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Radiofrequency technology has unique dermatology niche.

[Skin & Allergy News](#) • Nov, 2007 • Aesthetic Dermatology

ORLANDO -- Radiofrequency technology has a number of properties that make it useful for dermatologic and cosmetic surgery, Dr. Jeffrey Ellis said during a presentation at the annual meeting of the Florida Society of Dermatologic Surgeons.

In particular, high-frequency radio wave energy causes minimal tissue trauma and collateral tissue damage, provides precise dissection and provides excellent hemostasis, said Dr. Ellis of the State University of New York, Brooklyn.

Radiosurgery is his treatment of choice for surgical management of keloid scars, large tumors, cosmetic sculpting of nevi, "scarless mole removal" and sculpting or carving flaps, said Dr. Ellis, who also is director of dermatologic surgery at North Shore-Long Island Jewish Health System, who reported that he has received research and/or grant support from Ellman International Inc., which makes a radiofrequency device.

Radiofrequency devices have been used in many medical disciplines. The high-frequency/low-temperature radio waves allow cutting, coagulation and the use of bipolar coagulation.

"Basically, at the tip of the instrument you are generating a high-frequency radio wave that has very high affinity for water. The electrode enters into the target tissue, the cell readily absorbs the energy due to high water content, and the cell explodes, creating low-temperature steam, which causes coagulation while cutting," he explained.

The process allows for excellent control and preservation of collateral tissue. A number of factors can be manipulated to maximize efficacy, including waveform, power settings, electrode type and size, and amount of time treating the target tissue. Tissue type also plays a role in the outcome of radiosurgery.

Waveform, for example, can be manipulated to get different tissue effects. A fully filtered waveform causes very little tissue destruction: If hemostasis becomes an issue, a rectified waveform can be used to cut while also maintaining hemostasis.

Radiosurgery can be performed very quickly, which is another benefit, he said.

Dr. Ellis finds radiosurgery particularly useful for keloids. He described one patient--a young girl with severe bilateral earlobe keloids--who failed two conventional surgeries, injections, and compression earrings, and who suffered a great deal of psychosocial morbidity as a result of her scars.

Radiosurgery easily removed the keloids, allowing for debulking as necessary, good hemostasis, flap creation for repair, and removal of excess tissue, he said.

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