ORIGINAL ARTICLE

STANDARDIZED IAC REPORTING SYSTEM ON BREAST LESIONS IN TERTIARY HEALTH CARE CENTER OF FAISALABAD: A CASE SERIES

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ABSTRACT

Background: International academy of cytology (IAC) has established a structured, comprehensive and standardized coding system to segregate the breast lesions into categorically 5 groups C1-5 (C1-Insufficient, C2-Benign, C3-Equivocal/ open to more than one interpretation, C4- Suspicious & C5- Malignant) to approach a uniform and unanimous diagnostic criterion of reporting on cytology. The aim of our analysis in the case series is to classify our available data of breast lesions into different categories as per IAC classification.

Method: All routine FNAC done in the breast clinic of Madina Teaching Hospital from June 2014 to June 2023 were included in the study.

Results: A total of 718 cases were included in the study, varying in age from 11 to 69 years. Out of all the FNACs done, the percentage of C1 cases was 0.41 % (3), C2 cases was 62.5% (449), C3 cases was 5.7 % (41), C4 cases was 7.1 % (51) and C5 cases was 24.2% (174)

Conclusion: Cytological categorization based on structured reporting system utilized internationally, will augment the diagnostic uniformity amongst medical practitioners and use of FNAC for diagnosing breast lesions can help prevent redundant surgery and strain to the patient.

Keywords: Structured**,** Standardized, Benign, Malignant, Lesion.

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INTRODUCTION

Cancers have always been an increasing burden on the health system causing significant mortality in developing countries like Pakistan [1,2]. Breast cancer is one of the most frequent tumors (14.4%) and accounts for almost 30.2% tumors in adult females [3]. The five-year record observed in 2017 showed 35% prevalence, 23% incidence and 16% mortality by breast cancer in Pakistan [4]. The role of fine needle aspiration in diagnosing breast lesions is pivotal and due to its cost effectiveness, simplicity and relative less invasiveness, it may be considered as the first line of investigation [5].

IAC (International Academy of Cytology) has recommended a uniform, inclusive and standardized approach to categorically isolate breast lesions into five different codes or classes from C1–C5 [6]. The single, structured and unanimous diagnostic criterion can empower quality, reproducibility and excellence to facilitate diagnosis, improve patient care and steer clear

of unnecessary intervention [7,8]. The IAC has summoned the expert Pathologists and summarized a scheme suggesting coding system for breast lesions to assist the health care workers for rational diagnostic approach [9,10].

OBJECTIVES

The objective of our study is to scrutinize and group different breast lesions as per IAC reporting system providing a uniform strategy to clinicians for expertise management of this ailment.

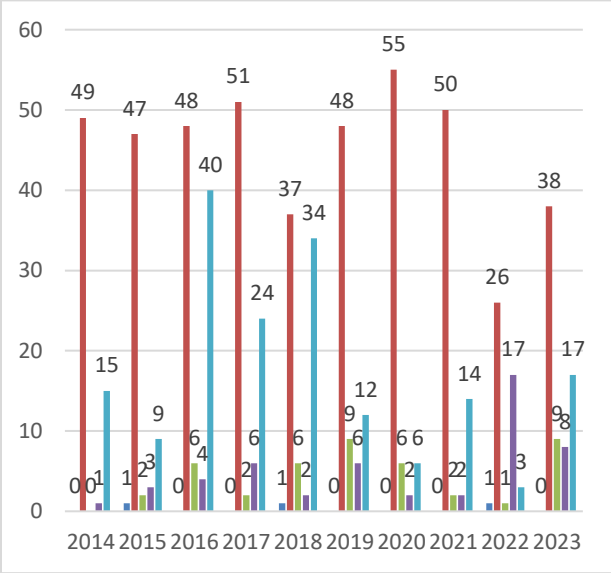
METHOD

Our study was carried out at the Department of Pathology, University Medical & Dental College, The University of Faisalabad. Retrospective analysis of 718 cases over a period of ten years (2014-2023) with age range of 11 to 69 years was done. Data was used after approval from institutional ethical review committee. The standard procedure implemented is as follows. All procedures were performed by skilled cytopathologist devoid of anesthesia. The skin over the lump was wiped by alcohol pad having 70% isopropyl alcohol and discarded after single use. Needle was inserted and with retracted plunger, suction was applied and drawn in and out for a period of five seconds till sufficient material was seen in the needle hub. The aspirated material was expelled onto the slides. Six to eight slides were prepared for each patient. One of the slides was fixed in methanol and stained with H & E, the remaining slides were air dried and marked with giemsa. The smears were examined by a panel of experts, evaluating the cytology according to standardized protocol and reports were submitted.

RESULTS

The 718 subjects included in this study had age range from 11 to 69 years. Maximum percent of the cases were in the age group 20-30 years (54%) with maximum number of right sided lesions (49%), followed by left sided (47%) and bilateral (4%).

Among the scrutinized 718 cases, the concluding cytological report as per the IAC coding system that revealed C1 in 3 (0.41%) occasions, C2 in 449(62.5%) manifestations, C3 in 41 (5.7%) instances, C4 in 51(7.1%) cases and C5 in 174(24.2%) instances (Graph shows yearly distribution of cases categorized into C1-5 Codes) Among the cases lying in C2 category, the most prevalent entity was Fibroadenoma amounting to 45.2% (203) followed by fibrocystic disease32.3 %(145). The inflammatory lesions were 14.3 % (63), Gynaecomastia3.56% ((16), benign Phyllodes 4.67 % (21) and 0.22% papillomatosis (1) cases. C3 & C4 lesions in our study included categories defined as benign disease with mild atypia, epithelial hyperplasia with dispersion of columnar cells or additional multifaceted cribriform or micropapillary tissue fragments, intraductal Papilloma with stellate papillary fragments, stromal hypercellularity without nuclear atypia or necrosis in otherwise typical fibroadenomas and low cellularity smears having scattered single cells displaying eccentric cytoplasm. C5 lesions were the second common entity in the study population including 174 (24.2%) cases of malignant potential labeling mostly as malignant epithelial neoplasms.



