

# Device uses high-frequency radiosurgical technology for clean surgical cut

Dual frequency 4-MHz device produces less thermal damage than lasers.

by Erin L. Boyle

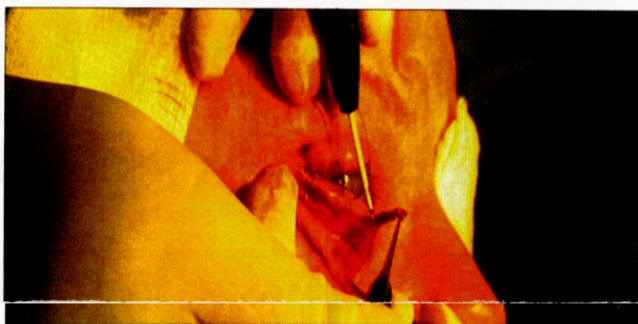
OSN STAFF WRITER

The Surgitron Dual Frequency 4-MHz radiosurgical unit maintains a clear operating site because it provides effective cautery and creates more precise incisions than lasers, according to an oculoplastic surgeon.

Daniel L. Dale, MD, has used the device for 15 years in about 10,000 eye-

the purpose of cutting and coagulating," according to company information.

The Surgitron has five modalities, including bipolar, and a maximum output power of 120 W. It has finger switch and foot switch activation, and a neutral plate with return monitor for audio and visual safety, he said. The unit utilizes either autoclavable or disposable handpieces, and neutral plates.



Ellman device is used to remove orbicularis muscle. Images: Dale DL



Bleeding cauterized with Ellman device.

gery and less bruising, scarring, and swelling. He added that the sutures can be taken out earlier.

Dr. Dale said the device also has the benefit of not having drag through the tissue, as with a knife blade. Some surgeons like the tactile feel of using a blade, but it is difficult to make a clean, curving cut because of its drag potential, he said. Lasers provided the flexibility of easy movement, but they also prove difficult to make fine incisions. In addition, they create greater lateral thermal damage, causing some wounds to fall apart and requiring stitches to remain in longer, he said.

"The Ellman, to me, is like the best of both worlds, because with the fine tip, I can make a cut that's as fine as a knife blade, but it has no tissue resistance so I can draw sharp curve, but you don't have to worry about pulling or dragging the tissue and having a poor cut because of the drag," Dr. Dale said. "That makes it really versatile from the standpoint of making curved incisions on the eyelid or just following a contour around something very easily."

He said it cuts equally as fine as a cold scalpel but the device does not cause significant tissue necrosis whenever the cut function is performed.

## The tips

Dr. Dale recommended surgeons use a highly polished, tapered Empire needle with the device. The tip cuts like a knife blade but is cold, rendering it safer. The base, which is wider, provides good cautery, he said.

He said surgeons should also use caution when using the tip and the de-

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— Daniel L. Dale, MD

vice because whenever it touches tissue, it instantly begins to cut. It eliminates pressure or drag, allowing the surgeon to perform surgery quickly. The learning curve for the device is not steep, but takes time to become accustomed to, he said.

"You have to be very careful and you have to be at least relatively skilled



Cautery performed with Ellman device.

## Cut and coagulation settings

The device's handpiece has three buttons allowing for use of cut, coagulation or a cut-coagulation blend. If using the foot pedal, someone has to touch a button on the panel to switch from cut to blend coagulation, according to Dr. Dale. He said the "wealth of options" provided by the device also allow different power settings in different modes.

"That does a little better job of giving you cautery," Dr. Dale said. "But the other thing that I found is, if you just take a pick-up and grab the tissue that you want to cauterize, the larger the diameter size that you're touching with, the better coagulation there is and the better it cauterizes in any mode. So all you have to do is grab something with a little larger pick-up and then hit the handpiece to that and you get a great coagulation."

lid, orbit, brow and midface oculoplastic surgeries. Dr. Dale, who has phased out using lasers in his practice because of the radiosurgical unit, said it is one of the safest, most cost-effective and transportable surgical tools.

"I really think you get a better result with this," he said in a telephone interview with OCULAR SURGERY NEWS. "And it's faster. I think it's because you can see, as you're cutting tissue planes, you're coagulating. You don't get all these minibleeders that you're chasing, so your field stays much clearer."

## How it works

"The radiofrequency device, which is patented, uses transformers, followed by appropriate design circuitry to convert the input AC power from the wall outlet into a high-frequency power output, which is harmonically matched for

According to the information, thermal damage is reduced significantly compared to other instruments, including lasers.

"The advantage of the high-frequency 4-MHz device energy source is that it produces the least amount of thermal damage – studies state in the range to 10 to 20  $\mu\text{m}$  – which is extremely low when you compare it to laser, which is up at about 200  $\mu\text{m}$ ," the information said. "Even a cold steel scalpel has a certain amount of tissue alteration because it crushes the cells. Even that is about 30 or 40  $\mu\text{m}$ . The use of the Ellman Surgitron high-frequency device produces tissue alteration which is even below the alteration produced by the scalpel."

The information also said that the reduction of thermal damage provides the advantages of reduced scarring, a reduced pain threshold from the sur-

because the instrument allows you to cut tissue very cleanly but also to penetrate into tissue easily," he said.

He also said the Empire tip is excellent for dissecting skin flaps. It allows surgeons to peel a flap off an eyelid, one of the thinnest skins on the body, and retain the blood vessels. He said he could not do that in previous surgeries with scissor dissection. **OSN**

## For Your Information:

Daniel L. Dale, MD, can be reached at Wisconsin Oculoplastics, 1525 Park Place, Green Bay, WI 54303; 920-965-1234; fax: 920-965-1232. Dr. Dale has no direct financial interest in the products mentioned in this article, nor is he a paid consultant for any companies mentioned.

Ellman International Inc., makers of the Surgitron Dual Frequency 4.0 MHz device, can be reached at 3333 Royal Ave., Oceanside, NY 11572; 516-267-6502; fax: 516-267-6503; www.ellman.com.

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