ORIGINAL RESEARCH PAPER

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KEY WORDS:

COMPARATIVE STUDY OF DRAINAGE OF BREAST ABSCESS BY OPEN DRAINAGE WITH PRIMARY SUTURING WITH NEGATIVE SUCTION DRAIN AND CONVENTIONAL INCISION AND DRAINAGE

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ABSTRACT

Purpose:- My purpose of the study is to use of compare drainage method use in breast abscess management and reduce postoperative complication to patients.

Introduction :- Breast infections are a common problem in lactating women, with manifestations that range from mastitis to abscess formation. A breast abscess is defined as a localized infection with accumulation of fluid in the breast tissue. Breast abscess is one of the commonest forms of abscess surgical emergencies usually seen in lactating woman. Breast infections are divided into lactational and non-lactational infections.

Material and Method:- Sample size was 100 patients of age ranged from 18 to 35 years, which was divided in two groups of 50 patients in each group. This was divided in two groups of 50 patients each. First group was treated by incision and drainage and second by open drainage with primary suturing with negative suction drain, selection of patients was on alternate basis. Informed consent was taken from each patient before procedure. In suction drain placement procedure under short general anesthesia, 16 F suction catheter was placed percutaneous in abscess cavity after brack down of all loci by incisional side and was closed by primary suturing

Result - Incision and drainage with primary closure with negative suction drainage technique Highest percentage of patients were doing breast feeding , lowest percentage of scar formation seen in primary suturing and negative suction drainage . patients treated with primary suturing and negative suction drainage were discharged next day while , with I & D discharged after 3 days , minimum percentage of recurrence seen with this method , Mean resolution time of drain placement is less as compare to I & D .

Conclusion:- Incision and drainage with primary closure with negative suction drainage technique was associated with faster wound healing, less postoperative pain, less hospital stay, low cost of treatment, and low recurrence rate than conventional incision and drainage. Primary closure with negative suction drain is a better technique .

INTRODUCTION:-

A breast abscess is defined as a localized infection with accumulation of fluid in the breast tissue. Breast abscesses can be classified as puerperal and non-puerperal. Breast infections are divided into lactational and non lactational infections. The process may be confined to the skin overlying the breast, or it may result from an underlying lesion (eg, sebaceous cyst), as inhidradenitis suppurativa. Breast infections are a common problem in lactating women, with manifestations that range from mastitis to abscess formation Breast abscess surgical emergencies usually seen in lactating woman.

MATERIALS AND METHODS:-

Study was done after proper clearance from institutional scientific and ethical committee. This study was carried out in the Department of Surgery, MGM Medical College & MY Hospital. Sample size was 100 patients of age ranged from 18 to 35 years, which was divided in two groups of 50 patients in each group. First group was treated in Hospital over the period of 1 year from the date of approval in prospective manner and included patients of clinically diagnosed breast abscess by incision and drainage and second by open drainage with primary suturing with negative suction drainage. Patients selected on alternate basis.

Patients generally presented in hospital with history of fever and pain in either of breast . On examination there was bulge in breast which was tender and fluctuant. Diagnosis of puerperal breast abscess was made. These patients were admitted and required to do preoperative investigations like blood sugar, complete blood count. Patient was explained the procedure and informed consent was taken before procedure. Patients were alternately undergone incision and drainage and percutaneous placement of suction drain with primary suturing

Inclusion criteria

- Patients with clinical diagnosis of breast abscess where fluctuation is positive.
- Patients undergoing surgical intervention i.e., Incision and drainage or Percutaneous placement of suction drain and primary suturing
- Abscess size >3 cm

Exclusion criteria:

- Patients not willing to give written consent.
- Patient with skin disease
- Size < 3 cm
- Chronicallyill patients (HIV, HBSAg and Immunodeficiency)
- Antibioma
- Malignancy

Taking all aseptic precautions procedure was done as

following:-

1. Conventional incision and drainage: These method is gold stander for any abscess drainage under short GA with placement of small corrugated drain and repeated dressings with gauze packing in post-operative period.

2. Open drainage with primary suturing with negative suction drain: Patient had large fluctuant PBA involving whole breast. Patient was given short GA along with lignocaine (with adrenaline 0.5% strength) local infiltration anesthesia was given 2cm above the upper palpable margin of abscess and 2cm below the lower palpable margin of abscess at 5 o' clock and 7 o' clock position exit of suction drain trochar . At the entry site a incision of approx. 2.5 cm length was taken and with the help of artery forceps cavity was opened, through which finger was inserted. Whole abscess cavity was aspirated and loculi breakdown done with the help of finger. After complete drainage 16 F trocar of suction drain was inserted through incision site and brought out through infra mammary position. The perforated portion of drainage tube was shortened to fit in abscess cavity. The drain was fixed to skin with the help of silk 2-0 and suction applied. Insertion site was closed by taking percutaneous sutures by vicryl 3-0 and some time by silk 3.0 in interrupted manner.

