Original Article

Recurrence of Recent Breast Abscesses — A Clinical Analysis

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ABSTRACT

Introduction: *A common occurrence among nursing women, breast infections are typically caused by ascending infections. The purpose of this research is to investigate the root cause of female breast infections. Prompt and effective care of breast infections is crucial because of the delicate nature of the functioning breast tissue. The aim of the study is to assess recurrence of recent breast abscesses.* ***Materials & Methods:*** *This cross-sectional observational study was conducted at Department of Surgery, Dhaka Medical College Hospital, Dhaka from August 2014 to February 2015. Sixty (60) cases from patients who attended inpatient and outpatient departments with breast pathology were selected according to inclusion and exclusion criteria. All data encompassing variables, clinical presentation, diagnosis, type of treatment, preoperative and postoperative investigation findings and outcome of treatment were noted and recorded in a structured questionnaire.* ***Results:*** *Age of the patients ranged from 16 years to 55 years. Underlying clinical conditions were found in 12 (20%) patients namely diabetes (6.67%), tuberculosis (3.33%), granulomatous mastitis (3.33%), antibioma (3.33%), inadequate drainage of previous abscess (3.33%). Pattern of recent breast abscess found compatible with abscess was (non-specific) (90%), tubercular (3.33%), granulomatous mastitis (3.33%), and antibioma (3.33%). We found postoperative recurrence in 6(10%) of patients due to inadequate drainage 2(3.33%), tuberculosis 2(3.33%) and granulomatous mastitis 2(3.33%).* ***Conclusion:*** *Although rare, underlying clinical conditions associated with breast infections in women are recognised clinical entities that require specific attention. Every time possible, a clinical problem should be looked for and treated.*

Keywords: *Breas tabscess, Pathological trend, Granulomatous mastitis*

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INTRODUCTION

In a nutshell, the breast is called a modified sweat gland. It is present in both sexes of humans and expands laterally to differing degrees. It is located in the superficial fascia of the upper and anterior chest [1]. The same embryological elements are used to create the breasts in both males and females. Before puberty, the anatomy of their breast tissue is identical. The lymphatic systems of male breasts or mammary glands are as fully developed as those of females, despite the fact that they are still rudimentary [2]. As more information about pregnant and postpartum health becomes available, the prevalence of lactational breast abscess is trending downward. Furthermore, the development of potent antibiotics and a robust health care system have made it possible for general practitioners to effectively treat breast abscesses in the community. According to hospital records, the incidence of breast abscesses has consequently dramatically declined [3]. The majority of breast abscesses are unilateral. When the lactiferous duct lining epidermalizes, keratin synthesis may occur, which could lead to duct blockage and abscess formation [4]. Infection is usually caused by *Staphylococci* and, less commonly, *Streptococci* that enter the breast through lactiferous ducts or lacerated or abraded nipple surfaces. The *Staphylococci* enter the breast and then penetrate the fatty tissue, causing the milk duct to expand and become strained. This leads to a clogging of the duct and stoppage of milk coagulation. One or more abscesses may develop as a result of the organisms subsequent proliferation and frequent localised inflammatory response. As it is the case with all tissues, streptococcus frequently results in a diffuse infection that spreads and eventually impacts the entire organ. *Staphylococcus aureus* is the most common bacterium that causes problems. *Staphylococcus epidermidis* and *streptococci* are occasionally isolated, though. *Bacteroid fragiles, Klebsiella*, Pseudomonas, *Streptococcus pyogenes*, *E. Coli*, and *Streptococcus faecalis* are additional uncommon microorganisms. Non-lactating abscesses frequently return, and the infecting organisms (if they are successfully developed) include a mix of bacteroids, anaerobic streptococcus, and enterococci. Rare anaerobic microorganisms are primarily found in a persistent subareolar abscess [5]. Coagulase that is negative A significant

