

On the diagnostic accuracy of stereotactic vacuum-assisted biopsy of nonpalpable breast abnormalities. Results in a consecutive series of 769 procedures performed at the Trento Department of Breast Diagnosis

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ABSTRACT

Aims and background. To assess the diagnostic accuracy of stereotactic vacuum-assisted biopsy of nonpalpable breast lesions.

Methods and study design. 769 consecutive vacuum-assisted biopsy procedures were retrospectively reviewed. Positive predictive value for carcinoma (B5) at vacuum-assisted biopsy was assessed on the overall series and by age, lesion morphology and size, degree of suspicion and calendar period. The accuracy of vacuum-assisted biopsy was based on surgical histology or follow-up (no change at 12 months was assumed as negative).

Results. Lesions were depicted as isolated microcalcifications, opacity + microcalcifications, or opacity in 716 (93.1%), 28 (3.6%), or 25 (3.2%) cases, respectively. Vacuum-assisted biopsy was negative (B1 = 63; B2 = 319) in 382 (49.7%), borderline (B3) in 142 (18.5%), suspicious (B4) in 2 (0.3%), and positive (B5) in 243 (31.6%) cases (*in situ* = 185, 24.1%), invasive = 58 (7.5%)), respectively. Age ($\chi^2_{df3} = 19.50$; $P < 0.002$), size ($\chi^2_{df4} = 51.02$; $P = 10^{-6}$) and degree of suspicion ($\chi^2_{df2} = 146.68$; $P = 10^{-6}$) were associated with a B5 outcome, no significant association was evident for morphology ($\chi^2_{df2} = 0.47$; $P < 0.78$), whereas calendar period had a moderate but significant inverse association ($\chi^2_{df2} = 6.12$; $P < 0.04$). The positive predictive value for surgically confirmed carcinoma (*in situ* or invasive) was 0% for B1, 0.7% for B2, 12.3% for B3, 100% for B4, 92.7% for *in situ* B5, and 94.6% for invasive B5. Conversion from *in situ* B5 to invasive was 12.3% and was insignificantly associated with size ($\chi^2_{df2} = 0.95$; $P = 0.62$) and histology grade ($\chi^2_{df2} = 3.64$; $P = 0.16$). Down-grading of vacuum-assisted biopsy lesions to a less severe histology occurred in 13 (7.2%) *in situ* and in 16 (28.6%) invasive carcinomas. B3 cases upgrading to more severe lesions was 0%, 4.5% or 16.0% in the presence of no, mild, or severe atypia.

Conclusions. The study confirmed a good performance of vacuum-assisted biopsy, possibly influenced by the local scenario (e.g., radiologist's and pathologist's interobserver variability and sampling modality). Conflicting results with the literature may have local explanations rather than being due to inadequate performance.

Key words: breast cancer, core biopsy, diagnosis, vacuum-assisted biopsy.

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