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A PROSPECTIVE STUDY ON COMPARISON OF OUTCOME OF CLOSED AND OPEN DRAINAGE OF BREAST ABSCESS

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ABSTRACT

Breast abscess is an acute inflammatory process resulting in the formation and collection of pus under the skin in breast tissue. Typically, there is painful erythematous lump formation in the breast occasionally with draining through the overlying skin of nipple duct opening. Breast abscess if not treated in time and in proper way, can result in deformation of breast which ultimately can result in loss of self-esteem of the female who suffers from abscess. A breast abscess is a localized collection of pus in the breast; usually occur in breastfeeding woman due to trauma and mastitis. Breast abscesses are most common in young lactating women. The incidence of abscesses in young women during their lactational period ranges from 0.4 to 11%. Mostly researchers reported Staphylococcus aureus is among the common cause for the infection. For the treatment of the breast abscess, options include open incision and drainage, incision and drainage with negative suction drain. Surgical incision and drainage are usually carried out under a general anaesthesia, is a traditional method of treatment. Breaking down any loculi and draining the pus material from the cavity by incision of the swelling is the most common method which follows the irrigation of cavity and either left open and packed with gauze or approximated around a drain. Present study was aimed to compare outcome of closed and open drainage of breast abscess. In the study of open and closed drainage of breast abscess of 60 patients conducted in Aarupadai Veedu Medical College & Hospital showed most commen in age group affected is 21-32 years of age. Right side of affected in 55% of patients. All patients complaint of swelling, pain and all and showed signs of inflammation. Closed drainage is effective alternative method of treatment to incision and drainage in properly selected patients. 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 in comparison the approach of closed drainage which leaves behind a better scar, breast feeding is started very early and breast ragains it suppleness very fast. Furthermore Post-operative pain, Scar formation, Residual abscess, Secondary infection, time for complete healing and hospital stray is better with closed drainage of breast abscess.

Keywords :- Breast Abscess, Therapeutic Benefits, Prevalence, Prospective Study. .

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INTRODUCTION

Breast abscess is an acute inflammatory process resulting in the formation and collection of pus under the skin in breast tissue. Typically, there is painful erythematous lump formation in the breast occasionally with draining through the overlying skin of nipple duct opening. Breast abscess if not treated in time and in proper way, can result in deformation of breast which ultimately can result in loss of self-esteem of the female who suffers from abscess [1]. A breast abscess is a localized collection of pus in the breast; usually occur in

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breastfeeding woman due to trauma and mastitis. Breast abscesses are most common in young lactating women. The incidence of abscesses in young women during their lactational period ranges from 0.4 to 11% [2]. Mostly researchers reported Staphylococcus aureus is among the common cause for the infection. For the treatment of the breast abscess, options include open incision and drainage, incision and drainage with negative suction drain. Surgical incision and drainage are usually carried out under a general anaesthesia, is a traditional method of treatment [3]. Breaking down any loculi and draining the pus material from the cavity by incision of the swelling is the most common method which follows the irrigation of cavity and either left open and packed with gauze or approximated around a drain [6]. Benson et al reported an alternative to this method that involves incision over the abscess, breaking down loculations, the wall of the cavity is scraped as thoroughly by using a curette to remove its lining granulation tissue and then suturing closed of the abscess cavity [7].

