ORIGINAL RESEARCH PAPER

Volume-7 | Issue-2 | February-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

COMPARITIVE STUDY OF DRAINAGE OF BREAST ABSCESS BY CONVENTIONAL INCISION AND DRAINAGE VERSUS PERCUTANEOUS PLACEMENT OF SUCTION DRAIN

General Surgery

Dr.Deepak. G. Udapudi Professor, Department of General Surgery, JJM Medical College, Davangere, Karnataka, India.

Dr.Raghuveer Karne DNB resident,Department of Urology,Kamineni Hospitals,L B Nagar,Hyderabad, India.

Dr.Krishnakanth. M.A.* Junior Resident, Department of General Surgery, JJM Medical College, Davangere, Karnataka, India. *CorrespondingAuthor

ABSTRACT

Background: Breast abscess is common in puerperal period secondary to mastitis with incidence of 4.8%-11%. The conventional method of incision and drainage of breast abscess has undergone a gradual change from invasive to minimally invasive method of percutaneous placement of suction drain. We present 50 cases of puerperal breast abscess treated by I and D and percutaneous placement of suction drain alternatively.

Aims & Objectives: To compare management of breast abscess by incision and drainage v/s percutaneous suction drainage with reference to –1. Post operative pain 2. Residual abscess 3. Duration of hospital stay 4. Time required for complete healing 5. Appearance of scar

Material and Methods: 50 patients admitted to Chigateri General Hospital and Bapuji hospital attached to J.J.M. Medical College, Davangere with primary diagnosis of puerperal breast abscess were taken for this prospective study from June 2011 to May 2013 (2 years). 25 patients underwent I & D and 25 patients underwent percutaneous placement of suction drain.

Results: Minimal post operative pain was observed in all the patients of percutaneous drain placement(VAS G1 and G2) compared to I and D group(G4 and G5). Residual abscess was found in one case in I and D group and two cases in PDP group which were treated by incision and drainage. Mean duration of hospital stay in I and D group was 4-6 days and in PDP group was. Mean duration of complete healing in I and D group was 10-12 days and in PDP was weeks. Patients who underwent PDP had a minimal scar at entry and exit wounds, where as the patients who underwent conventional method had a large ugly scar.

Conclusion: Percutaneous placement of suction drain in puerperal breast abscess is less invasive(less pain), has faster resolving rate, heals with minimal scarring and has low complication rate as compared to the conventional method.

KEYWORDS

Puerperal breast abscess, Incision and drainage, Percutaneous placement of suction drain.

Introduction

A breast abscess is defined as a collection of pus in breast surrounded by pyogenic membrane.[1,2] It can be intrinsic originating from infection in breast tissue proper or extrinsic which result from infection in an adjacent structure, e.g., skin, thoracic cavity.[3] Intrinsic breast abscess can be further classified into lactation or non-lactational breast abscess.[4]

Mastitis is a potential complication of breast feeding that occurs more commonly in primiparous women. The reported incidence of breast abscess in lactation related mastitis is 4.8%-11%.[5]

The treatment of breast abscess is a clinical dilemma which ranges from conservative treatment to surgical intervention like drainage of pus with or without biopsy.[4,6] In early stage when pus is absent it can be treated with antibiotic, analgesics and local measures like breast support and local heat application.[6] Once pus is formed, the principle of treatment dictates its drainage.[2,7]

Conventionally incision and drainage under local or general anaesthesia has been the gold standard drainage procedure.[2,4,7] This modality of treatment is essential in cases where skin is necrotic or already discharging pus but has several disadvantages in cases where skin is intact.[8]

Drainage of breast abscess has undergone a gradual change from invasive to minimally invasive procedure in keeping with the current philosophy of surgery. The standard surgical approach (invasive) of incision and drainage (I and D), breaking of loculi and insertion of a drain under general anesthesia or daily gauze packing has yielded to minimally invasive approach of percutaneous placement of suction drain and aspiration/repeated aspiration of the abscess. The Incision and Drainage method entails certain morbidity and cessation of breast function. The minimally invasive method of percutaneous placement of suction drain of breast abscess is a cost effective method of drainage of breast abscess that entails minimal morbidity and has cosmetical advantages.[9]So minimally accessive surgery is the current trend.

Conventional Incision and drainage of breast abscess leads to more pain, delayed healing and prolonged cessation of breast feeding. As the condition occurs in young women, scar is a major concern.

