



Original Article

Correlation of Clinical and Histopathological Diagnosis of Palpable Breast Lumps

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Abstract:

Background: A palpable lump is the most common presentation of breast disease. The differential diagnosis of a lump in the female breast is the most important clinical problem that arises in relation to this organ. The main problem of breast lump consists in its risk of being malignant. It is the most common cancer in the women in western world and the most common cause of death in women between 40-50 years of age. **Objectives:** To observe the diversity of presentation of breast lump clinically and correlating them with ultimate tissue diagnosis by cytological and histopathological examination. **Method:** This is a descriptive observational study carried out from January 2010 to December 2010, comprises 100 female patients who attended the outpatient department of surgery including the patients who were admitted in different surgical units of Dhaka Medical College Hospital and Uttara Adhunik Medical College Hospital with the clinical feature of breast lump. Patients previously treated for carcinoma breast, patients with acute bacterial mastitis and patients who had no lump were excluded. All 100 patients underwent clinical examination, ultrasonography of breast and axilla and FNAC. Other investigations as mammography, CT scan of chest and abdomen, bone scan and tissue biopsy for histopathological examination done on selected patients. **Results:** In this series the ratio between benign (63%) and malignant (37%) lesion was 1.7:1. Most common lesion was fibroadenoma (41 cases) followed by malignancy (37 cases) then fibroadenosis. Fine needle aspiration cytology was done in all 100 patients with breast lump. Surgery done in the form of lumpectomy or a definitive surgical procedure like mastectomy, depending on the diagnosis at aspiration cytology followed by histopathological examination to obtain the ultimate diagnosis, except 11 patients of fibroadenosis. Benign breast diseases were common between 20-40 years of age whereas carcinoma breast was common in the age group of forties and fifties. **Conclusion:** In case of palpable breast lumps clinical evaluation is must and for accuracy of diagnosis though Fine needle aspiration cytology is specific, it is necessary to correlate with histopathological findings for further management of breast lump by confirming or excluding the diagnosis of malignancy.

Key words: Breast lumps, benign lesion, malignant lesion, FNAC, histopathology

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Introduction:

In recent years public awareness and media publicity about self-examination and screening and the possible advantages of early treatment have encouraged earlier presentation of breast diseases.

As breast cancer is a devastating disease it is important for the surgeons to rule out carcinoma with minimal invasive investigation and thereby prevent the patient undergoing mutilating surgery while on the other hand not missing the diagnosis of carcinoma.

The most common presentation of breast disease is a palpable lump¹. The differential diagnosis of a lump in the female breast is the most important clinical problem that arises in relation to this organ. The main problem of breast lump consists in its risk of being malignant. It is the commonest cause of

death in women between aged 40 – 50 years² and second most common cause of death after lung cancer according to Global cancer statistics 2018³. In Bangladesh though there is no exact statistics about the incidence of breast carcinomas in females, appreciable number of patients suffer from breast cancer with poor outcome due to late presentation, diagnosis and treatment.

The vast majority of the lesions that occur in the breast are benign. With the use of mammography, ultrasound, and magnetic resonance imaging of the breast and the extensive use of needle biopsies, the diagnosis of a benign breast disease can be accomplished without surgery in the majority of patients. Because the majority of benign lesions are not associated with an increased risk for subsequent breast cancer, unnecessary surgical procedures should be avoided. The term “benign breast

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diseases” encompasses a heterogeneous group of lesions that may present with a wide range of symptoms or may be detected as incidental microscopic findings. The incidence of benign breast lesions begins to rise during the second decade of life and peaks in the fourth and fifth decades, as opposed to malignant diseases, for which the incidence continues to increase after menopause, although at a less rapid pace¹.

The most common benign tumor of the female breast is the fibroadenoma⁴. It can occur at any age within the reproductive period of a female but common between the ages of 18 to 25 years. Fibroadenoma does not normally occur after the menopause, but may occasionally develop after administration of hormones. No treatment is usually required if the diagnosis can be made by needle biopsy or cytological examination⁵. The other important conditions of the breast are coined under ANDI (Aberration of Normal Development and Involution) by Cardiff Breast Clinic to avoid different terminologies and confusions. Many alternative terms have been applied to this condition including fibrocystic disease, fibroadenosis, chronic mastitis and mastopathy. Fibroadenosis is painful, often multiple, usually bilateral masses in the breast. Rapid fluctuation in the size of the masses is common. Frequently pain occurs and size increases during premenstrual phase of cycle. Most common age is between 30 to 50 years. It is rare in postmenopausal women not receiving hormone replacement⁶.

