MAK HILL Publications Research Journal of Medical Sciences

Research Article
doi: 10.59218/makrjms.2023.12.175.178

OPEN ACCESS

Key Words
Inflammatory breast diseases, breast abscess, mastitis, granulomatous mastitis, duct ectasia

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Received: 30 October 2023
Accepted: 24 November 2023
Published: 25 November 2023

Citation: Shubhi Parwani, Sushrut Fulare, Aniket Ratnakar Khadatkar and Mohd Yunus Shah, 2023. To Study the Clinical Presentations, Investigation and Management of Inflammatory Breast Diseases: An Cross Sectional Study. Res. J. Med. Sci., 17: 175-178, doi: 10.59218/makrjms.2023.12.175.178

To Study the Clinical Presentations, Investigation and Management of Inflammatory Breast Diseases: An Cross Sectional Study

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ABSTRACT

The breast is a superficial organ, inflammation frequently involves the skin above. Therefore, it is easy to see the clinical indications of breast inflammation. They consist of pain, heat and redness. Inflammation's appearance should be discussed with the patient, particularly if it happened suddenly or not. Any instances of inflammation that developed gradually ought to be considered unusual. Multiple factors, ranging from common bacterial infections to non-infectious inflammation, contribute to inflammatory breast disorders. Breast inflammation can result from infectious or non-infectious causes, just like it can in other parts of the body, but it can also be brought on by breast cancer. The benign inflammatory breast disorders are rare and affect premenopausal and perimenopausal women. They can occasionally be discovered accidentally during normal screening. The study was carried out for a duration of 2 years from December 2020 to January 2022 to study the clinical features, investigation and management of inflammatory breast diseases which would tell the outcome of the treatment in terms of complete resolution or partial resolution.

INTRODUCTION

Mastitis, in general, is an infection that may or may not be present together with breast inflammation. Although the word "mastitis" is sometimes used interchangeably with "breast infection"[14] the medical definition of mastitis is "breast inflammation," regardless of the aetiology. Mastitis does not put a woman at increased risk of breast cancer. The inflammatory breast cancer (IBC), a rare form of breast cancer, exhibits symptoms that are similar to mastitis and can occasionally be mistaken for an infection[7].

Breast abscess may be seen in severe cases of lactational mastitis, which affects nursing mothers. The less frequent non-lactational inflammatory diseases include tuberculous mastitis, periductal mastitis and idiopathic granulomatous mastitis. Even though these disorders share certain presentational characteristics, each one needs a unique treatment plan to be resolved and a proper diagnosis is essential for the right kind of care.

Lactational infections and chronic sub-areolar infections linked to duct Ectasia are the two main kinds of infections of the breast. Lactational infections are characterised by fever, leukocytosis, erythema and discomfort and are believed to result from bacteria entering the duct system through the nipple. Staphylococcus aureus is the most common cause of breast infections, which can present as abscesses, cellulitis and breast parenchymal enlargement and inflammation, or mastitis.

A breast condition known as granulomatous mastitis (GM) has no recognised cause. Typically, women who are childbearing age are affected. Breast masses of varied sizes may be unilateral or bilateral in GM patients. Numerous elements have been linked to the genesis of GM, including: Microbial infection, such as infections with corynebacterium, actinomycetes, and fungi[8,9] hyper-prolactinemia and hormone imbalances; trauma & chemical stimulation[10] usage of contraceptives[11] and mammary duct blockage[12]. The condition is known as idiopathic granulomatous mastitis when none of the aforementioned causes can be identified as the cause idiopathic granulomatous mastitis[13].

Aims and objectives:

- To identify clinical presentation, laboratory investigation and imaging investigations associated with inflammatory diseases of breast in a tertiary care hospital
- To study the distribution of various inflammatory breast diseases along with their management in patients attending a tertiary care hospital

MATERIALS AND METHODS

Study place: This study was carried out at Tertiary Care Hospital.

Study design: A cross-sectional study.

Study period: Study was conducted for a duration of 24 months (January 2021-December 2022) after the approval of research committee and ethical committee.

