In a recent article, J.C. Goncalves reviewed the use of a loop device attached to a radio surgical unit to debulk a tumor prior to freezing with liquid nitrogen. Applying this radio frequency cutting current to tissue in an electric scalpel surgery or using a loop device to cut through tissue for rhinophymectomy are well known surgical modalities. The loop devices, however, are unpredictable and often cause gouging an unwanted depth of destruction. Herein is described the novel use of radio frequency cutting current that produces controlled vaporization through a patented blade handpiece with a disposable 10a surgical blade. This rapid, powerful, yet precise vaporization of tissue provided some unique features that are not obtainable with some commonly used destructive surgical modalities. This versatile instrument can be used to remove cancerous tissue and smooth and contour skin surfaces after curettage, shave excisions, graft and flap procedures. It also debulks scar tissue and sebaceous hyperplasia (rhinophyma) with clear visualization of the treated tissue.

Controlled vaporization of tumor tissue is achieved by taking a disposable rounded surgical scalp knife #10A in the ellman patented blade handpiece and applying a radiofrequency cutting current (I use the patented ellman 4.0Mhz Dual Frequency Surgitron) across the skin until the desired amount of tissue is vaporized. The movement is such that the instrument barely touches the skin. The flat part of the blade in the radio frequency handpiece is held parallel to the skin surface and quickly moved from the superior end of the tumor to the inferior end (towards the operator) or visa versa. This motion is repeated until the desired depth of destruction is achieved. Pressing lightly on the skin surface removes a very thin layer of tissue. Pressing firmly results in deeper destruction. Moving the blade handpiece with a #10A blade briskly results in less tissue damage. Moving slowly across the tumor results in more tissue contact and more destruction. Leaving the blade immobile and pressing down with the flat surface vaporizes the tumor directly under the metal surface, thus allowing debulking of raised areas. Large areas can be debulked by approaching the raised tumor from the side and cutting through it (undercutting the tissue mass).

The higher the setting of the Dual Frequency Surgitron unit the greater is the cutting ability, the amount of tissue destruction, and vaporization over a unit period of time. There is virtually no char at the higher settings, thus the underlying tissue is readily visualized. However, greater care must be taken since even the lightest pressure will result in a large amount of destruction. Conversely, setting the Surgitron at a very low setting results in a drag of the surgical blade across the tissue and more charring with loss of clear visualization of the treated surface. However, the lower settings permit finer control over the depth of destruction and are excellent for fine tuning of the edges.

A large amount of smoke plume is generated with this procedure. A Vapor-Vac Surgical Smoke evacuator is held approxi-
Preservation of normal tissue has been shown on histopathological specimens after radio frequency scalpel surgery. Moving the blade handpiece quickly through the tissue and keeping the power setting high enough to minimize drag, but not so high as to introduce unnecessary energy, is ideal for minimizing thermal injury. This is particularly helpful with cosmetic concerns where it is important to produce an exact amount of destruction. If you limit the destruction depths to the upper papillary dermis, there is a good chance that the cosmetic results will be good. If you destroy tissue beyond appendageal structures and leave the wound to heal by secondary intention, pigmentary changes and some scar formation will probably occur.

To summarize, vaporization of tissue, utilizing the cutting current delivered to the blade handpiece with a #10A surgical scalpel and repetitively moved tangentially across the tumor, offers a number of advantages over electodesiccation. This method provides excellent visualization of the tumor bed and surrounding "normal tissue." Depth of destruction is easily and precisely controlled by adjusting the amount of current delivered and varying the speed and pressure of each "pass." This versatility affords either rapid, extensive destruction of tissue (debulking) as in basal cell carcinoma removals, scar debulking and rhinophyma destruction, or more delicate tissue contouring and layering as in "smoothing out" the borders of graft and flap repairs or leveling off a nevus after a shave excision.

References

Dr. Steven Chiarello and Dr. Jon Garito have developed a disposable, single patient use, sterile, sculpting pen that provides enhanced safety, compliance with sterility guidelines, patient security, convenience and economy.