Pus was sent for culture and sensitivity. Patient was kept NBM for at least 5 to 6 hrs. Patient was started on injection Augmentin (amoxicillin and clavunate) 1.2gm 12 hrly on day of procedure and then shifted on oral antibiotics and analgesic as oral start. Patient was encouraged to breast feed after pus c/s report sterile or breast emptying by any means. When pus discharge was diminished to less than 10 ml drain was removed. Further examinations were made at 1 week, 2nd week and 4th week after discharge in OPD.

Both groups were compared on the basis of following outcomes:

- Post-operative pain
- Duration of hospital stay
- Resolution time (drainage time)
- Appearance of scar
- Recurrence/fistula
- Continuation of breast feeding/emptying/milk suppression

RESULTS

This study was carried out in the Department of Surgery, MGM Medical College & MY Hospital. Sample size was 100 patients, of which was divided in two groups of 50 patients in each group. Group was treated in Hospital over the period of 1 year from the date of approval in prospective manner and included patients of clinically diagnosed breast abscess by incision and drainage and second by open drainage with primary suturing with negative suction drainage. Patients selected on alternate basis.

The outcome of each group was evaluated clinically. Data was analyzed using SPSS software. Means and standard deviation of resolution time, wound healing time, duration of hospital stay, post-operative pain, continuation of breast feeding and post-operative scar of the both groups were calculated. Results of two treatment groups were compared using test to access the hypothesis and a p value of <0.05 was taken as, statistically significant.

Patients were followed up to 2 months. The drain was removed in most of patients on 3rd-5th day; otherwise further visits to hospital were required on 7th or 8th day. Patients who underwent incision and drainage were advised admission for daily dressings. Maximum patients discharged after 3 days of hospitalization.

Cross tabulation between treatment groups and post op pain

Table-1:- Cross tabulation between treatment groups and post op pain

Visual analogue Scale	No of patients			
	Incision and drainage		Drain placement	
	N	%	N	%
0	0	0	0	0
2	0	0	43	86
4	16	32	7	14
6	33	66	0	0
8	1	2	0	0
10	0	0	0	0

43 (86%) patients out of 50 patients which were treated by percutaneous drain placement felt mild pain while 33 (66%) patients which were treated by I & D felt moderate pain and 16 patients felt mild pain .

Table-2:- Association of Drainage Method with Recurrence

Recurrence		Drainage Method		Total
		I&D	Suction Drainage	
No	Count	42	49	91
	%	84.0%	98.0%	91.0%
Yes	Count	8	1	9
	%	16.0%	2.0%	9.0%
Total	Count	50	50	100
	%	100.0%	100.0%	100.0%

The above table shows the association of Drainage Method with Recurrence which found to be significant (P 0.05). Patients falling under I&D group show the highest percentage 84.0% for No Recurrence while, show lower percentage 16.0% for Yes status of Recurrence. Similarly, patients falling under Suction Drainage group show 98% for Minimal 2% of Recurrence.

Table-3:- Association of Drainage Method with Feeding Status

Feeding Status		Drainage Method		Total
		I&D	Suction Drainage	
Breastfeed	Count	27	41	68
	%	54%	82%	68.0%
Empty	Count	8	6	14
	%	16%	12%	14.0%
Milk Suppression	Count	10	1	11
	%	20%	2%	11.0%
Nothing	Count	5	2	7
	%	10%	4%	7.0%
Total	Count	50	50	100
	%	100.0%	100.0%	100.0%

All patients were counseled for continuation of breast feeding. As drain percutaneous drainage of breast abscess is minimal invasive with minimal post op pain so maximum patients i. e. 41 (80.2%) continued breast feeding while rest were adopted emptying and milk suppression due to fear of passage of organisms to baby, While in incision and drainage due to significant post op pain.