Source of data: Study was conducted in the Department of Surgery, Tertiary Care Hospital.

Study population: All patients diagnosed with painful condition of breast in a tertiary care hospital.

Sample size: 42.

Ethical clearance and confidentiality: The Institutional Review Board for Ethical Clearance of Tertiary Care Hospital approved the study's ethical conduct. All participants/subjects were informed of the study's methodology and objectives. All consenting patients/attendants were asked to sign a written informed consent form (in the language best understood by them). The information regarding each patient was kept confidential and was not revealed at any point of time. The information of the included subjects was used just for academic purpose and publication.

RESULTS

Current study was carried out for a duration of 2 year from January 2021 to December 2022. Total 42 patients with inflammatory breast condition were analysed using prospective data collection. patients clinically/cytologically and Histopathologically proven cases of Inflammatory diseases of breast which include cellulitis of breast, mastitis, breast abscess and granulomatous mastitis were included in the study.

The characteristic features of patients were high grade fever, breast pain, breast lump and tenderness.

Table 1: Age distribution of study group

Age group	No (%)
18-25 years	10 (23.8)
26-30 years	12(28.5)
31-45 years	20 (47.6)
Total	42(100)

Table 2: BMI of study group

BMI	No (%)
<30	28(66.66)
>30	14 (33.33)

Table 3: Clinical presentation of study group

Presentation	No (%)
Breast pain	21 (50)
Breast discoloration	21 (50)
Swelling	18 (42)
Lump	6 (14)
Tenderness	39 (92)

Table 4: Laterality of study group

Laterality	N(%)
Right	16 (38.1)
Left	19 (42.3)
Bilateral	7(16.6)
Total	42(100)

Table 5: USG of study group

Features	No (%)
Diffuse increase in thickening and echogenicity on doppler US	18 (42.8)
Increased vascularity on doppler US	21 (50)
Diffuse increase in breast density or increased interstitial markings on sonomammogram	03 (7.2)

Table 6: Diagnosis of study group

Diagnosis	No (%)
Mastitis	21 (50)
Breast abscess	18 (42.8)
Granulomatous mastitis	03 (7.2)

DISCUSSIONS

The present study was conducted in the Department of Surgery among 42 patients diagnosed with painful condition of breast in a tertiary care hospital. The aim of the study was to identify clinical presentation, laboratory investigation and imaging investigations associated with inflammatory diseases of breast. Out of 42 subjects, 23.8-28.5% and 47.6% of the subjects belonged to 18-25 years, 26-30 years and 31-45 years respectively. The mean age of the study subjects was 32.8±1.7 years. The age range of the study subjects was 18-45 years.

Kumar *et al.*[1] Their research showed that inflammatory disorders are widespread in women's second and third decades, causing significant anxiety about the development of cancer. Jawade *et al.*[2] found that ages of the patients were ranging from 12 years to 60 years, mostly patients were in 3rd decade of life.

Inflammatory lesion viz. Mastitis, Breast Abscess and Granulomatous Mastitis was reported among 50%, 42.8% and 7.2% of the subjects respectively. Hence the most common lesion was Mastitis followed by Breast Abscess. Patients underwent core biopsy with granulomatous mastitis which was suggestive of non- caseating granuloma, epitheloid cells and giant cells. Microbiology reports in breast abscess isolated staphylococcus aureus, group B streptococci and proteus.

Kumar *et al.*[1] found that among 200 patients Fibroadenoma was present in 79 subjects (39.5%), Cystosarcoma phylloid ES (n = 7, 3.5%), Fibroadenosis (n = 49, 24.5%), Breast abscess (n = 12, 6%), Duct ectasia (n = 3, 1.5%), Lipoma (n = 4, 2%), Fibroadenoma with fibrocystic changes (n = 32, 16%), Duct papilloma (n = 5, 2.5%), Galactocele (n = 4, 2%), Accessory breast (n = 1, 0.5%), TB Mastitis (n = 2, 1%), Sebaceous cyst (n = 2, 1%).

