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Analysis of Patients Receiving Treatment for Inflammatory Breast Disease at Surgery Department of Tertiary Care Units

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Abstract:

Background: In the Surgery Department of Tertiary Care Units, an analysis of patients receiving treatment for inflammatory breast disease presents a critical assessment of disease patterns and therapeutic outcomes. This evaluation is pivotal in understanding the prevalence and efficacy of treatment modalities in addressing complex breast conditions within specialized care settings.

Aims and Objectives: To assess the effectiveness of the care given to mastitis and breast abscess patients admitted to the surgical department of the Sir Gangaram Ram Hospital Lahore.

Study Design: Prospective Analytical Cross-sectional Study.

Place & duration of study: Current study was conducted in surgical department of the Sir Gangaram Ram Hospital Lahore from March 2023 to December 2023.

Methodology: The patients those visited and admitted with a diagnosis of breast abscess were included regardless of age, size of the abscess and co-morbidities. The patient was informed of the available treatment options, and their priority was taken into account for the chosen course of action. Total 100 female patients were divided in two different groups. In group-A 60 patients were operated with local anesthesia and their abscess size was larger than 2.5 cm in diameter. While in group-B, 40 patients were conservatively managed and either ultrasound guided aspiration or no intervention is used. Either the size of the abscess was less than 2.5 centimeters in these patients, or there were signs of inflammation without any fluctuation. Whereas in case of conservative treatment hot fomentation and antibiotics were recommended, some patients who received surgery or minimally invasive treatment also received prescriptions for antibiotics. The antibiotics used were a combination of a beta-lactamase inhibitor, clavulanic acid, and a broad spectrum penicillin, namely amoxicillin, which could be used as an adjuvant or sole therapy. If there was no need for surgery to treat the abscess, the treatment was considered successful. Bio- statistical program (SPSS) version 2022 were used for the raw data description.

Results: Total 100 female patients were considered and their aged from 20-40 years, lactating women were 42 while 58 women non-lactating. Group A consisted of 48 surgical patients who underwent incision and drainage, while Group B consisted of 52 patients who were treated conservatively. Ischemia, skin excoriation, wound sepsis, and postoperative septicemia were among the complications that were encountered during the postoperative period. Breast deformity, sinus formation, non-healing or closure, and organized abscess were diagnosed during the follow-up. There was no any mortality.

Conclusion: Surgical drainage is the only option for treating breast abscesses, both large and small, as it significantly reduces morbidity.

Keywords: Breast abscesses, lactating women, inflammation, antibiotics, Ischemia, skin excoriation, wound sepsis.

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1- Introduction:

A localized collection of pus (inflammatory exudate) in the breast tissue is called a breast abscess. Breast abscesses can occur as the initial symptom of a breast infection, but they most frequently occur when mastitis or cellulitis is unresponsive to antibiotic therapy, With a documented incidence of 0.1 percent, it is an uncommon issue for nursing mothers; among those who have had mastitis treated with antibiotics, the incidence is 3 percent. Mastitis can result in complications such as breast abscesses, which can develop from acute bacterial mastitis into a pyogenic abscess if antibiotic treatment is unsuccessful[1]. Breast abscesses are more common in non-puerperal mastitis than in puerperal mastitis, and because of their extreme discomfort and propensity to recur, they can be especially challenging to treat[2].

Historically, surgical incisions have been necessary for breast abscesses in order to drain the abscess; this procedure is typically carried out under general anesthesia and is followed by the administration of antibiotics[3]. Nevertheless, this course of treatment may cause problems with lactation and lead to unsatisfactory cosmetic outcomes[4]. More recently, it has been demonstrated that breast abscesses can be successfully treated with US-guided needle aspiration or catheter drainage. The purpose of this study was to evaluate the efficacy of minimally invasive treatments for breast abscesses by retrospectively analyzing diagnostic results, various treatment modalities, and patient outcomes treated by a multimodality breast team at our institution. In the past, incision and drainage of abscesses was thought to be the recommended course of treatment[5, 6].

This approach is more invasive than needle aspiration and often leaves scarring with structural damage and subpar cosmetic results, even though the recurrence rate is lower. While oral ant-staphylococcal antibiotics and serial aspiration have been shown to be successful, surgical excision is sometimes necessary for infected or obstructed lactiferous ducts and has been shown to reduce the recurrence rate of non-puerperal abscess and mastitis[7]. A bacterial infection is typically the cause of a breast abscess. The bacteria cause a breast infection known as mastitis when they penetrate through a break or crack in the skin of the breast or nipple. This is an inflammation that affects nursing women's breast tissue, milk glands, or ducts. An abscess is a pus-filled empty space in the breast caused by infected milk ducts[8, 9].

2- Materials and Methods:

Aims and objectives:

To assess the effectiveness of the care given to mastitis and breast abscess patients admitted to the surgical department of the Sir Gangaram Ram Hospital Lahore.

Place & duration of study: Current study was conducted in surgical department of the Sir Gangaram Ram Hospital Lahore from March 2023 to December 2023.

