



Exodontia – A Review of Various Techniques

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ABSTRACT

This review encompasses the various principles and techniques used in exodontia and also their advantages and disadvantages.

Keywords – tooth, extraction, physics forceps, periosteal elevators

INTRODUCTION

Exodontia refers to extraction of teeth. This can be done using various different techniques such as using Extraction Forceps, or Physics Forceps, or even Orthodontic extrusion of the teeth. Certain basic extraction principles such as Wedge, Lever and Wheel & Axle are used to accentuate the ease of extraction.

A powered periotome has been developed to traumatically extract teeth. This instrument is particularly useful for immediate or delayed implant placement. Piezosurgery is also being increasingly used for outpatient oral surgery techniques.

Usage of Class 1 Lever Mechanics has been incorporated in the Physics Forceps.

Orthodontic techniques are also being used by some practitioners to help facilitate extraction of impacted teeth near the inferior alveolar nerve.

Each of the advantages and disadvantages has been explained under each technique.

POWERED PERIOTOME

Ridge defects, fracture and deformation of the Dentoalveolar complex can result due to the traumatic extraction of teeth using conventional methods^[1]. Also, excessive elevation of the mucoperiosteal flap can drastically reduce the blood supply to the Dentoalveolar complex leading to bone loss.

The Periotome allows for extraction of teeth with minimal bone loss. This aids in future placement of Dental implants. The basic

principle is that, the instrument is wedged in down the PDL space and Sharpeys fibres are severed due to the thin blade present in the periotome^[2]. The periotome offers exodontia without raising the mucoperiosteal flap and decreasing postoperative pain and discomfort^[3].

The major disadvantage of the periotome is that it has a learning curve and requires skill. Clinical use by people who have done studies have shown good patient acceptance and convenient tooth extraction.^[4]

PEIZO SURGERY

Piezosurgery is an innovative bone surgery technique that produces a modulated ultrasonic frequency of 24 to 29 kHz, and a microvibration amplitude between 60 and 200 mm/s^[5]. Piezosurgery is very effective in the creation of osteotomies because it works selectively, without harming soft tissues such as nerves and blood vessels even with accidental contact with the cutting tip.^[6] The oscillation of the scalpel tip is very small and the precision is greatly improved.^[7]

The removal of the body of the mandible lateral cortical bone with piezoelectric instrumentation allows adequate access to the surgical area, excellent visibility, minimal bone loss, and precise cutting ability, and allows the protection of the inferior alveolar nerve (IAN) by sparing the soft tissue when osteotomy is performed blind^[8]. Piezosurgery can be used to perform sinus lifts in a very precise and controlled manner.

PHYSICS FORCEPS

This forceps^[9] resembles a regular extraction forceps but it is modified in a way that the beak in relation to the facial aspect will have a rubber bumper and the lingual or palatal aspect will have the metallic beak^[10]. There should be no squeezing forces applied in using this forceps. Figure.1 gives a clear picture of the usage of physics forceps.

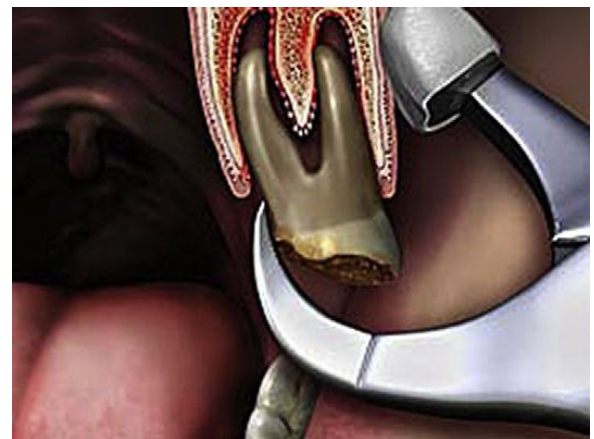


Fig.1 – Usage of Physics Forceps

LASERS IN EXODONTIA

One of the recent advancements in exodontias is the use of Lasers. The most commonly used are the Er:YAG laser. There has been a study done by Stubdinger and colleagues^[11] wherein they had extracted 30 wisdom teeth using the Er:YAG laser. The clinical trials produced good results yet there was patient complaint of sound and smell during the surgical procedure. Also, as this is a technique sensitive procedure, the time taken for conventional exodontia was found to be much shorter.

One of the other disadvantages of Laser is that due to the increased volume of irrigant

used during the procedure, the cutting efficiency was greatly reduced.

TECHNIQUE TO DECREASE THE RISK OF PARESTHESIA IN EXTRACTION OF IMPACTED THIRD MOLARS

There is every chance of paresthesial damage to the Inferior alveolar Nerve in close proximity to the impacted third molars. A surgical technique where the mesial aspect of the anatomical crown was removed and spontaneous migration of the third molar was achieved by Landi and colleagues [12]. Consideration must be given to prevent any pulpal damage to the tooth being sectioned mesially. The drifting occurs within 3-6 months and allows convenient extraction without paresthesial complications.

ORTHODONTIC EXTRACTIONS

This is particularly useful in case of Impacted third molars in the mandible. A combination of surgical and orthodontic extraction with a higher success rate without complications was described by Bonetti and colleagues [13].



Figure 2 shows orthodontic extrusion of the third molar with the help of brackets and molar bands.

The advantage of this technique is that the risk of nerve damage is eliminated, due to both the increased distance between the roots and the mandibular canal and the decreased need for surgical manipulation during the extraction. A potential problem with this technique is soft tissue damage from impingement on the mucosa of the cheek and the gingiva due to the movement of the teeth in the direction of force.

SUMMARY

The idea behind development of various techniques are for achieving patient compliance, ease of extraction of teeth ,minimal bone loss and no neurological complications. This has been developed over the years. Surgeons currently utilize the Physics forceps for extraction to prevent any squeezing type of force and application of minimal force. Orthodontic Extrusion and minimal sectioning the mesial aspect of the crown result in lesser percentage of neurological complications.

Hence each case must be individually assessed with the proper diagnostic aids and patient compliance combined with the learning curve of the technique must be taken in due consideration prior to exodontia

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