Breast abscesses can be classified according to clinical presentation, location, or pathogenic organism. Most abscesses result from secondary bacterial infection from skin contamination [14]. Although Staphylococcus aureus is by far the main pathogen, other microorganisms can be encountered, for example Staphylococcus epidermidis, Streptococcus pyogenes, and anaerobes such as Peptostreptococcus and Bacteroides. A sterile culture with absent growth of bacteria is reported in 21%–45% of cultures, although this may be a false-negative finding due to previous treatment with antibiotics. Less commonly, in specific clinical settings, breast infections secondary to tuberculosis and other mycobacteria, fungi, or parasites can occur. For clinical relevance and treatment management, it is most useful to classify abscesses according to clinical presentation. Puerperal Abscesses Mastitis is a complication most often encountered in primiparous women and develops in 1%–24% of breast-feeding women. Breast abscesses develop as a complication of mastitis in 5%–11% of cases, generally in the first 12 weeks after birth or at the time of weaning, and are referred to as puerperal or lactational abscesses. They are caused by bacteria—most often S. aureus—that enter via a small skin laceration and proliferate in the stagnant lactiferous ducts. This type of abscess is more frequent in primiparous mothers (65% of cases) [5, 8] and responds well to drainage and antibiotics. Women should be encouraged to continue breast-feeding throughout treatment to disengorge the ducts. Cessation of breast-feeding is necessary only when treatment with an antibiotic contraindicated for the newborn is prescribed (eg, tetracycline, ciprofloxacin, or chloramphenicol) or if surgical drainage is performed. The treatment of breast abscess is a clinical dilemma which ranges from conservative treatment to surgical intervention. The conventional treatment of breast abscess has been surgical incision and drainage. 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 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. [1, 2] The Incision and Drainage method entails certain morbidity and cessation of breast function. A recently highlighted approach is drainage of pus by percutaneous drain placement under antibiotic cover. [13] This approach has advantages of complete resolution without scar formation and patient can continue breast feeding.

Nonpuerperal Breast abscesses that occur outside of the breastfeeding period are termed nonpuerperal and are categorized according to location, either central (periareolar) or peripheral. Risk factors for the development of breast abscesses include black race, obesity, and tobacco smoking[9]. In addition [10] recently reported that 64% of 87 women with nonlactational abscesses who were treated were diabetic, although the importance of this risk factor could be partly confounded by the fact that 89% of women in their study were black, another independent risk factor for nonlactational abscesses.

Central (Periareolar) Nonpuerperal Abscess. -Central nonpuerperal abscesses are the most common form of abscesses that develop outside of the breast-feeding period. They primarily affect young women, most of whom are smokers [1, 4, 11]. With the increasing use of tobacco by young women, this type of abscess is becoming more frequent.

Peripheral Nonpuerperal Abscess.—Peripheral nonpuerperal abscesses are less common and occur at a slightly older age than central nonpuerperal abscesses and puerperal abscesses. They can occur in women with underlying chronic medical conditions, such as diabetes and rheumatoid arthritis. Peripheral nonpuerperal abscesses can also be encountered in women taking steroids or with recent breast interventions, such as those in the postoperative or post–radiation therapy period, although most have no associated medical condition [1]. As with other forms of abscesses, the most common pathogen is Staphylococcus aureus, but Streptococcus and anaerobic flora can also be encountered. This form of abscess responds well to drainage and antibiotics. Recurrences are generally rare. The proportions of these abscess subtypes encountered will vary from one practice to the next. In the literature, reported ranges are 14%–59% for puerperal abscesses and 41%–86% for

nonpuerperal abscesses [12, 13, 15, 16]. Among all abscesses, 34%–94% involve the retroareolar region [2, 11, 17].

AIM:

To compare outcome of closed and open drainage of breast abscess.

OBJECTIVES OF THE STUDY

To compare management of breast abscess by open drainage v/s closed drainage with reference to Post operative pain, Residual abscess, Duration of hospital stay, Time required for complete healing, Appearance of scar.

MATERIALS AND METHODS

PERIOD OF STUDY:

October 2015 to October 2017.

PLACE OF STUDY:

Aarupadai Veedu Medical College & Hospital, Puducherry.

NUMBER OF CASES:

All cases coming to AVMC & H with diagnosis of breast abscess during the study period in October 2015 to October 2017. Minimum of 60 cases will be taken up for study following inclusion and Exclusion criteria. By period sampling.

STUDY TYPE: PROSPECTIVE STUDY.

STUDY PARTICIPANTS:

The patients attending out patient department & admitted to Aarupadai veedu medical college and hospital, with diagnosis of breast abscess will be taken for this study by periodic sampling.