Breast infection most commonly occurs during pregnancy and lactation. Another less common but important condition is duct ectasia in which there is dilatation of the breast ducts associated with periductal inflammation forming a chronic indurated mass beneath the areola. Fibrosis eventually develops which may cause slit like nipple retraction which mimics a carcinoma. Benign ductal conditions, duct ectasia or intraductal papillomas, may present in a similar fashion. Both can have clear, bloody, or non-bloody discharge.

The most common type of malignant breast cancer is infiltrating ductal carcinoma (IFDC), accounting for about 85% of all cancers. This tumor arises from and invades the walls of the ducts. It is often a solid tumor and can present as a hard mass on clinical exam. Infiltrating lobular carcinoma (IFLC) represents another 15% of invasive breast cancer. It arises from the lobules of the breast. Clinically, infiltrating lobular carcinoma can be difficult to diagnose. Often the clinical presentation is only a vague indistinct thickening. Inflammatory carcinoma is diagnosed clinically when tumor cells of the breast block lymphatic channels and cause the affected breast to be erythematous, edematous,

warm, indurated, and classically with a peau d’orange appearance.

It is important for pathologists, radiologists, and oncologists to recognize benign lesions, both to distinguish them from in situ and invasive breast cancer and to assess a patient’s risk of developing breast cancer, so that the most appropriate treatment modality for each case can be established. In this study of limited case, attempt is made to explore the diversity of clinical presentation of breast lump and its cytological or histopathological correlation in tertiary hospital practice. The study was also aimed to find out the incidence of carcinoma of breast in females presenting with breast lump and to find out the age-related malignant breast diseases in these patients.

This study was done with objective to observe the diversity of clinical presentation of breast lump in tertiary hospital practice and to find out correlation between clinical presentation and tissue diagnosis of breast lumps and subsequently reduce the number of open biopsy and surgery.

Materials & Methods:

This was a descriptive observational study carried out in a tertiary level hospital in Dhaka. The selected places were Dhaka Medical College Hospital and Uttara Adhunik Medical College & Hospital from January 2010 to December 2010. The study population comprises female patients who attended the outpatient department of surgery including the patient who was admitted in different surgical units of Dhaka Medical College Hospital and Uttara Adhunik medical college hospital with the clinical feature of breast lump. In total 100 patients were included.

Inclusion and exclusion criteria were applied to include patients in this study. Well-motivated cooperative patient who presented with breast lump were included. Patients who previously treated for carcinoma breast and who had no breast lump were excluded. Patient with acute bacterial mastitis who were treated by incision & drainage were also excluded. Case definition: Female patient of age group between 10 to more than 50 with breast lump and absence of any systemic disease like heart failure, renal failure, etc. Data were collected by structured questionnaire containing all the variables of interest.

Results:

Table-I shows that USG of breast and axilla done in all 100 patients among which 28 cases were suspected to be malignant and in 12 cases sonologist didn’t comment only suggested for FNAC. Mammography done in 18 clinically suspicious cases whose age was above 35 years and to find out

any nonpalpable lesion in both affected and non-affected breast. FNAC also done in all cases. 37 cases were found to have duct cell carcinoma and following FNAC excision biopsy done in 52 cases (11 cases of fibrocystic diseases and 37 malignant cases were excluded). Table-II shows that among 17 clinically diagnosed cases 16 were proven to be malignant and 6 cases of duct cell carcinoma found in clinically 65 benign cases. These 6 patients had very small discrete firm lumps for which they were suspected to be benign on examination. Histopathology was not done in 11 cases of fibrocystic disease (FNAC proven). Among 18 clinically suspicious cases 14 were diagnosed to

have duct cell carcinoma and 1 had lobular carcinoma.

Distribution of 100 patients according to age group has been shown in Table-III. Among all lesion maximum incident found in third (28 cases) and fourth (27 cases) decades. 41 cases of fibroadenoma were common in second, third and fourth decade. Carcinoma of breast was most common in fifth decade (22 cases). 12 cases of fibrocystic diseases were common in third decade. In total 63% of cases were benign which were common below 40 years of age and 37% of malignant cases were common above the 40 years of age.

