

Addressing Everyday Emergencies In The Dental Clinic

Part 3. Minimally invasive tooth extraction Performing aids: Luxator® extraction instrument

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Oral Disease - A Major Health Problem

The burden of oral disease is growing in several countries particularly due to changes in diet, nutrition and lifestyle. Many suffer from pain, discomfort and lack of appropriate oral health care. The caries decline observed in many countries is the result of a number of public health measures, better living conditions, changing lifestyles and improved self-care practices. In some countries this positive trend could deter action to further improve oral health, or sustain achievements. It might also lead to the belief that caries problems are decreasing. However, it must be stressed that dental caries, as a disease, is not eradicated but only controlled to a certain degree and that there is an urgent need for systematic oral health programmes for promotion of health and effective control of oral disease. Oral health must be recognized as an integral part of general health and essential to quality of life. If left untreated even for a short period of time, oral diseases can have adverse consequences. They are considered a risk factor in a number of general health conditions. The systemic spread of bacteria can cause, or seriously aggravate, infections throughout the body, particularly in individuals with compromised immune systems.

Oral Health & Quality of Life

In many countries, access to oral health services is limited and teeth are often left untreated or are extracted when in pain or discomfort. Oral disease restricts activities in school, at work and at home causing millions of school and work hours to be lost each year the world over. Moreover, the psychosocial impact of these diseases often significantly diminishes quality of life.

Tooth Extractions - Second Most Common Dental Procedure

A study published in the year 2000 (Retna KN)¹ showed that among 750 school children of Kerala extractions were the second most common dental procedure. The study also revealed that all the children who had approached the dentist for consultation and treatment had only done so for temporary relief in relation to emergency management. Similar findings have been reported from the Mumbai region (Rodrigues JS et al, 1998)².

Extraction is performed for positional or structural reasons as well as to remove teeth that are so badly decayed or broken that they cannot be restored. In addition, patients sometimes choose extraction as a less expensive alternative to filling or placing a crown on a severely decayed tooth.

Unfortunately, worldwide, tooth extraction is still one of the most common emergency dental treatments. It is therefore important to find methods for making this procedure as

minimally invasive and safe as possible.

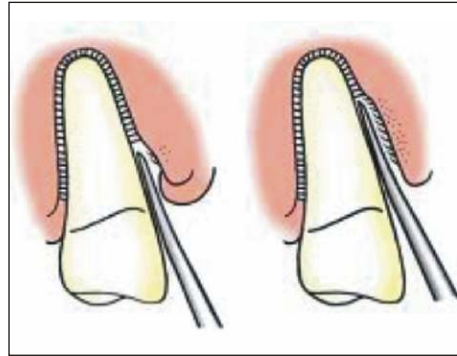


Fig. 1: Luxation is the loosening of a tooth from the alveolar socket through disruption of the periodontal ligament fibres.

Luxate Or Elevate

Tooth extraction is rarely a simple procedure. A successful extraction is achieved when the entire tooth is removed with a minimum of trauma to the adjacent, remaining

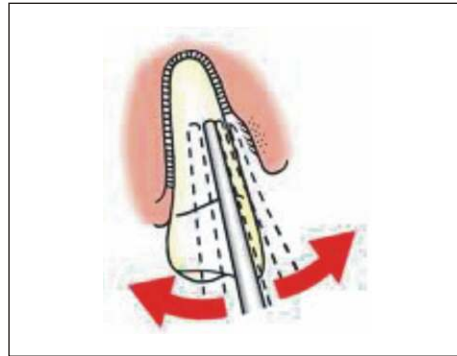


Fig. 2: The Luxator® is being used with a slight twisting action to gently drive the tip into the socket. The thin and sharp tip cuts off the periodontal ligament, the alveolar bone is being compressed and the tooth gently removed from the alveolar



Fig. 3: The Luxator® has a thin, sharp blade that is anatomically designed to fit around different root surfaces.



Fig. 4: The Luxator® instruments were invented and designed by a dentist to make extractions as trauma free as possible.

tissues. To achieve this, the best success rate includes knowledge of tooth morphology, correct choice of technique, and the use of appropriate equipment.



Fig. 5: The blade is made of hard stainless steel and is extremely thin.

The routine technique for extraction is to loosen (luxate) and extract (elevate) the tooth in question. Luxation is the loosening of the tooth from the alveolar socket through disruption of the periodontal ligament fibres. The final periodontal fibres are then broken by slightly rotating the root in the socket using extraction forceps. The root should always be gripped as low down as possible to reduce the torque on the root and the risk of breakage.

