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Preoperative Diagnostic Accuracy of Fine-Needle Aspiration in the Management of Breast Lesions: Comparison of Specificity and Sensitivity With Clinical Examination, Mammography, Echography, and Thermography in 249 Patients

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FOR PURPOSE OF RESEARCH
OR STUDY

Two hundred and forty-nine women suffering from breast problems underwent a complete series of tests including clinical examination, mammography, echography, thermography, and fine-needle aspiration (FNA). Ninety-four of these patients were shown to be positive or to have suspected malignancy. Accordingly, they underwent surgical excision followed by histologic examination, while the remaining patients were re-examined after 12 to 18 mo in order to exclude false negatives.

The analysis of specificity and sensitivity of every single procedure showed that FNA describes the best degree of sensitivity and specificity but no procedure allows, by itself, the detection of all carcinomas. When considered in combination, clinical examination, mammography, and fine-needle aspiration have a sensitivity of 100% and a specificity of 49%, and are the best diagnostic tests for a correct assessment of mammary lesions. Thermography and echography showed a low degree of sensitivity and should not be included in the routine diagnostic procedure of breast lesions. Diagn Cytopathol 1994;11:4-8. © 1994 Wiley-Liss, Inc.

Key Words: Management of breast lesions; Fine-needle aspiration; Clinical examination; Mammography; Echography; Thermography; Sensitivity; Specificity

Until a few years ago it was believed that the nature of mammary tumors could only be established by hystological examination following excision. The introduction of new diagnostic techniques, as well their progressive improvement have modified this belief. Thanks to new tests,

it is now possible, in the case of benign tumors, to avoid surgery and therefore eliminate two of the major drawbacks connected with it: psychological stress in patients and structural alteration of the breast often creating aesthetic problems.¹⁻³ Literature on the subject shows that about 80 percent of the nodules excised without adequate selection are, in fact, benign.⁴⁻⁵

The purpose of this work is to verify the preoperative diagnostic accuracy of clinical examination, mammography, echography, thermography, and fine-needle aspiration (FNA) in the management of mammary lesions. Our first step will be to consider the diagnostic reliability of every single procedure. In conclusion, we will try to compare the various methods and establish which combination of tests is in the best position to detect all, and only, the lesions which necessitate excision, thus reducing false positives to a minimum.

Materials and Methods

From April 1988 to February 1989, 2,178 women suffering from mammary problems were referred to the Breast Pathology Unit at the Ospedale Sacro Cuore in Negrar (Verona, Italy). Only the patients (249) who underwent a complete series of tests including clinical examination, mammography, thermography, echography, and fine-needle aspiration (FNA) were included in this study.

The clinical reports of all patients have been reviewed to collate the results of clinical examination, mammography, echography, and thermography. The case where material obtained with FNA was considered inadequate, has been excluded as suggested by Gardecki et al.² The cases

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