Table-I: Comparison between provisional diagnosis and investigation findings

Provisional Diagnosis	Number of cases	USG of breast & axilla (n=100)	Mammography (n=18)	FNAC of breast lump (n=100)	Excision Biopsy (n=52)
Malignant	17	28	15	37	00
Benign	65	60	03	59	52
Suspicious Lesion	18	12	00	04	00

Table-II: Comparison between clinical (N=100) and histopathological diagnosis (N=89)

Clinical diagnosis	Number of Cases (n=100)		Histopathological diagnosis	Number of Cases (n=89)	
	No.	%		No.	%
Malignant	17	17	Duct cell Carcinoma Chronic Inflammation	16 01	58.00 1.10
Benign	65	65	Fibroadenoma Phylloid tumour Cysts Chronic inflammation Duct cell carcinoma	41 02 02 03 06	45.06 2.20 2.20 3.30 6.59
Suspicious	18	18	Duct cell carcinoma Lobular carcinoma Fibroadenosis Chronic inflammation	14 01 01 02	15.38 1.09 1.09 2.20

Table-III: Distribution of patients by age group and confirm diagnosis

Age groups (years)	Number of patients (n=100)	Fibroadenoma (n=41)		Fibroadenosis (n=12)		Other benign lesion (n=10)		Breast carcinoma (n=37)	
		No.	%	No.	%	No.	%	No.	%
10-20	15	14	34.15	00	00	01	10	00	00
21-30	18	13	31.7	02	6.67	01	10	02	5.4
31-40	28	14	34.15	07	58.33	03	30	04	10.81
41-50	27	00	00	03	25	02	20	22	54.46
>50	12	00	00	00	00	03	30	09	24.32

Discussion:

The discovery of a breast lump, whether by the women herself or by a clinician is a common occurrence and is distressing for any women.

Benign lesions tend to have discrete well-defined margins are typically mobile. Malignant lesions may be firm, may have indistinct borders and are often immobile⁷. Although benign breast lumps are about

six times more than malignant tumours and the presence of any persistent lumps in the breast raises the question of carcinoma, which is the most common cause of death in women³.

The present study was conducted among 100 patient of both outpatient department and admitted patients in surgery departments of Dhaka medical college and hospital and Uttara Adhunik Medical College & Hospital during the period of January to Dec 2010. Patient presenting with palpable breast lumps were included in this study and relative frequencies of different types of pathology occurring in the breast were observed.

In this series of 100 cases of breast lumps, the most common age group was in the third and fourth decade comprised 28% and 27% respectively (Table-III). Youngest patient was of 13 years of age and the oldest was 65. Chaudhury A, et al. in their series of 208 cases at Comilla found that the peak age incidence was 21-30 years⁸. Another study by Ahmed SU, et al. showed that maximum patient was from the age group 40-49 years⁹.

In the present study of 100 patients 37% lesions were malignant and rest 63% were benign, among which fibroadenoma was 41% of all lesion. The third most common lesion was fibroadenosis comprising 12% and other benign breast disease was found in 10% patients. According to Cole P, et al. for fibrocystic disease the incidence rate was more than fibroadenoma¹⁰. Common lumps producing lesions in the breast are a benign breast disease (63%) which includes fibroadenoma, fibroadenosis, granulomatous mastitis and some other. Carcinoma of the breast accounts for 37% cases in this study (Table-II). Probably because only the patients with palpable breast lump were taken in this study. The relative incidence of these lesions varies in different studies.

Mansoor I, et al. in his study on 953 patient with breast lump reported that benign lesions found in (542 cases) 56.87% patient among which the most common lesion was fibroadenoma (254 cases), then fibrocystic disease (126 cases) & then chronic inflammatory lesions (102 cases) and malignant lesions were found in (309 cases) 32.42%¹¹. A study by Chaudhury A, et al. comprised of 208 cases carried out at Comilla shows 19.23% cases were malignant and 80.77% cases were benign in nature. And in benign types fibroadenoma was the common disease then fibrocystic change, suppurative inflammation respectively, the findings were 43.75%, 18.27% and 8.65%⁸. Another study of 337 cases by Ahmed SU, et al. showed 44% patients were diagnosed as malignancy and 56% cases were of benign tumour and among them fibroadenoma was the common disease (45%) and fibroadenosis

found in 4.5% cases. The percentage of fibrocystic disease in this series was low (12%)⁹. It is difficult to draw a conclusion, because most of the patients with fibrocystic disease usually do not come to the hospital before appearing a definite lump in the breast.

In this series of 100 cases of breast lumps the most common age group was in the third and fourth decade, comprising 28% and 27% respectively. Malignancy was common in fourth decade and benign tumor was found mostly in third decade followed by second decade (Table-III). In the study by Ahmed SU, et al. showed that maximum patients with malignancy were from the age group 40-49 years. Another study carried in Shaheed Suhrawardy Medical College Hospital, Dhaka by Jahan N, et al. shows maximum 90% patients with malignancy were above 40 years of age and most of benign lesions (90%) are below the age of 30 years¹².