number of cases may also be caused by *Staphylococci* [6]. Additional rare organisms that infest the breast include Paragonimiasis, Actinomycosis, and Nocardia asteroids. Menopausal women are less likely to experience acute breast inflammation than women in the reproductive age range. Women who are nursing and those who are not lactating are frequently less affected. This is explained by the increased activity of breast tissue brought on by female hormones. From severe abscesses to mild superficial mastitis, it can vary widely. Combining drainage with antibacterial medicine is the mainstay of treatment. Without drainage, antimicrobial treatment might cause the surgical condition known as "Antibioma" which clinically and radiologically resembles cancer.The delicate active breast tissue need fast and adequate treatment of a single breast infection. Prolonged infections, tissue damage, periductal fistulas, and breast anomalies can all be caused by inadequate or postponed therapy [7]. The most common of these diseases are caused by a variety of harmful bacteria. Many additional odd organisms, however, have been reported. TB mastitis remains a problem in developing countries. Duct ectasia to cancer are among the numerous possible diagnosis, and it typically affects one side. The condition known as idiopathic granulomatous lobular mastitis has attracted attention recently. It may have clinical and radiological similarities to breast cancer. Attacks occur often in patients with recurrent breast abscesses. Treatment for patients with recurrent breast abscesses is common [7]. Smokers have a 90% chance of developing periductal mastitis, compared to 38% of non-smokers. This indicates a high association between smoking and the condition. According to several hypotheses, smoking makes the subareolar breast ducts more vulnerable to infections by weakening their wall. Peripheral non-lactating breast abscesses are less common but are often associated with co-morbid conditions such trauma, granulomatous lobular mastitis, steroid treatment, diabetes, and rheumatoid arthritis. These days, non-puerperal mastitis is more prevalent because of the latest nipple piercing fad. Unknown risks are linked to piercings, and they can increase by 10–20% in the months following the procedure.[7]It is widely acknowledged that nipple cracks, fissures, and sores are risk factors for mastitis. Breast engorgement and poor milk drainage are also frequent symptoms. Women having a history of mastitis, mothers over thirty, and other risk factors inadequate breast emptying, inadequate feeding method, and pregnancy duration beyond 41 weeks [8]. Not to mention that while breast infections might appear simple, more serious conditions such as granulomatous mastitis, ductal carcinoma, primary squamous cell carcinoma, and primary breast lymphoma can present as breast abscess at first, making the initial diagnosis difficult and requiring breast cytological or histological examination. The aim of the study is to evaluate recurrence of recent breast abscesses.

METHODS & MATERIALS

This cross-sectional observational study was conducted in the Department of Surgery at Dhaka Medical College Hospital from August 2014 to February 2015. The study population consisted of patients attending both the inpatient and outpatient departments of the hospital with breast pathology, selected according to predetermined inclusion and exclusion criteria. Patients admitted with breast abscess or mastitis were included, while those with carcinoma of the breast, fibroadenosis or mastalgia were excluded. A purposive sampling method was employed for selecting the participants. Data were collected using a pre-designed structured data collection sheet, and relevant patient information was obtained from hospital record files. The primary outcome variables included various types of breast abscesses and mastitis, such as bacterial breast abscess, tubercular breast abscess, granulomatous mastitis, lactating and non-lactating breast abscesses, simple mastitis, and other causes of breast abscess. All collected data were manually recorded and calculated and later transferred to Microsoft Excel (Office 2003 version) for analysis. The results were then presented in the form of bar charts, pie charts, and tables. Ethical clearance for the study was obtained from the ethical review committee of Dhaka Medical College after fulfilling the relevant ethical requirements. Additionally, written informed consent was obtained from each patient after thoroughly counseling them and explaining the details of the study in Bengali.

