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High-frequency ultrasound for evaluating margins during breast conservation surgery: Results from a 17-patient pilot study ROBYN OMER, None — Obtaining negative (cancer-free) margins in breast conservation surgery (BCS) is essential for ensuring all of the cancer has been removed from the excision site. Several noninvasive cancer detection methods are therefore being investigated for the intraoperative evaluation of margin status. This study investigated high-frequency (HF) ultrasound (20-80 MHz) as an intraoperative margin evaluation technique during BCS. In a 17-patient pilot study at the Huntsman Cancer Institute, Salt Lake City, Utah, through-transmission and pulse-echo measurements were acquired from 53 positions on specimens including margins, tumors, lymph nodes, and fibroadenomas. Measurements were acquired with the use of two 50-MHz transducers, a HF square-wave pulser/receiver, a 500-MHz digital oscilloscope, and a notebook PC. Parameters calculated from the data included peak density (the number of peaks and valleys across the ultrasonic spectrum), attenuation, and the slope of the second Fourier transform. Statistical analysis of the data revealed that a multivariate analysis combining peak density and attenuation provided the highest accuracy and sensitivity for differentiating malignant from nonmalignant tissue. The multivariate analysis showed 81.1

Robyn Omer
None

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