Study Design: Prospective Analytical Cross-sectional Study.

Inclusive Criteria: The condition of the patient's inflammatory breast disease must be confirmed. The tertiary care unit's treatment options must be judged appropriate for the patients. This entails assessing general health, organ function, and the lack of therapy contraindications.

Exclusive Criteria: The Cancer patients and pregnant women were not included. To prevent influencing treatment outcomes, patients who have had prior malignancies within a specific timeframe prior to diagnosis may be excluded.

Methodology: Current study was conducted in surgical department of the Sir Gangaram Ram Hospital Lahore from March 2023 to December 2023.The patients those visited and admitted with a diagnosis of breast abscess were included regardless of age, size of the abscess and co-morbidities. The patient was informed of the available treatment options, and their priority was taken into account for the chosen course of action. Total 100 female patients were divided in two different groups. In group-A 60 patients were operated with local anesthesia and their abscess size was larger than 2.5 cm in diameter. While in group-B, 40 patients were conservatively managed and either ultrasound guided aspiration or no intervention is used. Either the size of the abscess was less than 2.5 centimeters in these patients, or there were signs of inflammation without any fluctuation. Whereas in case of conservative treatment hot fomentation and antibiotics were recommended, some patients who received surgery or minimally invasive treatment also received prescriptions for antibiotics. The antibiotics used were a combination of a beta-lactamase inhibitor, clavulanic acid, and a broad spectrum penicillin, namely amoxicillin, which could be used as an adjuvant or sole therapy. If there was no need for surgery to treat the abscess, the treatment was considered successful.

Bio-statistical model: All of the clinical and demographic data were recorded on MS Excel and SPSS version 2023 were used to process, analyze, and distribute the data as needed.

3- Results:

A breast abscess is a localized infection and pus buildup in the breast parenchyma. Most often, a breast abscess is a consequence of mastitis. It is the most common breast pathology seen in surgical outpatient departments. It is more common in women from lower socioeconomic backgrounds and less common in those with western lactiferous ducts, which can cause milk stasis and infection. Most of the time, Staphylococcus aureus is the causing agent. The majority of non-puerperal abscesses are seen in postmenopausal women and are uncommon. It can be brought on by nipple inversion, congenital anomalies, duct ectasia, or an underlying cancer. Obesitydiabetes, and smoking are risk factors. It happens when keratotic debris obstructs the lactiferous ducts, causing organisms trapped in the ducts to multiply. The most common causes of non-puerperal abscesses are anaerobes, staphylococci, and streptococcus.

Table-1: General information (n=100)

Demographics	Mean ± SD	P< (0.05)
Age	38.13± 0.01	0.01
Gender (women)	100.00±0.01	0.01
Lactating women	42.01±0.04	0.04
Non-Lactating women	58.01±0.01	0.01
Married	78.02±0.02	0.02
Unmarried	22.01±0.01	0.01
Patients operated with general anesthesia	60.01±0.01	0.01
Patients treated with conservative treatment	40.01±0.01	0.01

Warm or cold compresses, antibiotic therapy for 10–15 days, and continuous breast emptying through breastfeeding or breast pumping every two hours or when engorged are the standard treatments for mastitis. It has been demonstrated that antibiotic therapy combined with continuous breast emptying is more effective than breast emptying alone at relieving symptoms, lowering the chance of recurrence, and lowering the risk of abscess formation. In group-A 60 patients were operated with local anesthesia and their abscess size was larger than 2.5 cm in diameter, shown in table-2.

Table-2 Patients operated with local anesthesia for abscess surgery (n=60)

Parameters	%(Mean ± SD)	P< (0.05)
Non-lactating abscess	18.10± 0.01	0.01
Lactating abscess	40.02±0.01	0.01
Non-puerperal abscess	12.01±0.01	0.01
puerperal abscess	48.02±0.01	0.01
Simple Lactating abscess	50.01±0.03	0.03
Complicated Lactating abscess	21.01±0.01	0.01
Simple non Lactating abscess	20.01±0.02	0.02
Complicated non Lactating abscess	10.01±0.01	0.01

In our investigation, we found that Group-B had a higher incidence of breast deformity as a result of organized abscesses, and those who needed surgical drainage as a result of conservative treatment failure were included in the study.

Table-3 Patients Treated with conservative treatment (n=40)

Parameters	%(Mean ± SD)	P< (0.05)
Non-lactating abscess	11.10± 0.01	0.01
Lactating abscess	30.02±0.01	0.01
Non-puerperal abscess	02.01±0.01	0.01
puerperal abscess	08.02±0.01	0.01
Simple Lactating abscess	20.01±0.01	0.01
Complicated Lactating abscess	01.01±0.01	0.01
Simple non Lactating abscess	10.01±0.01	0.01
Complicated non Lactating abscess	15.01±0.02	0.02

Due to low immunity and co-morbid conditions, late complications did not correlate with age, but early complications were found to be strongly correlated with age. According to the study, there is a significant correlation between primary breast abscess and its recurrence and malnutrition, particularly anemia, multiparty, and poor hygiene.