RESULTS

The total number of cases in this study was 60. The youngest patient was 16 years old and the oldest was 55 years old. The highest incidence of abscess was in the age group 21 – 30 years old, consisting of 26 patients (43.33%). The age group of 11 – 20 years was the next most common which was 22 (36.67%) of the total. **[Figure-1]**

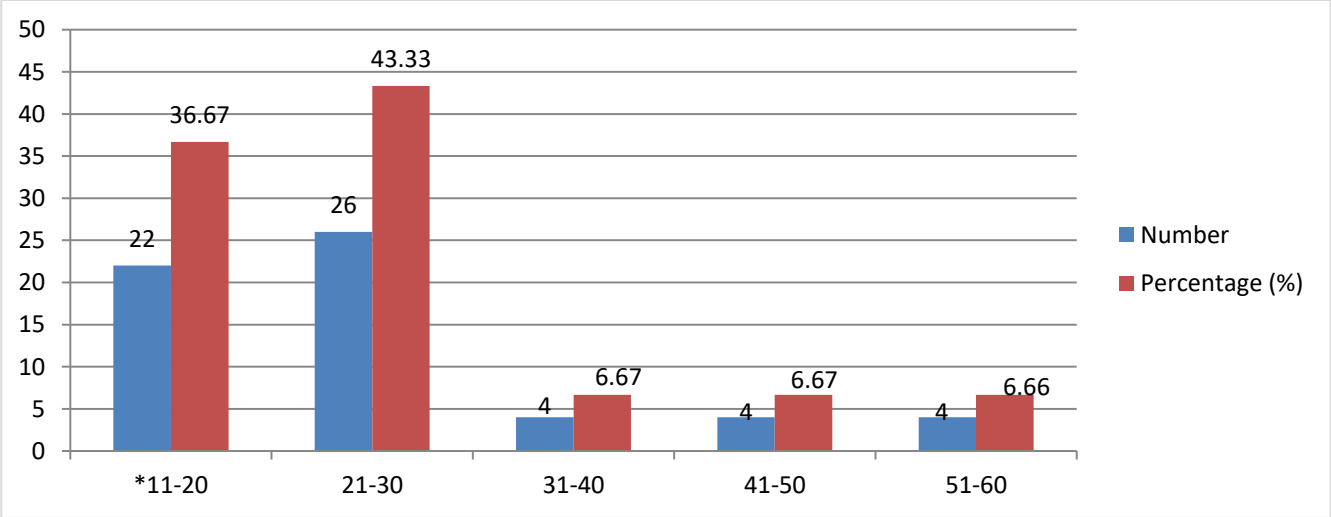

Figure – 1: Graphical presentation of age incidence (*n*= 60)

The marital status of the cases in this series was recorded. Out of 60 cases, 44(73.33%) were married and the remaining 16 (26.67%) were unmarried. Occupations of the patients of this study were recorded. Out of 60 cases, 44(73.33%) were housewives, 12 (20%) were a student and the remaining 4 (6.367%) were service holders. Out of 60 cases, 42(70%) were poor, 16(26.67%) were middle class, and only 2 (3.33%) were solvent. 24(40%) cases were found illiterate and the remaining 36(60%) cases were literate. **[Table-I]**

Table – I: Demographic characteristics of patients (*n*= 60)

Demographic characteristics of patients	Number of patients (n= 60)	Percentage (%)
Distribution of patients according to Marital Status		
Married	44	73.33
Unmarried	16	26.67
Occupation of the patients		
Housewives	44	73.33
Student	12	20.00
Service holder	4	6.36
Distribution of patients according to Socioeconomic Status		
Poor (monthly income < 5000/-)	42	70.00
Middle class (monthly income 5000 – 10000/-)	16	26.67
Solvent (monthly income > 10000/-)	2	3.33
Distribution of patients according to Educational Status		
Illiterate	24	40.00
Literate	36	60.00

Out of 60 cases, 44(73.33%) cases were non-lactating and 16(26.67%) cases were lactating. **[Figure-2]**

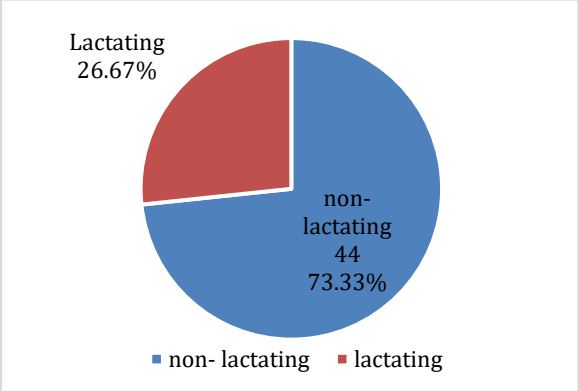

Figure – 2: Pie diagram showing the incidence of lactating and non-lactating breast abscess (*n*= 60)