INCLUSION CRITERIA:

Patients with clinical diagnosis of breast abscess

EXCLUSION CRITERIA:

- Patients who are not willing for the surgical intervention
- Antibioma (recurrent breast abscess treated with antibiotics)
- Multiple abscess

METHOD OF COLLECTION OF DATA

The patients selected for this study are those who are with primary diagnosis of breast abscess. Based on detailed history, thorough clinical examination, the diagnosis of breast abscess will be made. These patients will be subjected to the required preoperative investigations. Patients will be alternately undergoing incision drainage and percutaneous placement of suction drain. Each case will be analysed with reference to post operative complications like post operative pain (based on visual analog scale), residual abscess, duration of hospital stay, time required for complete healing and appearance of scar and cost spent for treatment. Each patient will be followed up in the outpatient department at 1 week, 2 weeks and 4 weeks after discharge with regard to wound healing. A minimum of 60 cases with the following inclusion and exclusion criteria will be selected for the study and will be allocated alternatively to each of the comparative study groups.

PROCEDURE:

Taking all aseptic precautions procedure was done as following:

1. Conventional incision and drainage: drainage under short GA with placement of small corrugated drain and repeated dressings in post op period.
2. Percutaneous suction drainage: local infiltration anesthesia was given 2cm above the upper palpable margin of abscess and 2cm below the lower palpable margin of abscess for entry and exit of suction drain trocar. 16F suction drain was inserted through insertion site and brought out through abscess cavity . 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. Pus was sent for culture and sensitivity.. Patient was encouraged to breast feed the baby in nursing women. She was again seen on day 3 and day 5. 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.

DISCUSSION:

In the present study of 60 cases of breast abscess admitted in Aarupadai Veedu Medical College & Hospital were divided and study in 2 groups.

Group – I (30 patients) – closed drainage

Group – II (30 patients) – open drainage

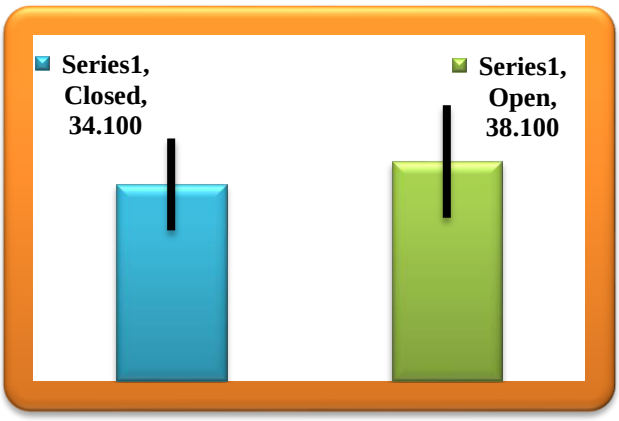
A comparative prospective study was designed to compare open and closed drainage in breast abscess and the out comes in the various modalities for betterment

In records to

- Post operative pain
- Scar formation
- Residual abscess
- Secondary infection
- Time for complete healing
- Hospital stray
- Culture and sensitivity
- Follow up

In the study the youngest patient was 18 years old and oldest patient was 42 years old. The mean age was 34 years in the patient of study groups.

Fig 1: Age distribution



*No significance

Fig 2: Side of abscess

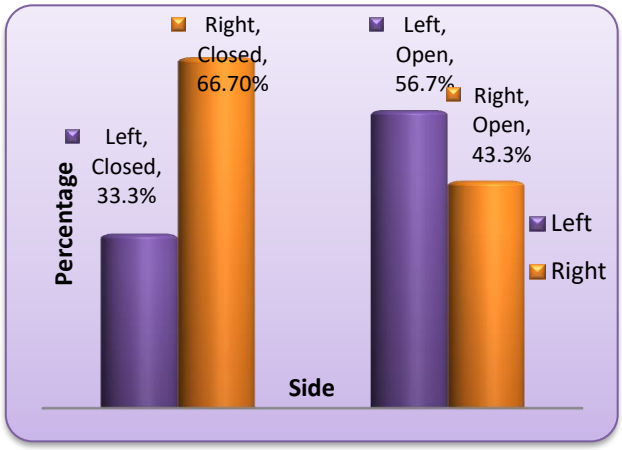


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Fig 3: Appearance of swelling

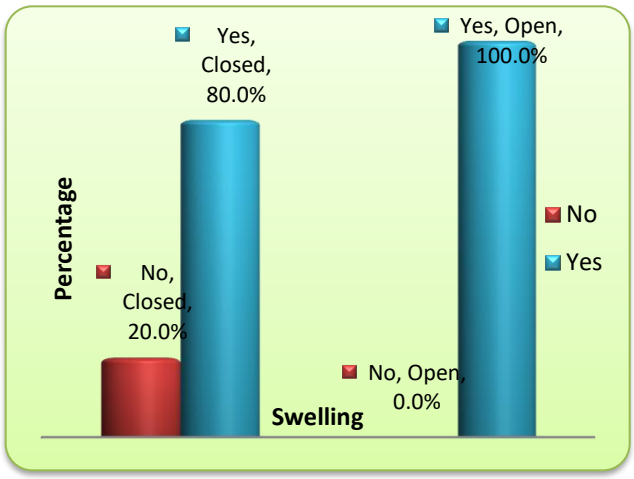

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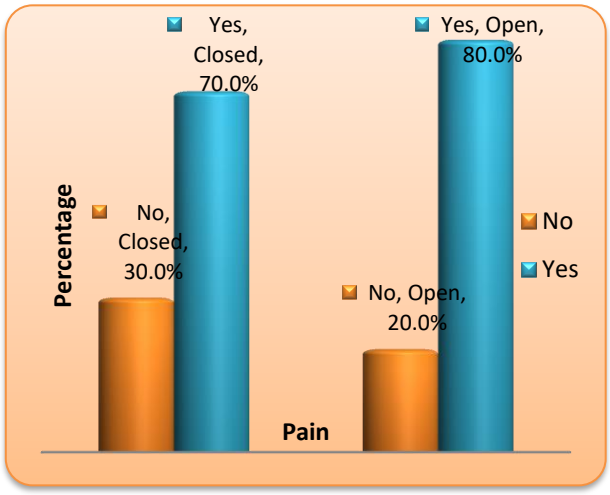
Fig 4: Pain



