Section: Pathology

Original Research Article

HISTOPATHOLOGICAL STUDY OF LESIONS OF BREAST AS PER WHO 5TH EDITION

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Abstract

Background: The classification of breast tumors continues to evolve with integration of translational research. The 5th edition WHO Classification of Breast Tumours (2019) has introduced changes to our practices. We studied the histopathological spectrum of breast lesions at our institute and calculated the incidence of each. **Materials and Methods:** Gross examination and tissue processing were done as per standard protocol. Following tissue sectioning and H and E staining, the lesions were classified as per the WHO 5th edition. **Result:** A total of 211 breast cases were received in our histopathology department during the 18 month study period. Out of these 145 were benign and 66 were malignant. Age group ranged from 10-80 years. The most common benign lesion was fibroadenoma and the common malignant diagnosis was invasive ductal carcinoma, no special type. Preoperative cytological data was available for 203 cases and concordance was seen in 199 cases. **Conclusion:** Clinical diagnosis needs to be correlated with accurate histological classification for appropriate therapy and adequate prognostication of breast lesions.

INTRODUCTION

The incidence of breast cancer is next to cervical cancer in India. Breast is a site for a wide variety of pathologies ranging from benign to malignant. Advances in imaging techniques have led to early detection of breast lumps which are subjected to fine needle aspiration cytology (FNAC).[1-3] Core biopsy diagnosis is an important preoperative tool which permits ancillary testing including prognostic and predictive biomarker analysis which comprises of ER, PR, Her2, Ki67 and PDL-1.[4]

MATERIALS AND METHODS

The present study was a retrospective study conducted in the Department of Histopathology, Gandhi Medical College/ Hospital, Secunderabad, Telangana during the 18 months study period from February 2022 to July 2023. The clinical details were obtained from departmental histopathology record. The type of specimens varied from core biopsies, excision, simple and modified radical mastectomies as shown in Table1. Following a detailed gross examination, the specimens were fixed in 10% neutral buffered formalin and subjected to routine tissue processing and sectioning and staining by Haematoxylin and Eosin. For malignant tumors, grossing was done as per CAP protocol where representative sections from tumour were submitted, deep surface was inked, and nipple and areola were submitted separately. The lymph nodes were dissected in cases which had axillary dissection.

The histopathological examination was done and cases were classified as inflammatory, benign and malignant as per WHO 5th edition of breast tumor classification. [Figure 1]. Preoperative cytological data was available for 203 cases and concordance was seen in 199 cases.

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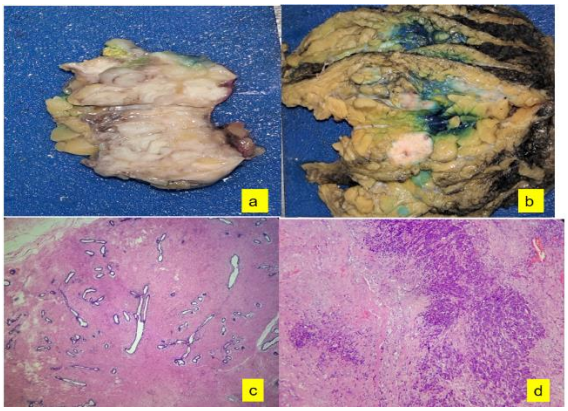

Figure 1: a) Gross photograph showing a circumscribed lesion, the cut surface of which shows slit-like spaces. b) Gross photo showing an ill circumscribed lesion c)H and E 40x, showing a biphasic neoplasm composed of glandular and stromal elements. d) H and E,40x showing infiltrating tumour cells in clusters and sheets exhibiting moderate nuclear pleomorphism, hyperchromatic nuclei and moderate cytoplasm.

