

A STUDY OF ACCURACY OF TRIPLE ASSESSMENT AS A CLINICAL TOOL FOR THE DIAGNOSIS OF A PALPABLE BREAST LUMP

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ABSTRACT

Background: Diseases related to breast are the highest in this country as well as in the world. Various types of lesion from inflammation to carcinoma can affect breast. Some lesions are common in young females while others in elderly age group. Early presentation and prompt diagnosis is essential to relieve anxiety of non-neoplastic conditions, and in case of carcinoma, it can save the patient from metastases. In this study many cases related to breast lesions from the region are reported in the surgery clinics of this institute and various breast diseases are being managed in the clinical departments. For disease confirmation, many diagnostic procedures are recommended with aims to help in decision for surgical treatment. To study prevalence of various breast disease condition coming to our hospital and their management. Analysis of pattern and prevalence will be a valuable guideline for clinicians of this location to compare with that of others. This study was to evaluate the accuracy of Triple assessment (physical examination, mammography and fine needle aspiration cytology) as a clinical tool for the diagnosis of a palpable breast lump.

Aims & Objective: (1) To study incidence for breast disease; (2) To study etiopathogenesis of it; (3) To study patient presentation and manifestation; (4) To study management of various breast diseases; and (5) To study various modalities of treatment.

Material and Methods: This prospective study was carried out in the department of surgery during period from 1st march 2011 to 28th February 2012 in indoor and outdoor patients. Each patient was study in detail with relevant clinical history, examination, mammography and histological findings and management. The study comprised of total 100 patients of breast disease treated with various modalities.

Results: In the study of total 100 cases, inflammatory conditions were present in 15%, fibrocystic lesion 35%, fibroadenoma 20%, gynaecomastia 2% and carcinoma 10%. This comparative study reported data by clinical analyses, mammography and histological findings in 100 women with ages from 18 to 60. Malignant carcinoma found in 10% of cases while benign breast disease and other condition found in 90% of cases.

Conclusion: Fibrocystic disease was the commonest lesion in this study with 30 years as the average age of presentation. Malignancy was detected above 47 years of age. Ninety patients with breast lumps interpreted by Triple Assessment as benign correlated with the histopathological findings whereas of 10 malignant lumps. This gives Triple Assessment an overall accuracy of 100% in our study.

KEY-WORDS: Fibro Adenoma; Fibrocystic Disease; Gynecomastia; Breast Cancer; Triple Assessment

Introduction

A mature breast is composed of three principal tissue types: (1) glandular epithelium, (2) fibrous stroma and supporting structures, and (3) fat. Infiltrating cells, including lymphocytes and macrophages, are also found within the breast. In questioning the patient about the specific breast problem, it is worthwhile to inquire about breast pain, nipple discharge, and new masses in the breast. If a mass is present, it helps to know how it was found, how long it has been present, what has happened since its discovery, and whether it changes with the menstrual cycle. Fibro adenomas are benign solid tumours composed of stromal

and epithelial elements. Fibro adenoma is the most common tumour in women younger than 30 years. They slip easily under the examining fingers and may be lobulated. On excision, fibro adenomas are well-encapsulated masses that may detach easily from surrounding breast tissue. Mammography is of little help in distinguishing between cysts and fibro adenomas; however, ultrasound usually clearly shows the cavity of a cyst. Treatment of fibro adenoma follows that for any unexplained solid mass within the breast. A tissue diagnosis is required to rule out malignancy. Inflammatory disease of the breast fall into two general categories, lactational infections and chronic subareolar infections

associated with duct ectasia. Lactational infections are thought to arise from entry of bacteria through the nipple into the duct system and are characterized by fever, leukocytosis, erythema, and tenderness. Treatment requires antibiotics and frequent emptying of the breast. True abscesses require surgical drainage because they are generally multiloculated. In women who are not lactating, a chronic relapsing form of infection may develop in the subareolar ducts of the breast that is variously known as periductal mastitis or duct ectasia. Palpable masses and mammographic changes that mimic carcinoma may result. A presumed infection of the breast generally clears promptly and completely with antibiotic therapy. If erythema or edema persists, inflammatory carcinoma is considered.^[1] Cyclical mastalgia and nodularity are usually associated with premenstrual enlargement of the breast and are regarded as normal. Painful nodularity that persists for more than 1 week of the menstrual cycle is considered a disorder. Treatment of it with symptomatic as well as dietary modification, evening primrose oil, danazole ect.^[2]

Old age, early menarche and late menopause, nulli parity, age at first birth, lack of breast feeding, exogenous hormone use or exposure, alcohol consumption, gender (female >> male), positive family history (mothers, sisters, daughters), history of previous breast cancer (non-invasive or invasive, ipsilateral or contralateral) are the important points in history taking regarding development of breast cancer and are of high risk patients. Modern therapy has evolved to include both surgical resection for local disease and medical therapy for systemic disease. Randomized trials demonstrated the equivalence of modified radical mastectomy and radical mastectomy. The diagnosis of breast cancer is established by biopsy of a palpable or image-detected lesion. The first intervention is surgery to excise tumour and surgically stage the axilla when appropriate. Pathology results from the tumour and axillary nodes define the patient's pathologic stage and provide an estimate of the prognosis to inform systemic therapy decisions. Selection of surgical procedures takes into account patient characteristics, as well as the properties of the tumour and its stage. Patient characteristics, including age, risk factors, family history,

menopausal status, and overall health, are assessed.^[1]