The present study intends to compare benefits and harms of the two methods-a) invasive method i.e conventional incision & drainage b) minimally invasive procedure i.e percutaneous placement of suction drain in the treatment of breast abscess

Materials and Methods

SOURCE OF DATA:

50 patients admitted to Chigateri General Hospital and Bapuji hospital attached to J.J.M. Medical College, Davangere with primary diagnosis of breast abscess were taken for this prospective study from June 2011 to May 2013 (2 years).

METHOD OF DATA COLLECTION:

The patients(50) selected for this study were those who were admitted with primary diagnosis of breast abscess.

Based on detailed history, thorough clinical examination, the diagnosis of breast abscess was made. These patients were subjected to the required preoperative investigations. Patients alternately underwent incision drainage and percutaneous placement of suction drain.

Antibiotic- Inj. AmpicloxTM 500mg i.v 8th hrly x 2 days followed by cap. AmpicloxTM 500mg 8th hourly x 5 days and Analgesic- Inj Diclofenac IM x 1 day followed by Tab Diclofenac depending on the severity of pain.

An ultrasound scan of the operated breast was done on the post operative days 3 & 7 to rule out residual abscess.

Each case was analysed with reference to post operative complications like post operative pain (based on visual analog scale), residual abscess(based on USG), duration of hospital stay, time required for complete healing and appearance of scar.

Each patient was followed up in the outpatient department at 1 week, 2 weeks, 4 weeks, 6 weeks and 8 weeks after discharge with regard to wound healing.

Comparison between the two groups will be done by Z test for proportions/Fisher's exact test.

The cases with the following inclusion and exclusion criteria were selected for the study and were allocated alternatively to each of the comparative study groups.

INCLUSION CRITERIA:

1. Patients with clinical diagnosis of breast abscess where fluctuation was positive.
2. Patients who underwent surgical intervention i.e., Incision and drainage or Percutaneous placement of suction drain.

EXCLUSION CRITERIA:

1. Breast abscess due to other causes like tuberculosis
2. Patients who were not willing for the surgical intervention.

METHOD OF PERCUTANEOUS SUCTION DRAINAGE: 18F perforated catheter with the curved needle was introduced from one side of the abscess and then needle was rotated 2-3 times in all directions to break the loculi and brought out from the opposite side of the abscess and the perforated end of the catheter was left insitu. Entry wound was closed with ethilon 2-0. Hydrogen peroxide and Povidone iodine wash was given through the catheter which was fixed at the exit wound and then connected to the bellow unit of the suction apparatus. The catheter was irrigated daily with H2O2 & Povidone iodine and was removed between 3-5 days.

Fig 1: ENTRY POINT OF NEEDLE

Fig 2: EXIT POINT OF NEEDLE

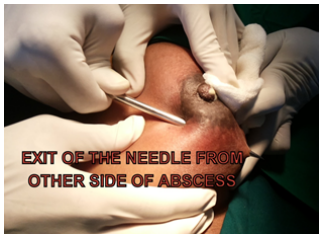

Fig 3: CLOSURE OF ENTRY WOUND

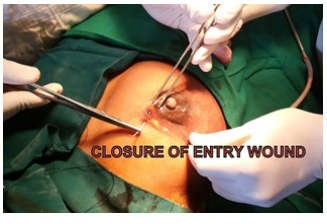

Fig 4: DRAIN CONNECTED TO SUCTION APPARATUS

Fig 5: DRAIN REMOVAL ON POD 3

Fig 20: TWO WOUNDS AFTER SUTURE REMOVAL ON POD 7

Results

The following observations were made during the course of the study :

TABLE 1 COMPARISON OF AGE WISE DISTRIBUTION OF CASES

In the present study only puerperal breast abscess cases were taken and the most commonly affected age group was 24-30yrs, with 30 cases(60%) followed by 19-24yrs, with 20cases(40%). The youngest patient in our study was 19yrs and oldest being 30yrs.

TABLE 2 COMPARISON OF POST OPERATIVE PAIN

In this present study VAS median grade in I and D patients was G5(56%), followed by G4(44%). VAS median grade in PDP group was G1(72%), followedby G2(28%).

TABLE 3 COMPARISON OF RESIDUAL ABSCESS CASES

RESIDUAL ABSCESS	Group			
	I and D		PDP	
	No.	%	No.	%
Yes	1	4	2	8
No	24	96	23	96
Total	25	100	25	100

In the present study residual abscess was noted in 1(4%) patient in the I and D group and 2(8%) patients in the PDP group.