RESULTS

A total of 211 breast cases were received in Department of Histopathology, Gandhi Medical College/ Hospital, Secunderabad, Telangana during the 18 month study period from February 2022 to July 2023 during the 18 month study period which comprised tissue obtained from various procedures as shown in [Table 1]. Out of these 145 were benign, 66 were malignant. Age group ranged from 10-80 years as seen in [Table 2]. The most common benign lesion was fibroadenoma and the most common malignant diagnosis was Invasive Breast Carcinoma, No Special Type as shown in [Table 3].

Table 1: Procedures performed

Procedure	Number of cases (n=211)
Core biopsy	27
Excision biopsy	119
Subcutaneous mastectomy	13
Modified radical mastectomy	53
Simple mastectomy	05
Total mastectomy	03
Enucleation	01

Table 2: Age distribution

Age in years	Number of cases (n=211)
10-20	26
20-30	55
30-40	32
40-50	38
50-60	35
60-70	19
70-80	06

Table 3: Histopathological spectrum

Benign	Number of cases (n=145)
Inflammatory	17
Chronic breast abscess	05
Gynaecomastia	15
Duct ectasia	11
Fibroadenoma	71
Granulomatous mastitis	03
Phyllodes	06
Benign proliferative breast disease	17
Malignant	Number of cases (n=66)
Invasive carcinoma, NOS	57
Invasive lobular carcinoma	05
Invasive carcinoma with medullary features	02
Mucinous carcinoma	01
Malignant Phyllodes Tumour	01

Table 4: Comparison with peer studies

Authors	Fibroadenoma	Invasive carcinoma, NOS
Anushree et al	31%	22%
Sulhyan et al	37%	26%
Present study	39%	28%

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DISCUSSION

The earlier WHO (4th ed. 2012) classified several tumors as separate entities. However according to the new WHO 5th edition breast tumors with "special morphological patterns" now fall under the umbrella category of IBC-NST. The following: oncocytic, lipid-rich, glycogen-rich, clear cell, sebaceous, carcinomas with choriocarcinomatous and pleomorphic patterns, melanocytic, and carcinomas with osteoclast-like stromal giant cells are no longer considered to be the clinically distinct subtypes.[1]

Carcinomas with a basal-like or medullary pattern now represent IBC-NST with medullary pattern. This is proposed to replace medullary carcinoma. True primary neuroendocrine (NE) neoplasms of the breast are rare. They are classified as well-differentiated NE tumors (carcinoid-like and atypical carcinoid-like) and poorly differentiated NE carcinomas (small cell neuroendocrine carcinoma and large cell neuroendocrine carcinoma). Distinct NE features and expression of NE markers by IHC are needed for diagnosis, since varying degrees of NE differentiation may be seen in IBC-NST, mucinous carcinomas, solid papillary carcinomas.[1]

Mucinous cystadenocarcinoma is a recently described, rare, invasive breast cancer subtype characterised by cystic spaces lined by neoplastic columnar epithelium with papillae and abundant intracellular and extracellular mucin.[1]

Tall cell carcinoma with reverse polarity is another rare newly described entity where the tumor is characterized by infiltration of nests of tumor cells with fibrovascular cores and bland columnar cells with apically located nuclei and abundant eosinophilic cytoplasm.[1]

Our hospital being a tertiary care‒center had predominantly benign cases and a few malignant cases. Most of the benign cases were fibroadenoma and malignant cases were invasive carcinoma, NST which is comparable to the studies done by Sulhyan et al and Anushree CN et al as seen in Table 4.[3,4] The benign cases underwent lumpectomy and malignant cases were subjected to mastectomy with or without axillary lymph node dissection as per standard protocols.

CONCLUSION

We have studied 211 cases histopathologically which showed predominance of non-neoplastic lesions. The benign breast tumours were mostly in the younger age group. The malignant lesions were mostly in adults the more than 30 years age group. Fibroadenoma was the most common benign tumor. Invasive ductal carcinoma, NST was the common histopathological diagnosis in malignant cases. Histopathology plays an important role in breast tumours to aid in appropriate management understanding the relative risk of progression to malignancy and prognostication.

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