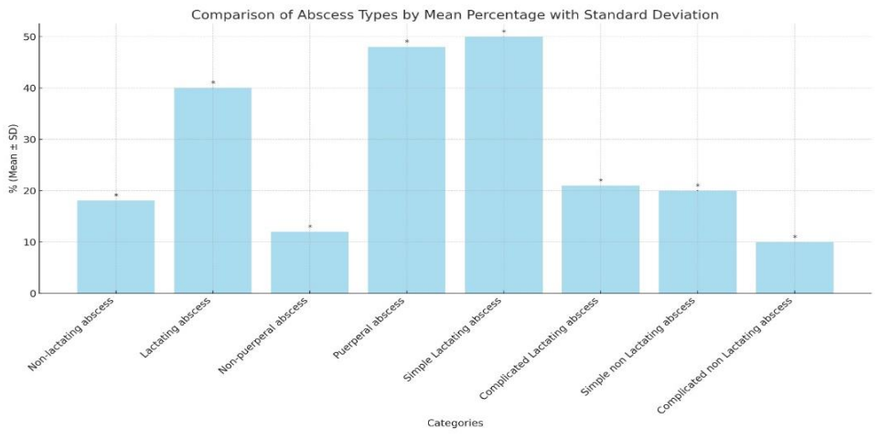

Fig-1:The mean percentages with standard deviations for various abscess types. Each bar represents the mean percentage for a specific abscess category, and the error bars indicate the standard deviation. Categories where ($p < 0.05$) are marked with an asterisk, denoting statistical significance.

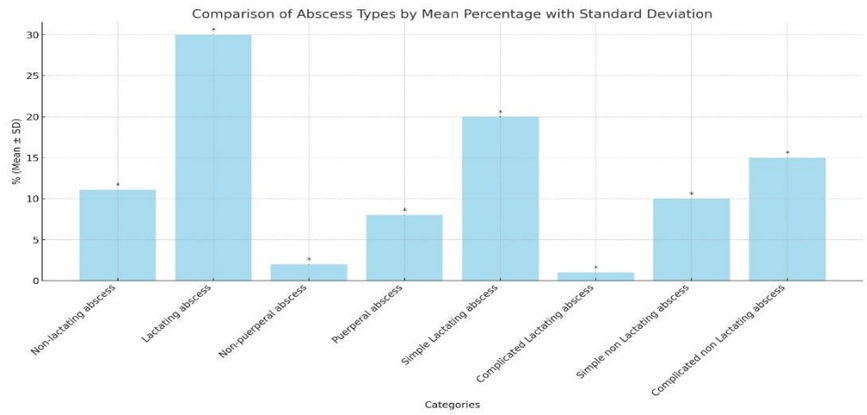

Fig-2: The mean percentages with standard deviations for various abscess categories, along with their significance levels indicated by asterisks where the p-value is less than ($p < 0.05$).

4- Discussion:

In present study, we found that 18% of patients in Group I had hypertrophic scars and scarring that caused contractures, and 12% of patients in Group II had breast deformities[10]. 10% of the women in Group A of our study experienced pus discharge after incision and drainage, and this finding was replicated in another study where 10% of the women experienced persistent discharge for approximately six weeks[11, 12]. In our study, 1 in 12 of the women in group I needed additional surgery. A retrospective investigation on 53 female patients with breast abscesses was carried out. Twenty-two abscesses were aspirated; five of them needed to be cut open and drained later. Thirteen patients underwent primary incision and drainage, with one patient requiring additional drainage[13, 14].

Afridi SP et al. (2013) conducted a study on the aspiration of breast abscess and found that 43.6% of patients in group II in our study required a second aspiration, while 43% of women required one after the first aspiration. Various researchers conducted a study on the diagnosis, treatment, and outcome of breast abscesses[15, 16]. One patient out of every 56 had a seroma. Another patient developed a hematoma where the drainage catheter was inserted. In our investigation, we found that group B had a higher incidence of breast deformity as a result of organized abscesses, and those who needed surgical drainage as a result of conservative treatment failure were included in the study[17, 18, 19].

Our study found no mortality, which we attributed to early presentations, efficient antibiotic therapy, and most importantly, prompt intervention[20]. Due to low immunity and co-morbid conditions, late complications did not correlate with age, but early complications were found to be strongly correlated with age. According to the study, there is a significant correlation between primary breast abscess and its recurrence and malnutrition, particularly anemia, multiparty, and poor hygiene[21].

5- Conclusion:

Even though there are benefits to not having to undergo anesthesia or endure uncomfortable dressing changes, conservative treatment for small breast abscesses such as minimally invasive ultrasound guided aspirations increase morbidity and disfigurement and may even require surgery. Both large and small breast abscesses require surgical drainage as the only viable course of treatment.

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Authors Contributions:

All authors contributed equally and sincerely in present research.

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Conflict of Interest:

No conflict of Interest was declared by any author during the current study.

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