Atraumatic extractions with Luxator Periotome

Instrument can help the dentist divide and conquer the forces retaining a tooth

By Dr. Simon Jones

The extraction of a tooth is probably the most traumatic event a patient can experience in the dental office, and if the extraction doesn’t go smoothly, things can become quite stressful for the dentist as well. When the use of a simple surgical instrument can make the extraction process infinitely easier for both patient and dentist, I find it surprising not all dentists reach for a Directa Dental Luxator as their first instrument of choice.

To understand how best to remove a tooth, it helps to appreciate the structures and forces that are holding the tooth in position. It is only by overcoming these forces that the tooth can be removed.

First, consider the bone structure surrounding the roots. As the bone sits intimately against the root surface, any irregularities, undercuts or curvatures of the root will provide mechanical retention. To overcome this retention, the socket must be dilated until the path of removal of the root is unimpeded by bone.

The second factor resisting the removal of the tooth is the periodontal ligament, composed of collagen fibers. Like millions of little ropes, the cumulative strength of these fibers resists the strongest of biting forces. Imagine how much force would be required to overcome this combined strength in an attempt to simply pull out a tooth.

The third force to overcome is that of atmospheric pressure. Withdrawing a tooth from its socket will create a void or vacuum at the apex of the socket, and until this void is filled with blood or an ingress of air, then atmospheric pressure will effectively push on the tooth to keep it in position. Anyone who can remember back to the Magdeburg Hemisphere experiment in school physics will know that simple atmospheric pressure resisted the force of two teams of horses pulling in opposite directions.

Little wonder then that simply using a combination of forceps and brute force can lead to unnecessary loss of alveolar bone, root fracture and subsequently more stressful experience for both patient and dentist. Dealing with the fracture of a maxillary tuberosity can certainly ruin your day!

The careful and considered use of a Luxator helps the dentist to divide and conquer the forces retaining a tooth, making the extraction process an infinitely more predictable and stress-free process.

The appropriate size of Luxator is chosen to match the diameter of the root, and the angle of the blade is chosen to give the best access.

The tip of the Luxator is gently inserted into the gingival margin, with the blade angled slightly toward the root surface. This ensures that the Luxator...
enters the periodontal ligament between the crestal bone and the root.

Once in the periodontal ligament, the Luxator is worked down the length of the root with a side-to-side rocking motion and steady axial pressure (Fig. 2). This motion first severs the periodontal fibers, and then as the blade is introduced further, the socket is dilated to allow an easier path of removal. Finally, as the periodontal ligament is severed and the socket dilated, bleeding and air ingress overcome the vacuum that resists tooth removal.

The Luxator should be inserted around as much of the circumference of the root as possible to evenly dilate the socket. Once this has been achieved, the final delivery of the tooth may be performed with forceps, although this is often not required with single-rooted teeth.

When using a Luxator, the uniquely designed handle should sit neatly in the palm of your hand, cradled by your fingers and thumb, with the index finger extended toward the tip of the instrument (Fig. 3). This allows for precise control of the tip and prevents the risk of slipping. Excessive force should be avoided; the Luxator is a surgical instrument and should be used as such, not as an elevator.

To complement its range of Luxators, Directa now produces an elevator called the Luxator Forte. Having diluted the socket using a Luxator, if it is felt that greater dilating and elevation forces are required, then the stronger Luxator Forte should be used. The Luxator Forte is easily recognizable by its black handle (Fig. 4). This sequence of luxation, followed by elevation, generally means that forceps are only ever used for the final easy delivery of the tooth.

The Swedish dental company Directa not only invented the name Luxator, but has developed this range of instruments to perfection. The use of high-grade, surgical-steel blades and a two-part moulding technique for the uniquely ergonomic polymer handle combine to provide a high-quality instrument that will give years of reliable service and will endure countless cycles of washing disinfection and autoclaving.

Having used Luxators for more than 20 years, I cannot imagine undertaking the extraction of any tooth without first severing the periodontal fibers with my trusty friend. It would be the equivalent of struggling to remove my boots without first undoing the laces.

Fig. 3. Correct handling of Luxator Periotome.
Fig. 4. Luxator Periotome vs. Luxator Forte (black handle).
Fig. 5. An atraumatic extraction is performed.

**_about the author_**

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