New Technology Makes Breast Cancer Surgery More Precise

Any breast cancer surgeon who regularly performs lumpectomies confronts the question “Did I get it all?” Thirty to 60 percent of the time in the U.S., the answer is “no,” requiring the patient to undergo a second surgery to remove the remaining tumor.

Surgeons at UC Irvine Medical Center are the first in the country to use a device that reduces by half the need to reoperate and cut out breast cancer cells missed during an initial lumpectomy. The MarginProbe System lets the surgeon immediately assess whether cancer cells remain on the margins of excised tissue. Currently, patients have to wait days for a pathologist to determine this.

“All of my patients know someone who has had to go back into surgery because their doctor didn’t get the entire tumor out,” said UC Irvine Health surgical oncologist Dr. Alice Police. “The ability to check tissue in the operating room is a game changer in surgery for early-stage breast cancer.”

The goal in a lumpectomy is to completely remove the cancer while preserving as much normal breast tissue as possible. If a pathologist finds cancer cells on the edges of the tissue taken out, surgeons must assume the lumpectomy didn’t get the entire tumor.

The Food & Drug Administration approved MarginProbe in December 2012, and UC Irvine Medical Center is the first hospital in the U.S. to employ the system, according to manufacturer Dune Medical Devices.

Police, assistant professor of surgery at UC Irvine and medical director of Pacific Breast Care in Costa Mesa, and Dr. Karen Lane, associate professor of surgery and clinical director of the UC Irvine Health Breast Health Center in Orange, began operating with MarginProbe in early March.

They had participated in an FDA trial that included more than 660 women across the U.S. In the prospective, multicenter, randomized, double-arm study, surgeons applied the device to breast tissue removed during in-progress initial lumpectomies and, if indicated, shaved additional tissue on the spot. This was found to reduce by 56 percent the need for repeat surgeries.

“It will save you a lot of anxiety,” said Jane Madigan, a Costa Mesa resident who underwent the procedure with Police as part of the MarginProbe trial. “You will come out of that surgery knowing you are cancer-free.”

The system comprises a sterile handheld probe and a portable console. When the probe tip touches an excised lumpectomy specimen, radio-frequency signals are

transmitted into the tissue and reflected back to the console, where they are analyzed using a specialized algorithm to determine tissue status.

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