All the patients were studied by triple assessment (physical examination, mammography and fine needle aspiration cytology). Clinical breast examination begins with the patient in the upright sitting position with careful visual inspection for obvious masses, asymmetries, and skin changes. The nipples are inspected and compared for the presence of retraction, nipple inversion, or excoriation of the superficial epidermis in Paget's disease. FNA is used in differentiation of solid from cystic masses, but it may be done whenever a new dominant, unexplained mass is found in the breast. This simple procedure is postponed only if mammography is necessary and might confuse the radiographic evaluation. By using FNA in routine examination of the breast, unnecessary open biopsy of cystic change is avoided. Positive result allows informed discussions with the patient, definite plans for treatment, and appropriate consultations or second opinions. Granulomatous mastitis is also diagnosed and required excision of mass with antituberculous treatment. Mammography is used for both diagnostic as well as for screening purpose. Mammography can be used in all case of palpable lump. Particularly in old age it has good result as compare to bulky breast in young women. Screening mammography is performed in asymptomatic women with the goal of detecting breast cancer that is not yet clinically evident. This approach assumes that breast cancers identified through screening will be smaller, have a better prognosis, and require less aggressive treatment than cancers identified by palpation. These potential benefits of screening are weighed against the cost of screening and the number of false-positive studies that prompt additional workup and biopsies.^[3,4]

Materials and Methods

All were indoor and outdoor patients with diagnosis of various breast diseases. Each patient was study in detail with relevant clinical history, examination, laboratory investigations and management. The study comprised of total 100 patients treated by various modalities. The selection criterions for the patient were based on

(1) complain of breast pain (2) on examination-breast swelling (3) mammography finding (4) per-operative finding. The selected patients had been treated thereafter in form of different modalities like, (a) simple analgesic (b) excision biopsy (c) modified radical mastectomy.

Mammography is a very safe investigation which can be repeated and it is used as triple assessment. FNAC is the diagnostic investigation with accuracy but for conformation biopsy needed. In cases of granulomatous inflammation and duct ectasia in our study for confirmation biopsy is needed. In case of carcinoma FNAC can't differentiate in situ and invasive carcinoma.

Results

Age is a useful risk factor applied everyday in clinical practice (Table 1). Breast cancer is rare in women younger than 30 and very common in women older than 60. Fibro adenoma is most common benign tumour which required excision. The use of prior mammograms and FNAC improved the classification performance of all participants in the study.^[5] Mammography categorized the breast disease, in which 69 patients in to category-1, 2, 3 (benign lesion), one patient diagnosed as category-4 (suspicious abnormality) and 10 into category-5 (malignant) (Table 2). Most of cases of mammography were of category 1 and 2 suggestive of benign which are confirmed by FNAC and excision biopsy. All the benign disease treated by excision biopsy and confirmed by histopathological examination. Ten malignant lesions were treated by modified radical mastectomy (Table 3).

Table-1: Age Group wise Prevalence of Different Breast Diseases

Age Group	Diagnosis	No. (%)
17-38	Fibroadenoma	24
22-38	Fibrocystic disease	42
40-60	Carcinoma	12
25-35	Inflammatory condition	20
20-40	Gynecomastia	2

Table-2: Mammography Findings of Breast Diseases

Mammography BIRADS Category	No of cases
1	12
2	54
3	3
4	1
5	10

Table-3: Management of different breast diseases

Diagnosis	Treatment
Fibrocystic Disease	Conservative, symptomatic
Fibro Adenoma	Excision biopsy
Carcinoma	MRM
Gynecomastia	Excision
Inflammatory Disease	Antibiotic, incision drainage, excision

The incidence of primary breast cancer in adolescent women is low. However, our experience shows the need for compulsory excision of all breast masses and highlighting the importance of histopathological evaluation of all breast tumours including adolescents.^[6]

Discussion

In patient of breast disease physical examination guide us to further management of patient for whether to proceed to mammography and FNAC. Fine-needle aspiration (FNA) has been used as a routine part of the physical diagnosis of breast masses. However with needle biopsy invasive cancer cannot be distinguished from carcinoma in situ. There are some guidelines given for mammographic findings and further management Breast Imaging Reporting and Data System (BIRADS) is categorized in five types. (i) Category-0: Incomplete assessment; need additional imaging evaluation; (ii) Category-1: Negative; routine mammogram in 1 year recommended; (iii) Category-2: Benign finding; routine mammogram in 1 year recommended; (iv) Category-3: Probably benign finding; short-term follow-up suggested; (v) Category-4: Suspicious abnormality; biopsy should be considered; (vi) Category-5: Highly suggestive of malignancy; appropriate action should be taken. Screening mammography is recommended annually in the patient age greater than 60 years, atypical hyperplasia, in situ carcinoma and in patient having family history of breast and ovarian cancer, positive personal history after the age of 40 years.^[1] Currently radiologists have the option of subcategorizing BIRADS 4 breast lesions into 4A (low suspicion for malignancy), 4B (intermediate suspicion of malignancy), and 4C (moderate concern, but not classic for malignancy).^[7]