Fibroadenoma was found common in the second and fourth decade comprising 34.15% in both. Peak age incidence in this series was between later part of second decade and early part of fourth decade. Sing A, et al. have observed that fibroadenoma was most common benign lesion in the breast which account 45.09% of total breast lesion (no of cases 102) and among them 89.1% seen in the age group of 10-30 years¹³. All other studies show that fibroadenoma occurs at earlier age^{14,16,17,18}. Present study findings correlates with above studies. In this study fibrocystic disease was common in the fourth decade. Surgical literature also shows that fibrocystic diseases are more common between age of 30 and 50 years^{10,15}. A study on age related incident of breast lumps in female by Alam A, et al. showed that benign lesions were found below 40 years and majority were between 11 to 20 years and malignant lesions were above 40 years, with a peak incidence in between 41-50 years¹⁸. Another study conducted by Khan S, et al. in Nepalgunj among 264 patients with different breast disease which shows common age group for benign breast disease were 20-40 years for fibroadenoma, 18-40 years for fibrocystic disease and carcinoma was common in age group of forties and fifties¹⁹.

Both physical examination and mammography are necessary for maximum yield in screening programs, since about 35-50% of early breast cancers can be discovered only by mammography and another 40% can be detected only by palpation. About one third of the abnormalities detected on screening mammograms will be found to be malignant when biopsy is performed. In young women with dense breast mammography is less sensitive than in older women with fatty breasts^{5,20,21}. In this study mammography was done only in 16 suspicious cases and 2 malignant cases

(who wanted breast conserving surgery) to look for evidence of malignancy in affected breast as well as contra lateral breast (Table-I).

Ultrasonography is particularly useful in young women with dense breast in whom mammograms are difficult to interpret and in distinguishing cysts from solid lesions and ultrasound of the axilla is performed when cancer is diagnosed with guided percutaneous biopsy of any suspicious gland⁴. All 100 patients of this study underwent USG of both breasts with axilla to see the characteristics of the lumps and any other concomitant lesion with the lumps. Total 28 cases were suspected to be malignant; 60 cases were reported as benign and in 12 cases sonologist didn't comment, only suggested for FNAC (Table-I). The benign breast pathology must be studied carefully because the clinical and ultrasonic evaluation is not conclusive, and the histopathological evaluation of the biopsy specimens sometimes is necessary to discard malignancy²².

Fine needle aspiration cytology (FNAC) is the least invasive technique of obtaining a cell diagnosis and very accurate if both operator and cytologists are experienced. However, false negative does occur⁴. As it is easy to perform and cost effective it can be carried out at outpatient department, FNAC is widely used preoperatively to avoid unnecessary surgery and discomfort during open biopsy. FNAC was performed in all the patients in this study. Among 17 clinically diagnosed malignant cases 16 were found to be have ductal carcinoma and 1 had fibrocystic disease. Among 65 clinically diagnosed benign cases 6 cases were found to be malignant. 18 cases were suspicious clinically, among which 15 were found to be malignant and 3 cases had cellular atypia (Table-I).

As incidence of unsatisfactory aspirate is not uncommon, it is therefore apparent that there is no way to differentiate benign lesion from malignant lesions with certainty other than excision biopsy. The study by Nazeer MA, et al. from Lahore followed a management protocol involving clinical examination, mammography in selected cases and FNAC in all patients²³.

Carcinoma was found on both cytology and histopathology in 37 cases. Among 17 clinically diagnosed cases 16 were proven to be malignant and 6 cases of duct cell carcinoma found in clinically 65 benign cases. Histopathology was not done in 11 cases of fibrocystic disease (FNAC proven). Among 18 clinically suspicious cases 14 were diagnosed to have duct cell carcinoma and 1 had lobular carcinoma (Table-III). Six malignant patients were diagnosed benign clinically; this was probably due to incomplete history taking or improper clinical

examination or due to too early presentation with very small firm mobile lump which was confused with benign lump on examination. It is found in above observation that generally accepted clinical features of fibroadenoma overlap with localized dysplastic changes of the breast as fibrocystic condition may produce an asymptomatic lump in the breast that is discovered by accident. Again a mass due to fibrocystic condition is frequently indistinguishable from carcinoma on the basis of clinical findings, so suspicious lesions should be biopsied^{5,22}. In most of the cases age of the patients were within the carcinoma age group (fourth & fifth decade)^{18,19,24,25}. But Siddique MS, et al. found Pakistani females breast carcinoma occurs at a younger age group and Infiltrating ductal carcinoma is the most common type of tumour²⁵. As this was a small-scale study, statistically valid conclusion cannot be made.

Conclusion:

Significant numbers of histopathologically proven malignant breast lumps were clinically diagnosed as benign lesion and clinical features of fibroadenoma and fibrocystic diseases overlap with those of localized dysplastic change of breast. So, a definitive diagnostic approach namely clinical examination, mammography, ultrasonography, FNAC and histopathology should be employed to all patients with persistent breast lumps.

Conflict of Interest:

No conflict of interest is declared by the authors.

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