

Study of ultrasound-guided biopsy of breast lesions in the rural population of Maharashtra

A cross-sectional study

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Abstract

Background: Ultrasound guided biopsy is a useful diagnostic tool with a high sensitivity value and a variety of advantages along with short examination time and real time monitoring at the bedside. The advantages have made this technique preferable compared to the other available ones to perform biopsy on suspicious breast lesions. **Methods:** We retrospectively evaluated the results of percutaneous core biopsy with 14-gauge needles and performed on 26 suspicious lesions detectable on mammography and/or ultrasound exam (BI-RADS 3,4 or 5). The imaging-histological concordance was ascertained for each lesion. **Result:** A total number of 26 cases (n = 26) suitably registered in the recording system with complete information were histologically identified with various types of female breast lesions. Majority of the cases occurred between the 4th and 6th decades (31–60 years). Out of the 26 cases 18 were neoplastic and 2 were infectious, the others were undiagnosed. Most common histological variant of malignancy was infiltrating ductal carcinoma. According to Bloom-Richardson-Elston system most lesions were Grade-II malignant. **Conclusion:** Ultrasound guided biopsy is a well-known, safe and accurate technique that is currently considered the elective method. Complications are infrequent and not serious. Ultrasound guided biopsy is a rapid and effective method for the primary categorization of palpable breast lumps into benign, malignant, atypical, suspicious, and unsatisfactory categories. Through this study it is observed that malignant breast lesions are more commonly diagnosed than benign lesions in the rural population of India.

Keywords: ultrasound-guided biopsy, breast lesions.

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INTRODUCTION

The second most common cancer site after cancer cervix in Indian population is the breast. It includes both benign

and malignant lesions. The ultrasound guided biopsy shows a high sensitivity value of 97.5% and it offers a variety of advantages over other imaging techniques to guide a biopsy: non-ionising radiation, low cost, full control of the needle in real time, accessibility in difficult locations, multidirectional punctures and excellent comfort for patients and radiologists.¹ These advantages have made this technique the most widespread technique used to perform a biopsy for a suspicious breast lesion¹. Currently, 75,000 new cases of breast cancer are detected in India yearly.² This figure must be viewed against the backdrop that the National Cancer Registry and the Hospital-based Tumor Registries hardly sample 3% of the total population. Locally advanced breast cancer constitutes >50 - 70% of the patients presenting for treatment². Surgeons have been

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using CNB guided by palpation for a long time, but its accuracy has been increased with ultrasound guidance and is hence preferred.^{3,4}

Aims and Objectives

The current study was carried out with aims of studying the frequency of various breast lesions on the ultrasound guided biopsy and determine its clinical usefulness for diagnosing suspicious radiologically detected breast lesions in the rural Indian population alongwith its histopathological correlation, since very limited information on the epidemiology of breast cancer in India is available, except for a few reports on limited samples.

MATERIAL AND METHODS

We retrospectively evaluated the results of percutaneous core biopsy with 14-gauge needles and performed on 26 suspicious lesions detectable on mammography and/or ultrasound exam (BI-RADS 3,4 or 5). The imaging-histological concordance was ascertained for each lesion. The malignant lesions were then graded according to the Bloom-Richardson-Elston system.

RESULTS

A total number of 26 cases (n = 26) suitably registered in the recording system with complete information were histologically identified with various types of female breast lesions.

AGE DISTRIBUTION

The age of the patients ranged between 20 and 70 years (mean = 45.80 years). The peak incidence age was the 5th decade (41–50 years). Majority of the cases occurred between the 4th and 6th decades (31–60 years).

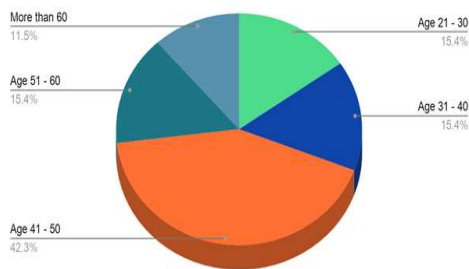


Figure 1: Age distribution

ETIOLOGY

Out of the 26 cases, 18 (69.2%) were found to be neoplastic, 2 (7.7%) lesions were infectious cases, namely mastitis and breast abscess, while 6 (23.1%) cases were undiagnosed. Out of the 18 that were found to be neoplastic, 3 were benign and 15 were malignant lesions.