Out of 60 cases, 52(86.67%) cases presented with pain, fever, swelling, and redness of the breast, 6(10%) recurrence and 2(3.33%) antibioma. **[Table-II]**

Table – II: Distribution of the patients by presenting features (*n*=60)

Features	Number of patients (n= 60)	Percentage (%)
Pain, fever, swelling, redness	52	86.67
Recurrence	6	10.00
Antibioma	2	3.33

The nipple and areola were examined properly. Out of 60 cases, 4 (6.67%) cases showed cracking of nipple and 2 (3.33%) showed retracted nipple. 54 (90%) cases were normal. In this study, breast abscesses involved 36 (60%) in the right breast and 24 (40%) in the left breast. **[Table-III]**

Table – III: Distribution of patients according to condition of nipple and breast involvement (*n*= 60)

Variables	Number of patients (n= 60)	Percentage (%)
Condition of the nipple		
Normal	54	90.00
Crack	4	6.67
Retracted	2	3.33

Involvement of breast		
Right	36	60.00
Left	24	40.00

Histopathological examination showed- compatible with abscess wall (non-specific) 54(90%), granulomatous inflammation consistent with tuberculosis 2(3.33%), granulomatous mastitis 2(3.33%). Only 2(3.33%) patients came to us with antibioma (FNAC). **[Table-IV]**

Table – IV: Distribution of patients by histopathological findings (*n*= 58)

Findings	Number of patients (n= 58)	Percentage (%)
Compatible with abscess wall (nonspecific)	54	90.00
Consistent with tuberculosis	2	3.33
Granulomatous mastitis	2	3.33

Underlying clinical conditions were reported in 12(20%) of patients. Diabetes mellitus 4(6.67%), tuberculosis 2(3.33%), granulomatous mastitis 2(3.33%), inadequate drainage 2(3.33%) and antibioma 2(3.33%). **[Table-V]**

Table – V: Distribution of patients by underlying disease condition (*n*= 12)

Conditions	Number of patients (n= 12)	Percentage (%)
Diabetes mellitus	4	6.67
Tuberculosis	2	3.33
Granulomatous mastitis	2	3.33
Inadequate drainage	2	3.33
Antibioma	2	3.33

In this study, 52 (86.67%) cases were treated by incision and drainage, 4(6.67%) cases were treated by mastectomy, and 2 (3.33%) cases were treated by quadrentectomy and aspiration done in 2(3.33%) cases. Aspiration revealed no pus (antibioma). **[Table-VI]**

Table – VI: Distribution of patients according to hospital treatment (*n*=60)

Treatment of patient	Number of patients (n= 60)	Percentage (%)
Incision and drainage	52	86.67
Mastectomy	4	6.67
Quadrentectomy	2	3.33
Conservative	2	3.33

Most of the patient's postoperative periods were uneventful 54 (90%). We found postoperative recurrence in 6(10%) patients due to inadequate drainage 2(3.33%), tuberculosis 2(3.33%) and granulomatous mastitis 2(3.33%). **[Table-VII]**

Table – VII: Distribution of patients according to postoperative recurrence (*n*=6)

Cause	Number of patients (n= 6)	Percentage (%)
Inadequate drainage	2	3.33
Tuberculosis	2	3.33
Granulomatous mastitis	2	3.33

