Ablating the safety margins of tumors following lumpectomy could reduce the need for another resection. The combined treatment approach could also reduce breast disfigurement, according to a study presented at the American College of Surges annual meeting in October.

Although mastectomy remains at the forefront of treatment strategies for breast cancer, physical and psychological scars burden many patients. A significant number of them qualify for breast-preserving surgery, but the risk of a new resection after this type of intervention remains high and many consider the results unsightly. Lumpectomy followed by radiofrequency ablation may be a new option for these patients.

"Our short-term follow-up has shown no in-site recurrence of cancer in these patients," said principal investigator Dr. V. Suzanne Klimberg, director of the breast cancer program at the Arkansas Cancer Research Center of the University of Arkansas for Medical Sciences in Little Rock.

Klimberg and colleagues performed RFA-assisted lumpectomy in 29 prophylactic mastectomy ex vivo specimens. They positioned the RFA probe in the lumpectomy cavity walls immediately after resection and kept it at 100ºC for 15 minutes. After conducting random proliferating cell nuclear antigen and Ki67 staining tests in the mastectomy specimens, they had established an ideal safety margin of 5 mm or greater.

The investigators also performed RFA in 25 patients undergoing breast-preserving therapy. They found the technique reduced the need for surgical reexcision due to faulty margins after lumpectomy by 86%.

Initially, pathologists' results indicated inadequate lumpectomy margins in 28% of the 25 patients undergoing breast-preserving surgery. Based on the ex vivo ideal safety margin, however, researchers excluded these patients from a second resection. No local recurrences have been detected after a mean follow-up of one year.

Assuring that lumpectomy margins are negative is key to preventing recurrence after breast conservation treatment. RFA could become a positive addition to the treatment armamentarium if it proves to be a safe and cost-effective method to secure negative margins, said breast conservation therapy pioneer Dr. Edward M. Copeland, a professor of surgery at the University of Florida College of Medicine in Gainesville.

Virtually all RFA procedures are performed in patients who are too sick to undergo surgery, while it is rare that a patient would be too ill to tolerate a lumpectomy. The application of thermal ablation for breast carcinoma plus surgery is much more likely to lead to clinical success than ablation alone, said Dr. Daniel B. Brown, an interventional radiologist at Washington University's Mallinckrodt Institute of Radiology.

The Arkansas study raises several questions, especially regarding follow-up and proper lesion margin assessment. Recurrence at the margins of an ablated renal cell carcinoma, for instance, might not appear until three years later. Some tumors may call for asymmetric margins, and surgeons need to account for this possibility when placing the probes, Brown said.

"I am all for the idea of improved cosmesis with breast-sparing surgery. However, the results of this study need to be looked at cautiously. Long-term follow-up is essential to ensure this is an equally efficacious option for patients," he said.

For more information, visit Diagnostic Imaging's Tumor Ablation Clinic or click on the following links from the Diagnostic Imaging archives:

- RFA gains more ground in breast cancer
- Multiple strategies take aim at removing breast lesions
- RF tumor ablation breaks through in clinical practice

Disclosures: