Exodontia: Tips and Techniques for Better Outcomes

Harry Dym, DDS[a,*], Adam Weiss, DDS[b]

KEYWORDS

• Powered periotome • Piezosurgery • Immediate implants
• Bone grafting • Physics forceps

Exodontia is a procedure that all dentists are taught to perform in dental school and used by most general clinicians in their practice. With the growth of implant dentistry because of its high success rate and predictability, more questionable teeth that in the past may have been salvaged through extreme endodontic or periodontic procedures are now extracted for implant placement. A good skill set in basic and complex exodontia is therefore essential for well-trained general dentists who wish to be clinically involved in this facet of their practice.

This article reviews and highlights exodontia tips as well as new techniques to make simple and complex exodontia (**Box 1**) more predictable and efficient with improved patient outcomes. Included in this article is a discussion of a powered periotome that has been developed to aid in the atraumatic extraction of teeth. This instrument is particularly useful for immediate or delayed implant placement. Another new device, the piezosurgery, is also being increasingly used for outpatient oral surgery procedures, including complex exodontia. The precise and effortless nature of piezosurgery has been used in the removal of difficult broken down teeth and in bone grafting. A brief discussion on the physics forceps, a new type of exodontia forceps, which uses class 1 lever mechanics to extract teeth without having to use excessive force or squeezing motion, is also included in this article on basic and complex exodontia.

PRINCIPLE OF SIMPLE EXTRACTION

In the process of a simple extraction, surgeons must exercise a great deal of finesse and a certain degree of controlled force to be able to deliver a simple tooth extraction.

[a] Department of Dentistry/Oral and Maxillofacial Surgery, The Brooklyn Hospital Center, 121 DeKalb Avenue, Brooklyn, NY 11201, USA
[b] Division of Oral and Maxillofacial Surgery, The Brooklyn Hospital Center, 121 DeKalb Avenue, Brooklyn, NY 11201, USA
* Corresponding author.
E-mail address: hdymdds@yahoo.com

Dent Clin N Am 56 (2012) 245–266
doi:10.1016/j.cden.2011.07.002 **dental.theclinics.com**
0011-8532/12/$ – see front matter

Box 1
Exodontia: basic and complex

Definition

1. Basic exodontia: simple luxation techniques, bone expansion, and forceps delivery
2. Complex exodontia: techniques used to remove teeth other than by simple luxation and forceps delivery

If surgeons find themselves in a situation in which they have to exercise a significant degree of force to be able to deliver a certain tooth, they must stop and reassess the situation before resuming.

A simple extraction process involves minor alveolar bone expansion, separation of the periodontal ligament (PDL), and simple coronal forceps delivery of the tooth. Successful extractions also depend on the surgeon's thorough and detailed understanding of the anatomy of the teeth involved, the root form, angulation, attachment of the teeth to the periodontal apparatus, and the bony structure underneath.[1]

Experience will enhance the surgeon's tactile sense. As the tooth is being removed, the surgeon will be able to appreciate the lateral forces applied on the tooth's roots and their effect on the alveolar bone. This recognition leads to avoidance of any excessive forces that would produce root and alveolar bone fractures.

The patient needs to be positioned in the dental chair to allow for the surgeon's optimal control and visibility. When extractions are being performed in the lower arch, it is preferable that the patient's mandible is positioned in a parallel line with the floor. Then the patient's height should be adjusted up and down to allow for the mandible to be positioned at the same level at the surgeon's elbow so that when the surgeon is performing the extraction, the forearm is parallel with the floor as well. When extracting a maxillary tooth, the patient's maxillary occlusal plane should fall at almost 60° angle with the floor.

The surgeon's position, relative to the patient's position, varies as well, depending on which tooth is being extracted, and is also dependant on the surgeon's dominant hand (**Fig. 1**).[1]

Using the appropriate specialized instrumentation facilitates the procedure and makes it more predictable. Typically, the surgeon starts by separating the superior portion of the PDL and then subluxating with an elevator. Choosing the right forceps is important to be able to grasp the cervical portion of the tooth and position it as apically as possible to try to shift the center of rotation toward the root. This positioning allows the most effective central bone expansion movement and prevention of the fracture of roots or crown at the same time. Sharp elevators and forceps are always more desirable to use because they engage the tooth in a more firm and predictable manner and prevent slippage and/or lack of efficient delivery of force.

Pursuant to the separation of the PDL, one must find an appropriate purchase point for the elevator. The clinician must try to position the elevator between the bony socket wall and the tooth itself and direct the elevator in an apical direction trying to subluxate the root and push it coronally. Most of the time, an effective elevation prevents injury to the adjacent teeth, maintains the integrity of the alveolar bony structure, and makes the forceps delivery extremely simple. During the introduction of the elevator, the surgeon's free hand should, if possible, always hold the alveolar process with the thumb on one side and the forefinger on the other side and try to sense and direct the degree and direction of force being applied to the alveolar process of the tooth (**Fig. 2**).[1]