

Dr. David Valenti uses new technology to treat patients with otherwise inoperable tumors.

Surgery is not an option. That's something many cancer patients have heard if their tumor was larger than current surgical guidelines allowed for. It's never welcome news.

technology overview

Using CT or ultrasound guidance, the physician will accurately determine the location of the lesion and then insert an electrode directly into the malignant tissue. Once placement of the electrode/electrodes is verified, the doctor activates the RF generator and energy (current) flows through the electrode directly into the tissue, destroying the lesion.

Liver cancer often goes undiagnosed until patients present with serious symptoms. By then, cancerous tumors in their livers can be quite large. Surgical guidelines generally recommend against operating to remove tumors greater than seven centimeters, or just under three inches, in diameter. For patients unfortunate to have larger tumors, surgery is not an option.

"For these patients, we generally see treatments limited to chemotherapy, radiation therapy, or for those who are already well advanced, palliative care," says Dr. David Valenti, Interventional Radiologist at the Royal Victoria Hospital in Montreal, Canada.

New technologies, however, are tilting the playing field in the patient's favour.

Radiofrequency (RF) Ablation is a new technology treatment method that allows physicians to treat inoperable primary or secondary lesions directly while they remain in the body. The procedure can be performed in a radiology suite or an operating room, by interventional radiologists, or surgical oncologists. The doctors use CT scans or ultrasound images to pinpoint the location of the tumor, or lesion, and then insert a special electrode directly into the malignant tissue. This can be done during traditional "open" surgery, in a less invasive laparoscopic procedure or simply by directly inserting the electrodes through the skin, using image guidance.

Once the tip of the electrode is inside the lesion, pulsed RF energy emitted from the tip quickly heats and destroys the cancerous tissue. The procedure can be used for lesions in the liver, kidneys, lungs, or bone and typically takes from 12 to 40 minutes, depending on the location and size of the tumor, under general anesthesia or conscious sedation.

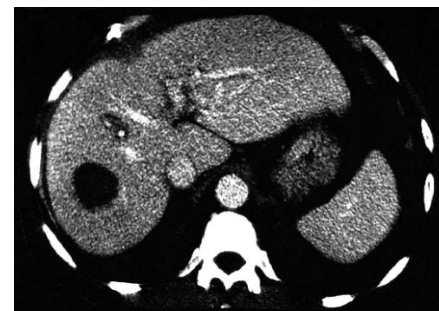
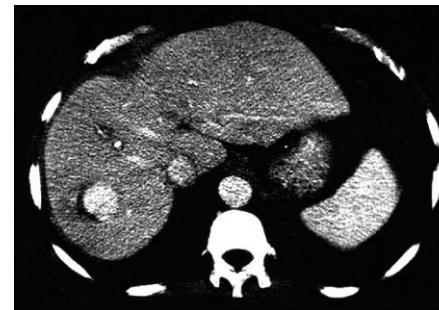
Patient follow-up to monitor for lesion recurrence usually includes CT or MRI scans and is performed at

various times, normally around 1, 3 and 6 months following the procedure.

"It's a wonderful feeling, being able to offer a surgical option for patients who have otherwise inoperable tumors," says Dr. Valenti.

In Toronto, Mount Sinai Hospital has been a pioneer in the field, having performed their first RF Ablation procedures in November 1999. Ever since the first surgeries, Mount Sinai Hospital along with the Toronto General Hospital has performed over one thousand liver RF Ablation procedures alone.

Until now, RF Ablation has been used in many provinces such as British Columbia, Alberta, Saskatchewan, Ontario, Quebec, New Brunswick, and Nova Scotia. It has become a substitute to surgical resection or removing tissue, for various types of cases such as hepatoma (a type of liver tumor), renal cell carcinoma (a form of kidney cancer), osteoid osteoma (benign tumor forming in the vertebrae or in the long bones) and metastases in the liver or lung. RF Ablation has actually become a standard of care for patients with certain types of hepatomas, and for osteoid osteoma.



fast facts

- The procedure can be used for lesions in the liver, kidneys, lungs, or bone and typically takes from 12 to 40 minutes.
- The first percutaneous Radiofrequency treatment of an osteoid osteoma (benign tumor forming in the vertebrae or in the long bones) was performed in 2002.¹
- 70 to 90 per cent of malignant liver tumors cannot be resected and require other therapies such as Radiofrequency Ablation.²
- Research indicates that hepatic (liver) tumor Radiofrequency Ablation can be performed with low mortality and morbidity rates.²

¹ Rosenthal et al. Pediatric Radiology 2002;32:615-628

² Curley S, et al. "Early and Late Complications After Radiofrequency Ablation of Malignant Liver Tumors in 608 Patients," Annals of Surgery 2004;239(4)