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A Comparative Study of Breast Abscess Drainage by Conventional Incision and Drainage versus Percutaneous Placement of Suction Drain

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Abstract

Introduction

A breast abscess is defined as a collection of pus in breast surrounded by pyogenic membrane. It can be intrinsic originating from infection in breast tissue proper or extrinsic which results from infection in an adjacent structure like skin and thoracic cavity. Mastitis is a potential complication of breast feeding that occurs most commonly in primiparous women with incidence of 4.8 to 11%. The treatment of breast abscess is a clinical dilemma which ranges from conservative treatment to surgical intervention. Conventional incision and drainage under local or general anesthesia has been gold standard over a long period of time with a gradual change from invasive to noninvasive with maintaining current philosophy of surgery.

Objectives

The present study is to compare management of breast abscess by incision and drainage versus Percutaneous Drain Placement (PDP) with reference to

- Post operative pain
- Residual abscess
- Duration of hospital stay
- Time required for complete healing

• Appearance of scar

Review of Literature

Infections 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. Infections are most often caused by Staphylococcus aureus and may be manifested as cellulitis with breast parenchymal inflammation and swelling, termed mastitis, or as abscesses. 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. This condition appears to be associated with smoking and diabetes. The infections that arise are most often mixed infections that include aerobic and anaerobic skin flora. A series of infections with resulting inflammatory changes and scarring may lead to retraction or inversion of the nipple, masses in the subareolar area and, occasionally, a chronic fistula from the subareolar

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ducts to the periareolar skin. Palpable masses and mammographic changes may result from the infection and scarring; these can make surveillance for breast cancer more challenging. Subareolar infections may initially be manifested as subareolar pain and mild erythema. If treated at this stage, warm soaks and oral antibiotics may be effective. Antibiotic treatment generally requires coverage for aerobic and anaerobic organisms. If an abscess has developed, incision and drainage are required, in addition to antibiotics. Repeated infections are treated by excision of the entire subareolar duct complex after the acute infection has resolved completely, together with IV antibiotic coverage. Rarely, patients will have recurrent infections requiring excision of the nipple and areola.

Percutaneous Drain Placement

18F perforated catheter with curved needle was introduced from one side of the abscess and then needle rotated 2-3 times in all directions to break the loculi and brought through the opposite side of the cavity and catheter fixed and left in situ connected to suction apparatus after closing entry site closed using 3-0 ethilon. Povidone iodine and H2O2 irrigation done daily and catheter removed after 3-5 days after minimal drain output.

Materials and Methods

Place: Department of General Surgery, Stanley Medical College Hospital

Design: Prospective study

Period: January 2018 to September 2018 (9 months)

Sample Size: 50

Inclusion Criteria

- Patients with clinical and sonological evidence of breast abscess where fluctuation is present.
- Patient who underwent either of the two surgical intervention

Exclusion Criteria

• Breast abscess with suspicion of tuberculosis

Patient who were not willing for surgical intervention

Methods of Data Collection

The patients selected for the study with above criteria were subjected to appropriate preoperative workup and patients alternatively underwent incision and drainage and percutaneous placement of suction drain.

They were put on preoperative and postoperative antibiotics of Inj. Ampicillin 1g iv BD for 3 days followed by Cap. Amoxicillin 500mg TDS for a week. Analgesics used were Inj. Diclofenac 50mg im OD on first postoperative day followed by Tab. Diclofenac 50 mg BD for 3 days.

Postoperative pain was measured by using Visual Analog Scale (VAS) face rating given below:



An ultrasound was taken on postoperative days 3 and 7 to look for residual collection.

Each patient was followed on OPD basis at 2nd, 4th, 5th and 8th week in regard to wound healing.

Results

Comparison of Post Operative Pain

In the study VAS grade for I and D patients was G5 (56%) followed by G4 (46%), whereas in PDP was G1 (72%) followed by G2 (28%). P VALUE < 0.05 (SIGNIFICANT).



Comparison of Residual Abscess

In the study residual abscess was noted in 1 (4%) patient in I and D group and 2 (8%) patients in PDP group. P VALUE=0.55 (NOT SIGNIFICANT).

Comparison of Duration of Hospital Stay:

In the study the mean hospital stay in I and D patients were 7.8 ± 0.9 days, whereas in PDP group were 3.8 ± 1.1 days. There was significant difference noted among two.

| DURATION OF HOSPITAL | PITAL GROUP | | | I AND D vs. PDP | | |
|----------------------|-------------|-------------|---------|-----------------|--|--|
| STAY (WEEKS) | I AND D | PDP | t value | P value | | |
| Mean +/- SD | 7.8 +/- 0.9 | 3.8 +/- 1.1 | 14.2 | <0.001 | | |
| RANGE | 7-10 DAYS | 3-7 DAYS | - | | | |

Comparison of Duration of Complete Healing

In the study the mean duration of complete healing in I and D patients were 4.2 ± 1.2 weeks, whereas in PDP patients were 1.7 ± 0.5 weeks. There was significant difference noted among two.

| DURATION OF COMPLETE | GROUP | | I AND D vs. PDP | |
|----------------------|-------------|---------------|-----------------|---------|
| HEALING (WEEKS) | | | t value P value | |
| | 111100 | 101 | e value | 1 Value |
| Mean +/- SD | 4.2 +/- 1.2 | 1.7 +/- 0.5 | 9.86 | <0.001 |
| | | | | |
| | | | | |
| | | | | |
| RANGE | 3-6 WEEKS | 1.4-3.3 WEEKS | - | - |
| | | | | |

Comparison of Size of Scar

In the study the size of scar noted in I and D group were 4*2 cms in 11 patients (44%) followed by 5*2 cms in 9 patients (36%). Mean size of two scars noted in PDP group were 0.5*1 cm in 23 patients (92%) whereas scar in other two were 4*2 cms as they were treated for residual abscess by I and D. There was significant difference noted among two. P VALUE < 0.05 (SIGNIFICANT).

| SIZE OF SCAR (cm) | | GR | OUP | | TOTAL | | | | | |
|-------------------|---------|-----|-----|-----|-------|--|--|--|--|--|
| | I AND D | | PDP | | | | | | | |
| | No. | % | No. | % | | | | | | |
| 0.5*1 | 0 | - | 23 | 92 | 23 | | | | | |
| 4*2 | 11 | 44 | 2 | 8 | 13 | | | | | |
| 5*2 | 9 | 36 | 0 | - | 9 | | | | | |
| 6*2 | 3 | 12 | 0 | - | 3 | | | | | |
| 7*2 | 2 | 8 | 0 | - | 2 | | | | | |
| TOTAL | 25 | 100 | 25 | 100 | 50 | | | | | |

Discussion

In our study totally 50 patients participated of which I and D and PDP were done alternately in 25 patients each. In respect to postoperative pain I and D patients had higher intensity with G4 and G5 in VAS whereas in PDP they had only lower intensity with G1 and G2. Residual abscess interpretation was statistically insignificant although 2 patients with PDP undergone I and D due to residual collection. In respect to duration of hospital stay and duration of complete healing patients with PDP (range of 3-7 days and 1.4-3.3 weeks respectively) had shorter duration than with I and D group (range of 7-10 days and 3-6 weeks respectively). In respect to size of scar patients with PDP had smaller scar than with I and D group at the end of 8 weeks.

Conclusion

Percutaneous drain placement (PDP) as compared to conventional Incision and drainage

• Is less invasive (less pain)

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- Has faster recovery and shorter hospital stay
- Heals with minimal scarring.

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