TABLE 4 COMPARISON OF DURATION OF HOSPITAL STAY(DAYS)

DURATION OF HOSP STAY (DAYS)	Groupa	
	I and D	PDP
Mean ± SD	7.8 ± 0.9	3.8 ± 1.1
Range	7 - 10 days	3 - 7 days

In the present study the mean hospital stay in I and D patients was 7.8 ± 0.9 days and PDP patients was 3.8 ± 1.1 days. There was significant difference noted between the two groups.

TABLE 5 COMPARISON OF DURATION OF COMPLETE HEALING (WEEKS)

DUR OF COMPLETE HEALING (WKS)	Group	
	I and D	PDP
Mean ± SD	4.2 ± 1.2	1.7 ± 0.5
Range	3 - 6 Wks	1.4 - 3.3 Wks

In the present study the mean duration of complete

	Group	
	I and D	PDP
No.of cases	25	25

Age (Yrs) : Mean ± SD	25.3 ± 3.3	25.5 ± 3.2
Range	20 - 30 Yrs	19- 30 Yrs

healing in I and D patients was 4.2 ± 1.2 weeks and PDP patients was 1.7 ± 0.5 weeks. There was

POST OP PAIN (VAS)	Group				Total
	I and D		PDP		
	No.	%	No.	%	
G1	0	-	18	72	18
G2	0	-	7	28	7
G3	0	-	0	-	-
G4	11	44	0	-	11
G5	14	56	0	-	14
Total	25	100	25	100	50

significant difference noted between the two groups.

TABLE 6 COMPARISON OF SIZE OF THE SCAR

Size of the Scar (cm)	Group			
	I and D		PDP	
	No.	%	No.	%
0.5x1, 0.5x1	0	-	23	92
4x2	11	44	2	8
5x2	9	36	0	-
6x2	3	12	0	-
7x2	2	8	0	-
Total	25	100	25	100

In the present study, size of the scar noted in I and D group was 4x2cms in 11(44%) patients, followed by 5x2cms in 9(36%) patients. Mean size of the two scars noted in PDP group was 0.5x1cm in 23(92%) patients. Scar size in other 2 patients of PDP group was 4x2cms as these patients developed residual abscess and were treated by conventional I and D. There was significant difference noted between the two groups.

There was no drain dislodgement in any patient. No drain replacement was required till it was removed.

The drain was removed in majority of our patients on the 3rd post operative day.

A sample of pus was sent for culture and sensitivity in each patient. The result was reported as sterile in six patients and Staphylococcus aureus in 39 patients and pseudomonas in five patients.

The anaerobic pus culture was not done. The bug was found sensitive to ampicloxTM, augumentinTM, cefixime.

Discussion

Though the conventional method of treatment of puerperal breast abscess is open surgical drainage, percutaneous placement of suction drain has emerged as a valid alternative and shown the promising results.

In this present study VAS median grade in I and D patients was G5(56%), followed by G4(44%). VAS median grade in PDP group was G1(72%), followed by G2(28%). Patients in I and D group had more pain compared to PDP group. Various comparative studies on the treatment of breast abscesses, unlike our study have seemed to over look pain as a parameter for clinical outcome.

In the present study 1(4%) patient in I and D group and 2(8%) patients in PDP group developed residual abscess. In Tewari et al. study no patient developed residual abscess in PDP group.[9] In Saleem et al. 2008 study 1(4%) patient developed residual abscess in I and D group, which is similar to the present study.[5]

In the present study, mean post operative hospital stay in I and D group was 7.8(0.9) days and PDP group was 3.8(1.1). I As the trochar of suction drain is transversed and rotated along the entire length of the abscess cavity to break the loculi, we conducted the procedure under short general anaesthesia. In the study conducted by Tewari et al[9]., PDP was carried out in opd basis as the procedure was done under local anesthesia. In the study conducted by Saleem et al[5]., mean post operative hospital stay was 4 days in I and D group. Similar studies conducted by Kaushal et al[10]. showed that post operative hospital stay was longer in I and D group.