New Instrument For Extractions

The Luxator® is a new tooth extraction instrument which has the clinical validity for cutting the periodontal ligaments. Luxator® is an instrument that is used for the extraction of teeth in a way that differs from traditional extraction methods. Its form is similar to



Fig. 6: The handle is ergonomically designed for optimal tactility and control. Place index finger at the point corresponding to the maximum insertion of the instrument in the alveolar. The index finger serves as a stop on occlusal surface of adjacent tooth.

existing elevators but it's most significant feature is that the blade tip is very thin and highly rigid; the instrument therefore resembles a periodontal ligament knife that can be used for extractions³.

Although the traditional types of elevators can be used for cutting off periodontal membrane to a certain degree, it is unable to cut



Fig. 7: Minimal invasive procedures save important bone structure.

sufficiently because of the blade thickness. The Luxator® blade is made of extremely thin hard metal and when applying the Luxator® to the extraction procedures, the tactile cutting experience will be different.

Minimal Invasive Procedures

When the extraction of a tooth can be smoothly carried out because of speedy luxation it also means that the patient is more satisfied. Several studies have shown that delayed clinical healing significantly increases the prevalence of delayed recovery for lifestyle, oral function, late symptoms and pain⁴.



Fig. 8: When extracting lower teeth, support the mandible with your free hand to prevent excess pressure on the temporo mandibular joint.

Dry socket as a complication after extractions is associated with loss of the blood clot from the socket and exposure of the bony surface. It is thought to occur especially if excessive force is used during the extraction.

Pumping Movements May Lead to Bacteraemia

Cutting of the periodontal ligaments with the Luxator® instrument can be performed with a minimum invasion of periodontal bone structures. Wound healing at extraction socket is rapid.

In a Swedish study bacteremia was observed in 100% of the patients after dental extraction (Heimdahl A et al, 1990). It was not related to the extent of surgery, since a single dental extraction produced a higher incidence of bacteremia than third- molar surgery and bilateral tonsillectomy did. It appeared that dental extraction was associated with both aerobic and anaerobic bacteremia significantly more often than the other procedures were. The explanation for this is unclear, but heavy colonization of the tooth surface with aerobic and anaerobic micro-organisms in combination with the pumping movements used in dental extraction may be of significance.

Minimally Invasive Procedure Saves Bone Structures

Less post-extraction pain, swelling and a good prognosis due to the minimum invasion of extraction socket when using the Luxator® leads to the surrounding bone tissues being well preserved.

In cases of immediate implants a well preserved alveolar bone is of great importance. Immediate implants are placed into a prepared extraction socket following tooth removal. Short-term animal and human studies have shown these implants to be comparable to implants placed into healed bone. The advantages of the procedure include fewer surgical sessions, elimination of the waiting period for socket healing, shortened edentulous time period, lower overall cost, as well as preservation of bone height and width. The advantages of immediate implantation makes the procedure very appealing to patients who are in need of both extractions and implant therapy⁶

Difference Between Luxator® & Elevators

Luxator® have thin, sharp blades that are anatomically designed to fit around different root surfaces. During an extraction, the Luxator® is used in a rocking (luxating) motion around the tooth to cut the epithelial attachment and the periodontal ligament. The Luxator® is used for rocking and cutting versus an elevator which is used for lifting and prying. The instrument avoids placing undue pressure on adjacent teeth.

Designed By a Dentist

Luxator® instruments are specially designed periodontal ligament knives with a fine tapering blade that compresses the alveolar, cuts the membrane and gently eases the tooth from its socket. The Luxator® instruments were invented and designed by the Swedish dentist Dr Ericsson to make extractions as trauma free as possible. The whole operation is performed with a minimum of tissue damage, healing is quicker



Fig. 9: Place the Luxator® tip axially in the periodontal space.



Fig. 10: Usually compact bone is thickest on buccal side. Therefore first luxate palatally/lingually. This compresses the alveolar bone and creates space for the root to move in a palatal/lingual direction when the instrument is inserted on buccal side.

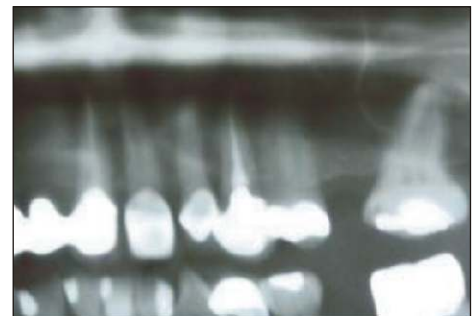


Fig. 11: To minimise trauma and bone damage study x-rays to establish the orientation of the tooth in relation to the patients bone structure. In particular: The location of the maxillary sinus in relation to the tooth, 2nd and 3rd molar in maxilla and risk of fracture of maxillary tuberosities as well as nerves and blood vessels in the mandible.

and it is less distressing both for the patient as well as the surgical team.

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