

ATRAUMATIC EXTRACTIONS FOR MORE PREDICTABLE IMMEDIATE IMPLANT PLACEMENT

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Dentists have been extracting teeth for centuries with some of the first extractions documented by Aristotle in 350 B.C. Since then there are myriad of options with which to extract a tooth including forceps, elevators, and rotary handpieces being the choices for the majority of dentists today. As more and more dentists add implantology to their practice, extractions with immediate implant placement are becoming an attractive and predictable option for patients and clinicians alike. In order to create an environment for an immediate implant placement, it is paramount to make the tooth extraction as atraumatic as possible, preserving the socket while being minimally invasive in the process.

The Piezotome CUBE™ by ACTEON™ (figure 1 image of CUBE device) is a novel ultrasonic bone surgery device that uses powerful, high frequency vibrations with slim tips to disrupt the periodontal ligament making extractions faster and less traumatic while preserving the socket. This is especially important when working in the esthetic zone where preservation of the buccal bone is extremely important. The risk of damaging or breaking the alveolar bone is drastically reduced due to decreased stress that is needed than using forceps alone. In most cases no surgical flap is needed to perform extractions with CUBE keeping the periosteum intact. This due to the selective cutting where only hard tissue like bone and ligament is cut and soft tissue is spared. Other benefits of using Piezotome CUBE include decreased postoperative pain and swelling compared to traditional methods of bone surgery and a substantial decrease in need for analgesics post operatively as well.¹ As the surgeon's skill and experience increases, the CUBE can be utilized for a number of other bone surgery procedures such as sinus elevations, ridge expansions, crown lengthening, and osteo-assisted orthodontics.

You may have tried a piezo surgical device in the past and thought it was just too slow. I thought the same thing until I tried the CUBE. The power level surpasses anything I have used in the past. Not only do you and the patient benefit from the safety, decreased pain and predictability, but the power level makes the procedures very fast.

The following case study documents an atraumatic extraction using Piezotome CUBE with an immediate implant placement. A 38-year-old female presented with a crown, loose post, fractured root and periapical lesion



Figure 1

in tooth number 7 (figure 2 x-ray of crown and post) that was deemed unrestorable with a hopeless prognosis.

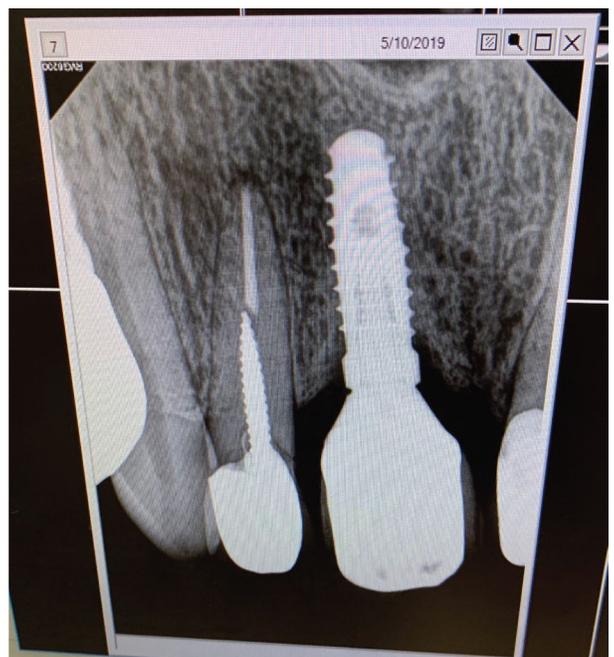


Figure 2

The patient was given multiple treatment options and ultimately agreed to extraction with immediate implant placement. A staged approach was planned with an Essex temporary due to a deep bite and higher risk of provisionalization. Surgical planning utilized Blue Sky Bio® software.

Atraumatic extraction was performed using Piezotome CUBE with an LC2 extraction tip. (figure 3 Extraction with CUBE). Minimal bone resection was noted, and buccal bone was sounded with instruments. It was confirmed intact and not damaged. No surgical flap was raised keeping the periosteum intact in line with atraumatic extraction protocol. (Figure 4 Image of socket) (Figure 5 image of tooth extracted)

Using a surgical guide, an initial pilot drill was used to prepare the socket. Osseodensification with Versah® bur was used to densify the bone in the socket to create higher initial stability which is a key factor for implant success. Using the Versah bur, an infracture of the nasal floor was performed to create stabilization of the apical area of the implant in cortical bone. The gap between the fixture and plate was grafted with mineralized cortical cancellous bone and site was covered with L-PRF membrane using the IntraSpin® system. A BioHorizons 4.2 x15 Tapered Plus implant was placed with a cover screw. Site was closed with 4-0 PTFE sutures and verification x-ray was taken to confirm the implant was in position. (figure 6 x-ray of implant in position)



Figure 3



Figure 4



Figure 5



Figure 6

This extraction and immediate implant placement were facilitated by the ease of the atraumatic extraction by the Piezotome CUBE. When preservation of the socket is needed, the predictability and power is provided by the CUBE.