In study of clinicopathologic of breast lumps published by Kumar R, inflammatory conditions 22.6%, fibrocystic change 41.2%, fibro adenoma 21.8%, other benign breast disease 4.5%,

gynaecomastia 2.5% and carcinoma 7.4% were detected.^[8] While in our study inflammatory conditions 20% fibrocystic change 42%, fibro adenoma 24%, gynaecomastia 2% and carcinoma 12 % were detected which was very much similar. In published study fibrocystic change was the commonest lesion with 33 years as the average age of presentation and malignancy was detected above 40 years of age. Also, in our study fibrocystic disease was commonest lesion with 35 years average age of presentation and malignancy was detected above 47 years of age. Study published by Ghimire B, Khan MI, Bibhusal T et al., accuracy of Triple assessment in the diagnosis of palpable breast lump, patients were categorized into benign, suspicious and malignant by Triple assessment (physical examination, mammography and fine needle aspiration cytology).^[9] This was later correlated with the histopathological findings. Nineteen patients with breast lumps interpreted by triple assessment as benign correlated with the histopathological findings whereas of 31 malignant lumps, 30 turned out to be malignant and one benign. This gives triple assessment an overall accuracy of 98% with 100% sensitivity, 95.2% specificity and positive predictive value of 96.7%. In our study, 80 patients underwent triple assessment and correlated with histological finding. In our study, 69 patients interpreted by triple assessment as benign correlated with the histopathological findings whereas of 10 malignant lumps, 10 turned out to be malignant and one cases suspicious which are later diagnosed by histopathologically duct ectasia. This gives triple assessment an overall accuracy of 98% with 100% sensitivity, 95.2% specificity in published study while in my study sensitivity and specificity were 100%. The mean age at diagnosis of benign and malignant disease was 41.8 and 45.1 years respectively in published study while in my study it was 40.5 and 55.6 respectively. In conclusion, triple assessment is an accurate and least invasive diagnostic test based on which definitive treatment can be initiated. Ninety per cent of breast biopsies done in patients with palpable lumps are for benign disease. The data support a more conservative approach to diagnosis and management of these patients.^[10] BBDs constituted 75% of breast lumps and were mostly fibro adenoma and fibrocystic change. BBDs

occurred predominantly in young females with a peak in the third and fourth decade. Though premalignant lesions of atypical hyperplasia were less common, biopsy of all BBDs should be done to exclude these lesions and routine mammographic screening of at risk individuals instituted to increase their detection.^[11] In our study all three techniques were used clinical examination, mammography and FNAC for diagnosis of various breast diseases. All were proven effective in diagnosis and leads us in the management of the breast disease patient. The recently proposed ultrasonic Nakagami parametric image has also been used to detect the concentrations and arrangements of scatterers for tumor characterization applications.^[12] In practice, clinicians prioritize risk factors for breast cancer and consider that risk factors are important to individual patients in making recommendations about screening and intervention.^[1,3]

Conclusion

The procedures used to diagnose, stage, and treat breast disease are rapidly becoming less radical, less invasive, and, possibly, more precise. Excisional breast biopsy has largely been supplanted by fine-needle aspiration (FNA) biopsy for palpable breast lesions. Breast imaging procedures—such as mammography is playing increasingly important roles in management, and any surgeon currently treating patients with breast disease should have a working knowledge of all of these modalities. In what follows, we describe Triple Assessment as selected standard for investigational procedures employed in the diagnosis and management of breast disease. The application of these procedures is a dynamic process that is shaped both by technological advances and by our evolving understanding of the biology of breast diseases. Ultrasonography is particularly useful for differentiating cystic from solid breast lesions. Fine-Needle Aspiration Biopsy permits the sampling of cells from breast lesions for cytological analysis. It is an appropriate first step in the evaluation of dominant breast masses, but it requires substantial experience on the part of both the operator and the cytopathologist.^[13] One needs to be aware of the effects of palpability and patient age, FNAC, mammography to differentiation "malignant" vs.

"benign". For diagnosing fibroadenomas, FNAC is more specific than mammography when all examined variables are taken into account. FNAC should therefore be favored, especially in younger patients.^[14] It seems that strict diagnostic criteria should be applied which diagnose breast disease specifically and sensitively.^[15] Accurate history and clinical examination are still the most important methods of detecting breast disease; there are a number of investigations like FNAC and mammography that can assist in the diagnosis and in surveillance of high risk patient.

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