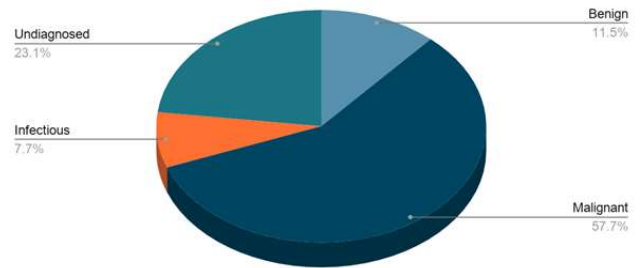


Figure 2: Etiology

HISTOLOGICAL TYPE

The most common histological variant of malignant neoplasms recorded was infiltrating ductal carcinoma (IDC) (14 cases;77.8 %). Another less common type was intraductal carcinoma (one case;5.6 %). Among the 3 benign lesions, a case(5.6%) of fibroadenoma, fibroepithelial tumor and phyllodes tumour each was found.

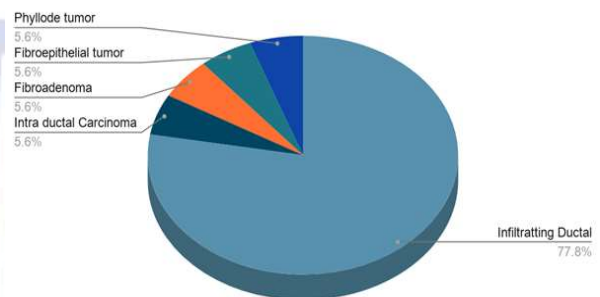


Figure 3: Hstological Type

GRADING

According to the Bloom-Richardson-Elston system, the malignant lesions were graded as follows:

- Grade I - 1 (6.7%)
- Grade II - 8 (53.3%)
- Grade III - 4 (26.7%)
- Ungraded - 2 (13.3%)

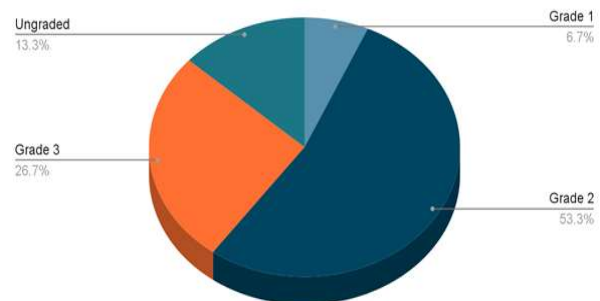


Figure 4: Grading of tumor

DISCUSSION

The present study accounted for less number of benign cases and more number of malignant cases than Mohammed *et al.*⁵, Yeoh and Chan⁶, Park and Ham⁷, Rocha *et al.*⁸ and Domínguez *et al.*^{9,10}. One possible cause is, present study is carried out at a tertiary healthcare centre in a rural area and has higher referrals of patients with diagnosed or likely to be diagnosed breast cancers. In rural areas, patients only come with distinct palpable masses and not small lesions. Concurrently, it is also possible that this might be an incidental finding, suggesting that the p value of our study is high. Although the number of unsatisfactory lesions identified in our study were more than that conducted by Mohammed *et al.*⁵, it is still lesser than the other studies.

CONCLUSION

Ultrasound guided biopsy is a well-known, safe and accurate technique that is currently considered the elective method, whereas stereotaxy and MRI should be reserved for lesions that are not clearly seen on ultrasound. Complications are infrequent and not serious. Ultrasound guided biopsy is a rapid and effective method for the primary categorization of palpable breast lumps into benign, malignant, atypical, suspicious, and unsatisfactory categories. Through this study it is observed that malignant breast lesions are more commonly diagnosed than benign lesions in the rural population of India. IDC accounts for the highest number of malignant lesions. Ultrasound guided core biopsy is a safe and reliable method for diagnosing suspicious breast lesions without any

significant complications as was reported in previous studies.

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