DISCUSSION

This is a small study on pathological trends of recent breast abscesses done prospectively at the Department of Surgery, Dhaka Medical College Hospital, Dhaka. This study attempted to identify the pathological trends of recent breast abscess, histopathological evaluation, treatment, follow-up and recurrence of patients and thus to find out the ways and means to offer better treatment to reduce the sufferings of patients. In our study, the highest incidence of breast abscess was found in the age group 21-30 years. This coincides with the study published in medical journal of Babylon 2014. In that study, the highest incidence was among the age group 20-29 years [9]. Breast abscesses are common in married women. In our study, it reflected 44 patients (73.33%). In the unmarried group, it was 16 patients (26.67%). Parity remains a major factor as there is increased activity of breast tissue in response to female hormones. The study conducted at Dhaka Medical College Hospital in 2004 showed a similar pattern (married 88% vs. unmarried 12%) [10]. Most of our patients were housewives (73.33%). This may be due to ignorance, poor hygiene, and the general trend of disregard for females in society [11]. Socioeconomic condition affects health. Poor personal hygiene is mostly seen among people coming from low socioeconomic conditions. 70% of our patients came from low socioeconomic conditions which is almost similar to other studies done by Sandhu GS et al. (64%) [12]. Illiterate women suffering from breast abscess was 40% (<class five) which is high. Ignorance and illiteracy play a major role in any disease process. In our study, lactating breast abscesses were 26.67% and nonlactating 73.33%. A study conducted by Sandhu GS et

al. (lactating 32% and non-lactating 68%) and another study by Khalifa Al Benwan K. et al. (lactating 6.1% and non-lactating 93.8%) also revealed higher incidence in nonlactating women [12,13]. In this study most common presentations were pain, swelling, induration, and fever. The condition of the nipple was normal in 90% of cases. American Journal of epidemiology shows cracking of the nipple was a common finding, accounting for 95% of all breast abscesses, and thus differs from this study [14]. This reduction in the incidence was due to increased incidence of non-lactational breast abscess. In our study incidence of breast abscess in the right breast was 60% and left breast was 40%. It coincides with another study where the right breast abscess was 58% and left 42% [10]. Histopathological examination showed-compatibility with abscess wall (non-specific) 90%, granulomatous inflammation consistent with tuberculosis 3.33%, and granulomatous inflammation 3.33%. 3.33% of patients came to us with antibioma (FNAC). Underlying clinical conditions were reported in 20% of patients- diabetes mellitus 6.67%, tuberculosis 3.33%, granulomatous mastitis 3.33%, inadequate drainage 3.33% and antibioma 3.33%. The overall incidence of mammary tuberculosis is reported to be 0.1% of all breast lesions, while in developingcountries it constituted approximately 3.0% of surgically treated breast diseases which is almost similar to our study [15]. A study conducted by Sandhu GS et. al. showed incidence of diabetes mellitus was 8%, hypertension 8%, and urinary tract infection was 6%. No associated disease was seen in the remaining 78% of cases which also supports our study [12]. In this study, out of 60 cases 52(86.67%) patients were treated by incision and drainage, 04(6.67%) patients by mastectomy, 02(3.33%) patients by quadrentectomy, and 02(3.33%) patients by conservative treatment. Clinical data, modalities of treatments, causative organisms and their sensitivity to antibiotics and histopathological evaluation were observed. Almost all the patients were operated under general anesthesia. There was no mortality in this series. Most of the patient's postoperative periods were uneventful (90%). In these patients, daily dressing was done and healing occurred by secondary intention. The remaining 6(10%) of patients had postoperative complications due to inadequate drainage (3.33%), tuberculosis (3.33%), and granulomatous mastitis (3.33%). Definitive surgery for these patients was done. In a study done by Rahanur MR, postoperative complications were seen in 10% of cases [11].

CONCLUSION

Various issues pertaining to breast abscess formation were explored. The pathological patterns of recent breast abscesses were discovered to be either acute , chronic, or recurrent. Breast cancer can be mistaken for a painless lump in cases of recurring or chronic breast abscesses, such as granulomatous mastitis and tubercular mastitis.

Limitations of the study:

The period of study was comparatively short with a small sample size. Moreover, majority of patients along with their short duration of hospital stay was considered as another limitation of the study**.**

RECOMMENDATIONS

Raising awareness of personal hygiene, health education is necessary to develop socioeconomic conditions and along with the use of multimedia tools. To lower the morbidity of breast abscesses, it is also important to practice early detection in this concern.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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