extraction, oral surgery, maxillofacial surgery, soft tissue management, conservative bone removal, tooth sectioning, postoperative care, wound healing.

Retained or impacted wisdom teeth are among the most common clinical problems encountered in oral and maxillofacial surgery. Wisdom teeth, also known as third molars, usually erupt between the ages of 17 and 25; however, in many patients, they fail to erupt completely because of insufficient space in the dental arch, abnormal tooth position, dense surrounding bone, or obstruction by adjacent teeth. As a result, the tooth may remain partially or completely embedded in the jawbone or soft tissue. This condition can lead to pain, swelling, recurrent pericoronitis, caries of the adjacent second molar, periodontal problems, cyst formation, and other inflammatory complications.

The removal of retained wisdom teeth requires careful clinical and radiographic assessment. Traditional extraction techniques may sometimes cause excessive trauma to the surrounding bone, gingiva, nerves, and adjacent teeth. Therefore, modern oral surgery increasingly emphasizes atraumatic extraction methods. The main purpose of atraumatic removal is to minimize tissue injury, preserve bone structure, reduce postoperative pain and swelling, and accelerate wound healing. Such methods are especially important when the impacted third molar is located close to the mandibular canal, maxillary sinus, or neighboring teeth.Atraumatic extraction of retained wisdom teeth involves precise surgical planning, gentle manipulation of soft tissues, conservative bone removal, controlled tooth sectioning, and careful wound closure. Instruments such as elevators, surgical handpieces, piezosurgical devices, and microsurgical tools may be used depending on the complexity of the case. In addition, the surgeon must consider the patient's general health, age, anatomical features, and risk of complications. Proper aseptic technique, effective anesthesia, and postoperative care also play an important role in achieving successful outcomes.

Thus, atraumatic methods of removing retained wisdom teeth are not limited to the extraction itself; they represent a comprehensive surgical approach aimed at protecting

surrounding tissues and ensuring the patient's comfort and safety. Studying this topic is important for future dental and maxillofacial specialists because it helps develop practical skills, clinical thinking, and an understanding of modern minimally invasive principles in oral surgery.

The atraumatic removal of retained wisdom teeth is an important surgical procedure in oral and maxillofacial practice. A retained wisdom tooth is a third molar that remains partially or completely unerupted because of insufficient space, abnormal position, dense bone structure, or obstruction by neighboring teeth. Such teeth may stay inside the jawbone or under the soft tissue for a long time without symptoms. However, in many cases they become a source of pain, inflammation, swelling, infection, periodontal problems, or damage to the adjacent second molar. For this reason, retained wisdom teeth often require surgical removal.

The main aim of atraumatic extraction is to remove the tooth with minimal injury to the surrounding tissues. In this approach, the surgeon does not rely on excessive force. Instead, the procedure is based on careful planning, gentle tissue handling, precise bone removal, and controlled separation of the tooth into smaller parts when necessary. This method helps to reduce postoperative pain, swelling, bleeding, trismus, and delayed wound healing. It also decreases the risk of damaging important anatomical structures such as the inferior alveolar nerve, lingual nerve, maxillary sinus, and adjacent teeth.

Before surgery, the patient must be examined carefully. Clinical examination includes assessment of the oral cavity, the condition of the gingiva, the presence of inflammation, mouth opening, pain intensity, and the position of the second molar. Radiographic examination is also very important because it allows the surgeon to determine the depth, direction, root shape, and anatomical relationships of the retained tooth. Proper diagnosis helps to choose the safest surgical method and to prevent complications during the operation.

One of the basic principles of atraumatic extraction is gentle work with soft tissues. The incision should be planned in such a way that it provides sufficient access to the surgical field without unnecessary trauma. The mucoperiosteal flap must be reflected carefully, avoiding tearing, excessive stretching, or crushing of the tissues. Good visibility is very important because poor visibility often leads to rough manipulation and increased trauma. A well-designed flap allows the surgeon to work accurately and reduces the risk of postoperative complications.

Another important stage is conservative bone removal. In many retained wisdom teeth, a part of the tooth is covered by bone. However, excessive removal of bone may weaken the jaw, increase postoperative pain, and prolong healing. Therefore, only the necessary amount of bone should be removed to expose the crown or roots of the tooth. Bone removal must be performed slowly and precisely, with constant irrigation to prevent overheating of bone tissue. Preservation of the surrounding bone is especially important near the second molar and in the area of the mandibular canal.

Tooth sectioning is one of the most effective atraumatic methods in the removal of impacted wisdom teeth. If the tooth cannot be removed as a single unit without force, it should be divided into smaller fragments. Depending on the position of the tooth, the surgeon may separate the crown from the roots or divide the roots from each other. This technique allows each part to be removed in the direction of least resistance. As a result, there is less pressure on the jawbone, adjacent teeth, and surrounding soft tissues. Tooth sectioning is especially useful in horizontal, mesioangular, distoangular, and deeply impacted wisdom teeth.

The correct use of surgical instruments is also essential. Elevators and forceps must be applied carefully and in a controlled manner. Excessive force should be avoided because it may cause root fracture, bone fracture, displacement of tooth fragments, or injury to the neighboring tooth. The second molar should not be used as a strong point of support during luxation because this may damage its periodontal tissues or enamel. If the tooth does not move easily, the surgeon should not increase force blindly; instead, the surgical approach should be changed by removing a small amount of bone or sectioning the tooth.

Modern atraumatic techniques may also include the use of microsurgical instruments and ultrasonic devices. These instruments allow more precise cutting of hard tissues and reduce accidental trauma to soft tissues. Although such methods may require more time and special skills, they are useful in complex cases where the tooth is close to nerves, blood vessels, or the maxillary sinus. The use of minimally invasive tools reflects the general tendency of modern surgery toward safer, more comfortable, and tissue-preserving treatment.

After the tooth is removed, the surgical socket must be inspected carefully. Sharp bone edges should be smoothed, small fragments should be removed, and the wound should be irrigated with sterile solution. At the same time, excessive curettage should be avoided if there is no pathological tissue, because unnecessary scraping may damage the healing surface. A stable blood clot in the socket is important for normal wound healing. Therefore, the surgeon should preserve the biological conditions necessary for tissue regeneration.

Wound closure is the final stage of the procedure. Sutures should approximate the wound margins without excessive tension. Proper suturing protects the socket, stabilizes the soft tissues, and supports faster healing. If the flap is closed too tightly, blood circulation may be disturbed; if it is closed poorly, food debris and bacteria may enter the wound. Therefore, wound closure must be balanced and anatomically correct.

Postoperative care is an inseparable part of atraumatic wisdom tooth removal. The patient should follow the surgeon’s instructions carefully. In the first hours after surgery, cold application may help reduce swelling. The patient should avoid hot food, smoking, vigorous rinsing, and heavy physical activity. Oral hygiene must be maintained carefully, but the surgical area should not be traumatized. Painkillers, anti-inflammatory drugs, or antibiotics may be prescribed depending on the clinical condition of the patient. Correct postoperative care helps prevent infection, alveolitis, bleeding, and delayed healing.

Thus, atraumatic removal of retained wisdom teeth is not only a technical procedure but also a complete surgical concept. It includes accurate diagnosis, individual planning, careful work with soft and hard tissues, minimal use of force, preservation of anatomical structures, and proper postoperative management. This approach improves the safety of the operation, reduces patient discomfort, and creates better conditions for rapid and uncomplicated healing. For this reason, atraumatic methods occupy an important place in modern oral and maxillofacial surgery.

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