Jawade *et al.*[2] found in their study that Fibroadenoma was most common benign lesion (52.3%), other were Lactating adenoma (4.5%), Phyllods tumour (2.3%), Tubular adenoma (1.1%), Acmastitis (abscess) (2.3%), Chronic mastitis (14.8%), Tuberculosis of breast (3.4%), Fibrocystic disease (17.1%) and Gynaecomastia (2.3%).

In study done by Fahrni *et al.*[3] The majority of patients (57/107) had non-puerperal mastitis, whereas 32% had puerperal mastitis and 15% had other types of inflammation (e.g., folliculitides or infected seromas) in the clinic. Lesions were found more on left side (42.3%) as compared to right side (38.1%). In 16.6% of the subjects, lesions were found on both the sides.

Similarly, Kumar *et al.*[1] in their study found that left side (49.5%) involvement was most common, followed by right side (38%) and both side (12.5%). In present study, Pain with fever, pain + Breast lump and nipple discharge was found in 56.25-35% and 8.75% of the subjects respectively.

According to study done by Nirhale *et al.*[4] Pain (61.25%), Pain + lump (35%) and Pain + discharge (3.75%) was present in study subjects. Kumar *et al.*[1] revealed that 61.5% of cases presented with merely a breast lump, 19.0% with breast lump and discomfort, 1.5% with breast lump and pain and 16.0% with breast pain and nipple discharge.

In present study BMI viz. $\leq$30 and>30 was revealed in 66.66% and 33.33% of the subjects respectively. Shojaee *et al.*[5] found that BMI (Body Mass Index) $\leq$30 in 39 (44.8%) patients and >30 48 (55.2%). Doppler ultrasound is useful for diagnosing subcutaneous oedema because it reveals the gradual accumulation of fluid under the skin, as well as the accompanying thickening and echogenicity of the subcutaneous tissue. Subcutaneous oedema is seen on sonomammography as a generalised increase in breast density or a proliferation of interstitial marks.

In 21 cases of mastitis, 18 were completely resolved with medicine treatment while 3 have to undergo surgery. All the cases of breast abscess (n = 18) were resolved by surgical procedure(incision and drainage). In 3 cases of granulomatous mastitis, 3 were resolved with medicine treatment(oral steroids) and surgery (en block excision). 18 patients were treated by medicine treatment, 21 patients by surgical treatment and 03 patients by both medicine and surgical treatment. According to outcome 6 patients had partial resolution and required surgical treatment and 36 subjects had complete resolution.

According to Kumar *et al.*[1] 32 (16%) patients complained of breast pain (mastalgia) only, who were treated by using a conservative approach or reassurance.

Zhang *et al.*[6] discovered that 293 (55.7%) of the 491 patients responded to conservative therapies including dexamethasone and abscess incision and drainage, 130 (26.5%) were treated following simple excision and 68 (13.8%) required additional surgery. IGM returned in three individuals over the 2-year follow-up period. A second procedure to treat them was a success.

Fahrni *et al.*[3] discovered that 31% of patients were treated with US-guided FNA or drainage

Table 7: Management of the study group

Procedure executed	conservative management	surgical management
Mastitis	18	00
Breast abscess	00	18+03 (lactational mastitis to abscess) incision and drainage
Granulomatous mastitis	03	03-EN block excision

implantation, while 29% were treated with antibiotics alone. After initial minimally invasive treatment, 11% of patients had further surgical procedures (i.e., conversion rate). Only nine percent of the patients had their initial operation. Seven percent of patients treated minimally invasively experienced early problems, compared to zero percent of individuals treated solely with surgery. Only 5% of patients who got non-invasive treatment ended up with late sequelae, while 30% of surgical patients experienced such problems. Research found an 11% conversion rate (12/110).

CONCLUSION

It can be concluded from the results that inflammatory lesions were found more in third decade. The most common lesion was Mastitis followed by Breast Abscess. The incidence of lesions was higher on the left side than on the right. The most frequent symptom was a lump in the breast. Inflammatory lesion incidence was similar to that seen in other investigations, with the exception of chronic mastitis. Inadequate public education may explain why persistent mastitis was so prevalent in our study.

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