Table-4:- Association of Drainage Method with Scar

Scar		DrainageMethod		Total
		I&D	Suction Drainage	
Minimal Scar	Count	5	49	54
	%	10.0%	98.0%	54.0%
Ugly Scar	Count	45	1	46
	%	90.0%	2.0%	46.0%

Total	Count	50	50	100
	%	100.0%	100.0%	100.0%

The above table shows the association of Drainage Method with Scar which found to be significant (P 0.05). Patients falling under I&D group show the highest percentage 90.0% for Ugly Scar while, show lower percentage 10.0% for Minimal Scar. Similarly, patients falling under Suction Drainage group show the highest percentage 98% for Minimal Scar while, show lower percentage 2% for Ugly Scar.

Resolution time (on the basis of USG and clinical examination)

Table-5:- Cross tabulation between treatment groups and resolution time

Resolution time (days)	Procedure			
	Incision and drainage		Drainplacement	
	N	%	N	%
1–5	-	-	7	14
6–10	6	12	39	78
11–15	26	52	4	8
16–20	18	36	-	-
Total	50	100	50	100

Mean resolution time for drain placement was 7.76 +/- 2.137SD days. It ranged from 05 days for small abscesses to 12 days for larger abscesses. Failure rate of aspiration therapy was (2%) with 01 patient requiring surgical drainage after drain placement.

Mean resolution for incision and drainage was 14.22 +/- 2.88SD days with range of 9 days to 19 days. Small abscesses (Up to 5cm) resolved within 2 weeks while larger abscesses required up to 4 weeks for complete resolution ($p<0.0001$).

Recurrence:- In all patients, one patient which was treated by drain placement came with recurrence after one and half month after taking history it was found that she didn't continued breast feeding/ emptying by any means. So efficacy of drain placement is 98%.

Sinus / fistula formation:- In open procedure (I& D) of management of breast abscess there is chances of injury to lactiferous ducts so increased chances of milk fistula. In this study 2 patients who were treated by I & D presented with milk fistula in follow up.

DISCUSSION

According to Haagensen "The conventional treatment of breast abscess has been surgical incision and drainage under general anesthesia, a curved incision in the skin line is used and a Penrose drain is left in a place for 72 hours".1 The gold standard of puerperal breast abscess drainage described by Haagensen is supported by Webster with addition of gauze packing.2 Patient requires hospitalization, breast feeding discontinued and lactation suppressed with tab bromocriptine 2.5 mg twice daily for 14 days.2 Breast distortion due to scarring and persistent fistula or sinus developed in some patients.4 By placing the incision over inflammatory part of breast scarring can be avoided in visible part of breast.5

-Karstrup et al reported their experience that 18 out of 19 patients were treated successfully with ultrasound guided percutaneous drainage of breast abscess.3 USG guided aspiration, antibiotic therapy and repeated USG guided aspiration residual loculi underlines the importance of USG imaging in modern management of PBA. It is an outpatient procedure in 53%, scar less in 100%, and complete healing in 95% and breast feeding not interrupted in 42%. A recent study has concluded that abscess smaller than 5cm can be treated effectively with repeated aspirations with good cosmetic results. Incision and drainage should be reserved for the larger abscess.6 Women who underwent surgical incision and drainage experienced significantly longer healing times than the needle aspiration group (mean of 12.43 vs. 6.36 days) Garg et al. reported a success rate of 84% in 25 patients of PBA.6,7

Tiwari M et al described a minimally invasive palpatory method of drainage of breast abscess i.e., percutaneous placement of suction drain but in that method there was percutaneous puncture of loculi by trochar only so there were still chances of remaining loculi and recurrent abscess.13 Avoidance of repeated aspirations was the advantage of catheter placement in abscess cavity. Local instillation of antibiotics into abscess cavity is probably beneficial. Resolution time is faster in percutaneous drain placement as compared to incision and drainage. Moisture is maintained and antibiotic instillation in cavity can be done.

In 2014, Aniruddha Kale et al. studied to compare the outcome of conventional incision and drainage versus incision and drainage with primary closure of wound in acute abscesses with regards to better healing rate, less postoperative pain, less hospital stay, low cost of treatment, and less recurrence rate. In our study, incision and drainage with primary closure combined with use negative suction drain is more effective than that of incision and drain.

CONCLUSION:-

Final conclusion is that, this technique is technically more safer, more effective, very less painful, cosmetically more promising and resolution time is earlier, compared to conventional incision & drainage and Regular natural milk emptying of the breast is an essential part of treatment. With this study we recommended further research with longitudinal study and follow ups on regular intervals is recommended, so that results will be more sensitive. Future studied should also assess the effect of other socio-demographic factors like religion, locality, socioeconomic status etc. on etiology of breast abscess. Replication of current study with more ethnically diverse sample would be beneficial.

Conflicts of interest

There are no conflicts of interest.

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Nil

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