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学位論文の題名	Digital mammography versus digital breast tomosynthesis for detection of breast cancer in the intraoperative specimen during breast-conserving surgery (乳房部分切除術中標本撮影におけるデジタルマンモグラフィとデジタルブレストトモシンセシスの乳癌検出の比較) Breast Cancer. 2015 Jul 23. [Epub ahead of print]
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To compare the diagnostic ability of specimen radiography using digital mammography (DM) and digital breast tomosynthesis (DBT) for detecting breast cancer and evaluating its extension in the intraoperative specimen. Sixty-five specimens from 65 women (median, 62 years; range, 34-86) obtained during breast-conserving surgery were prospectively investigated. Specimens underwent DM (25-40 kVp, 12-322 mAs) and DBT (25-34 kVp, 13-137 mA) in 2 orthogonal planes, anteroposterior (AP) and latero-lateral (LL). Images were interpreted by a radiologist to detect invasive lesions and their extensive intraductal components (EIC) or ductal carcinomas in situ (DCIS); afterwards, they were compared with histopathological findings. In AP views, 96% of the invasive lesions were detected by both methods. Of the EICs, 55% and 65% were detected by DM and DBT, respectively (P = 0.61). Of the DICSs, 31% and 38% were detected by DM and DBT, respectively (P > 0.99). In LL views, 71% and 13% of the invasive lesions were detected by DBT and DM, respectively (P < 0.0001). Of the EICs, 42% and 10% were detected by DBT and DM, respectively (P = 0.0078). Of the 13 DCISs, 42% and 8% were detected by DBT and DM, respectively (P = 0.32). The whole lesion and contour could be delineated in 45% by DBT and in 6.2% by DM (P < 0. 0001). DBT could detect breast cancer more accurately than DM in LL views, indicating its potential to more precisely diagnose vertical invasion.