

Comparative Evaluation of Ultrasound and Mammography for Assessing Resection Margins in Breast-Conserving Therapy for Breast Cancer

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Abstract

Introduction: Various techniques for intraoperative measurement of resection margins have been explored to prevent positive margins in breast-conserving surgery. Although multiple methods exist, none is perfect, and most are costly and not easily accessible.

Material and Methods: This prospective study was conducted at the Surgical Clinic of Mures County Clinical Hospital, utilizing data from breast cancer patients who underwent conservative treatment between 2014 and 2019. Resection margins were measured using ultrasound and mammography, and these values were compared with histopathological reports.

Results: A total of 166 patients were enrolled, with 10 patients (6.02%) having positive resection margins. For ultrasound, at a 2 mm cut-off, sensitivity was 63.86% and specificity was 93.98%; at a 5 mm cut-off, sensitivity increased to 95.78% with the same specificity of 93.98%. For mammography, at a 2 mm cut-off, sensitivity was 6.627% and specificity was 93.98%; at a 5 mm cut-off, sensitivity was 37.35% with the specificity remaining at 93.98%.

Conclusions: Ultrasound at a 5 mm cut-off showed higher sensitivity compared to a 2 mm cut-off, while

mammography showed low sensitivity at both cut-offs. These results indicate that, while both methods have high specificity, their accuracy and sensitivity vary, necessitating cautious interpretation for clinical use.

Keywords: breast cancer, breast conserving surgery, intraoperative ultrasound, mammography