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A comparison of cytology and radiological score with histology in patients with breast lumps: what guides the clinicians best?

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Introduction: Breast lumps are among the commonest surgical presentation. There are mismatches between Fine Needle Aspiration Cytology (FNAC) and Breast Imaging-Reporting and Data System (BIRADS) categories of triple assessment of breast lumps, leading to unnecessary surgical interventions and management delays.

Objectives: This study was designed to compare FNAC and BIRADS grading using histopathology as the gold standard.

Method: One hundred and six breast lumps were analysed in a descriptive cross-sectional setting, at a single tertiary care centre, from 2018-2019. Their FNAC smears were assessed and compared with BIRADS (B2-B5) categories and with Histopathology.

Results: A comparison of BIRADS (n=75 cases, 70.7%; $\chi^2=33.2$, $p<0.001$) and FNAC (n=80 cases, 75.5%, $\chi^2=95.6$, $p<0.001$) grading with Histopathology revealed majority of cases with true positive diagnosis. The concordance of Histopathology with BIRADS was moderate (Cohen's kappa=0.55, Standard Error (SE)=0.09, $p<0.001$), while discordance was not significant (McNemer test significance; $p=0.80$); whereas with cytological grading was stronger (Cohen's kappa=0.94, SE=0.03, $p<0.001$) and discordance was not significant (McNemer's test significance; $p=0.50$). Sensitivity, specificity, positive and negative predictive values and accuracy between radiological and cytological grading were 91%,62%,89%,68%,85% and 97%,100%,100%,92%,98%, respectively.

Discussion: The agreement between histopathology and cytological grading revealed stronger concordance compared to the agreement with BIRADS grading. The sensitivity, specificity, positive and negative predictive values and accuracy of cytological grading was more in comparison to the BIRADS grading. Therefore, in situations with discordant results, FNAC grading should be considered a more accurate and valid investigation over BIRADS grading.

Conclusion: FNAC guides the clinician best in managing patients with breast lumps.

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