In the present study, mean duration of complete healing in I and D group was 4.2(1.2) weeks and PDP group was 1.7(0.5) weeks. In the study conducted by Tewari et al., time required for complete healing is not being mentioned. In the study conducted by Saleem et al.,[5] mean duration of complete healing in I and D group was 3(1) weeks. Similar studies conducted by Kaushal et al.,[10] showed that complete healing was longer in I and D group.

In the present study, size of the scar noted in I and D group was 4x2cms in 11(44%) patients, followed by 5x2cms in 9(36%) patients. Mean size of the two scars(entry and exit wounds) noted in PDP group was 0.5x1cm in 23(92%) patients. Scar size was 4x2cms in 2(8%) residual abscess patients, who were treated by I and D. Similar small scars were noted by Tewari et al.,[9] where patients were treated with PDP.

The advantages of the present method of percutaneous suction drainage of breast abscess are many folds:

1. As the trochar of suction drain is transversed and rotated along the entire length of the abscess cavity, all the loculi are punctured.
2. Negative pressure of suction drain facilitates early collapse of the abscess cavity.
3. Breast-feeding was continued in all the 25 patients. The evidence today recommends that breast-feeding should be continued during treatment of puerperal breast abscess.[9]
4. There was no scarring or distortion of breast parenchyma.
5. Morbidity was minimal associated with the attachment of suction drain.
6. USG localization of the abscess cavity was not required.
7. There was saving in the cost of treatment of PBA and maintenance of the form and function of the breast.

However, this method is applicable only in drainage of large fluctuant PBA. The point of entry and exit of the suction drain trochar has to vary according to the position of the PBA in the breast.[9]

Conclusion

Percutaneous placement of suction drain as compared to the conventional method (I and D) in management of puerperal breast abscess -

1. Is less invasive(less pain)
2. Has lesser hospital stay
3. Has faster resolving rate
4. Heals with minimal scarring

So, PDP scores over conventional method in reference to post operative pain, duration of hospital stay, duration of complete healing and size of the scar.

REFERENCES

1. Leaper DJ. Wound infection. In: Russell RCG, Williams NS, Bulstrode CJK, eds. Bailey and Love's Short practice of surgery. 24th ed. London, England: Arnold; 2004. 118-32.
2. Anaya DA, Dellinger EP. Surgical infections and choice of antibiotics. In: Townsend CM, Beauchamp RD, Evers BM, Mattox KL, eds. Sabiston Textbook of Surgery. Vol 1. 17th ed. Philadelphia, USA: Saunders; 2004. 257-82.
3. Bland KI, Beenken SW, Copeland III EM. Breast. In: Brunicardi FC, Andersen DK, Billiar TR, Bunn DL, Hunter JG, Pollock RE, eds. Schwartz's Principles of Surgery. Vol 1. 8th ed. New York, USA: McGraw-Hill; 2005. 453-500.
4. Thompson AM, Dewar JA. Disorders of the breast. In: Cuschieri A, Steele RJC, Moossa AR, eds. Essential Surgical Practice. Vol 2. 4th Ed. London, England: Arnold; 2002. 61-94.
5. Saleem S, Farooq T, Khan N, Shafiq M, Azeem M, Dab RH. Puerperal breast abscesses; percutaneous ultrasound guided drainage compared with conventional incision and drainage. Professional Medical Journal Dec 2008; 15(4): 431-436.
6. Parry NG, Dente CJ, Rozycki GS. Ultrasound for surgeons. In: Townsend CM, Beauchamp RD, Evers BM, Mattox KL, eds. Sabiston textbook of surgery. Vol 1. 17th ed. Philadelphia, USA: Saunders; 2004. 243-56.
7. Mundy LM, Doherty GM, Cobb JP. Inflammation, infection and antimicrobial therapy. In: Way LW, Doherty GM, eds. Current surgical diagnosis and treatment. 12th ed. Now York, USA. McGraw-Hill; 2003. 97-126.
8. Hook GW, Ikeda DM. Treatment of Breast Abscesses with US-guided percutaneous needle drainage without Indwelling catheter placement. Radiology 1999; 213:579-82.
9. Tewari M, Shukla HS. An effective method of drainage of puerperal breast abscess by percutaneous placement of suction drain. Indian Journal of Surgery Dec 2006; 68(6): 330-333.
10. Suthar KD, Mewada BN, Surati KN, Shah JK. Comparision of percutaneous ultrasound guided needle aspiration and open surgical drainage in management of puerperal breast abscess. Int J Med Sci Public Health 2013; 2:69-72.