DISCUSSION

Breast lesions are common pathologies encountered in surgical outpatient departments in the form of palpable lumps, breast tenderness, nipple discharge and areolar skin changes [11]. FNAC has benefits over open biopsy in being simple, reproducible, cheap and relatively noninvasive [12] providing rapid on-site evaluation of aspirate ensuring adequacy of sample material and expertise of the observing medical specialist [13]. Hence, the FNAC of breast lesions can be labeled as the first line of investigation for diagnosing breast lesions [14].

In our study, the age range was 11 to 69 years as compared to study by Ali et al in which the age was 20 to 80 years [15] In another study by khattak et al the age range was 16 to 80 years [16] however the study by Lilleborge et al showed the lowest age range of 11 years [17]. Most of the cases in our study were observed in 2nd and 3rd decade as comparable to study by Sagar et al [18]. In another study by Sharif et al, most of the affected population was from 3rd and 4th decade [19]. Laterality of the breast lesions in our study showed mostly right sided lesions (49%) left sided (47%) and bilateral (4%) as compared to a study by

Yilmaz et al that showed 43.5% right sided, 50.8% left sided and 5.8% bilateral [20].

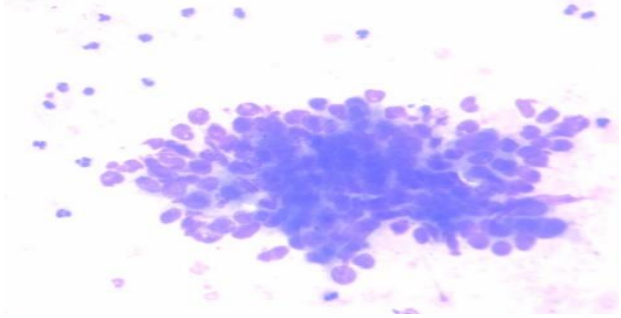
Considering the categorization of cytological findings, the most common entity among the study group of 718 subjects was C2 lesion (62.5%) as compared to the study by Wong et al in which the 58.6% cases were benign out of the total of 985 patients [21].

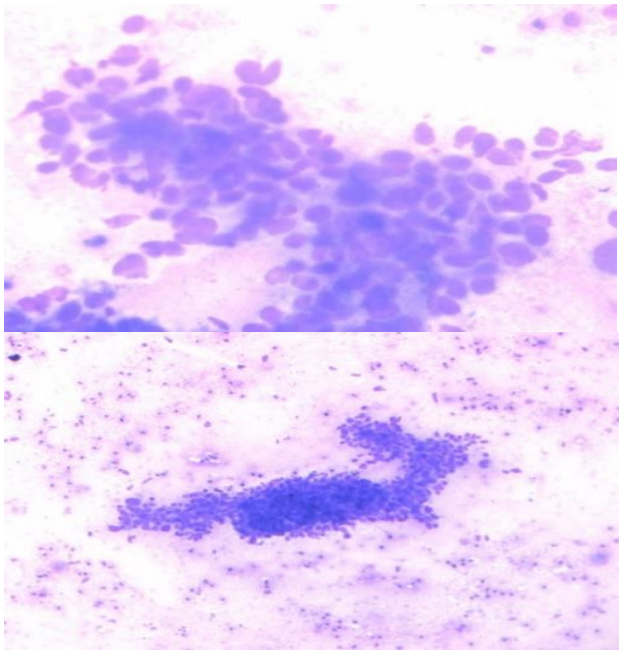
	C1	C2	C3	C4	C5
Wong et al	28.8 %	58.6 %	2.3%	1.7%	8.6 %
Tejeswini et al	3.98 %	41.59 %	8.41 %	13.72 %	32.3 %
Montezuma et al	5.77 %	73.38 %	13.74 %	1.57 %	5.54 %
Marabi et al	11.7 %	56.6 %	20.1 %	6.1%	5.6 %
Present study	0.41 %	62.5 %	5.7%	7.1%	24.2 %

Comparison of cytological findings

Similarly in a study by Tejeswani et al the maximum cases reported were C2 followed by C5 [22]. In another study by Montezuma et al, the effectuation of IAC reporting system revealed 73.38% of the cases in benign entity followed by C3 cases having atypia but benign nature. In another study by Marabi et al, employing IAC reporting system, maximum proportion (56.6%) of cases yielded benign potential followed by benign cases with atypia.

Hence, the cytological categorization based on IAC reporting system, augments the reproducibility of reports and provides uniformity and equivalence in assessment by clinicians. The reliability of FNAC for diagnosing breast lesions and standardized approach to a unanimous clinical decision can avert unnecessary surgery and strain to the patient.





H & E-stained slides of cytological aspirates of breast lesions

Ethical Approval: *Submitted*
Conflict of Interest: *Authors declare no conflict of interest.*
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AUTHOR'S CONTRIBUTIONS

FW: Conceived Idea, Manuscript Writing, Data Collection
FJ: Data Analysis and Interpretation, Final editing
SI: Manuscript Writing, Data collection
TR: Data collection, Data Analysis
SR: Literature Review, Interpretation of Results
SI: Interpretation of Results, Final Discussion