NO significance

Fig 5: Post operative pain

Significance

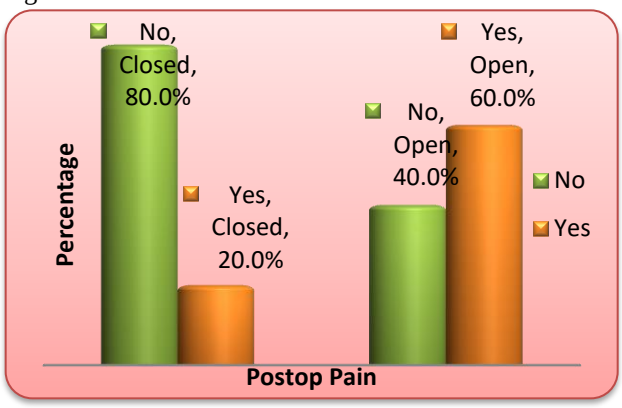


Fig 6: Residual abscess

Significance

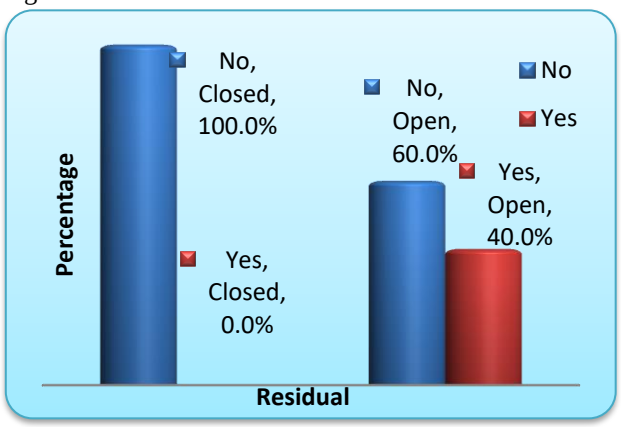


Fig 7: Scar formation

Significance

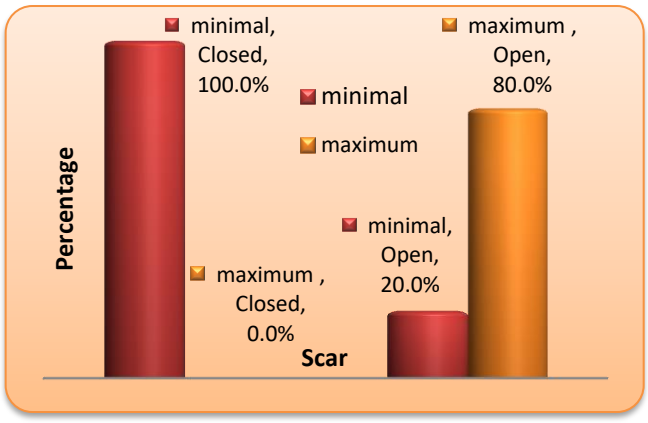


Fig 8: Secondary infection

Significance

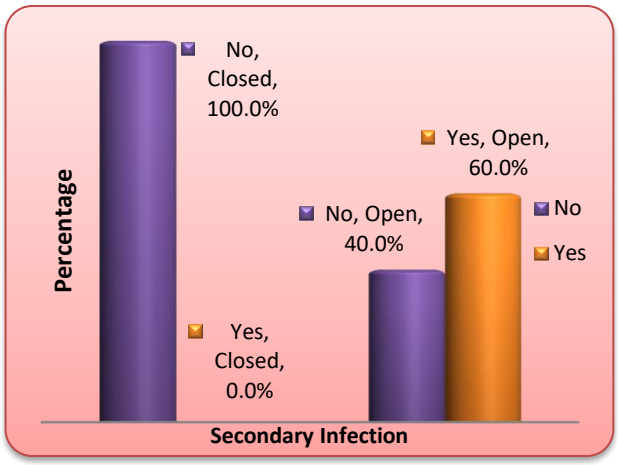


Fig 9: Time For Complete Healing

Significance

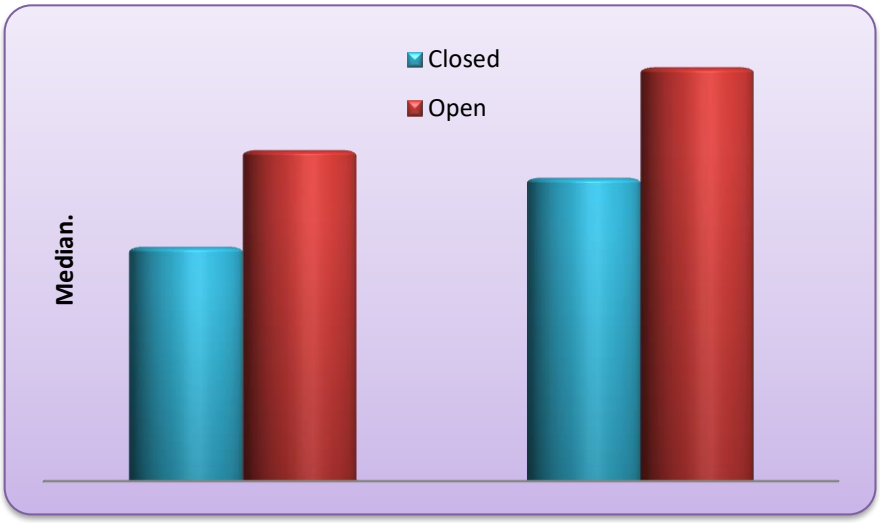


Fig 10: Culture

Significance

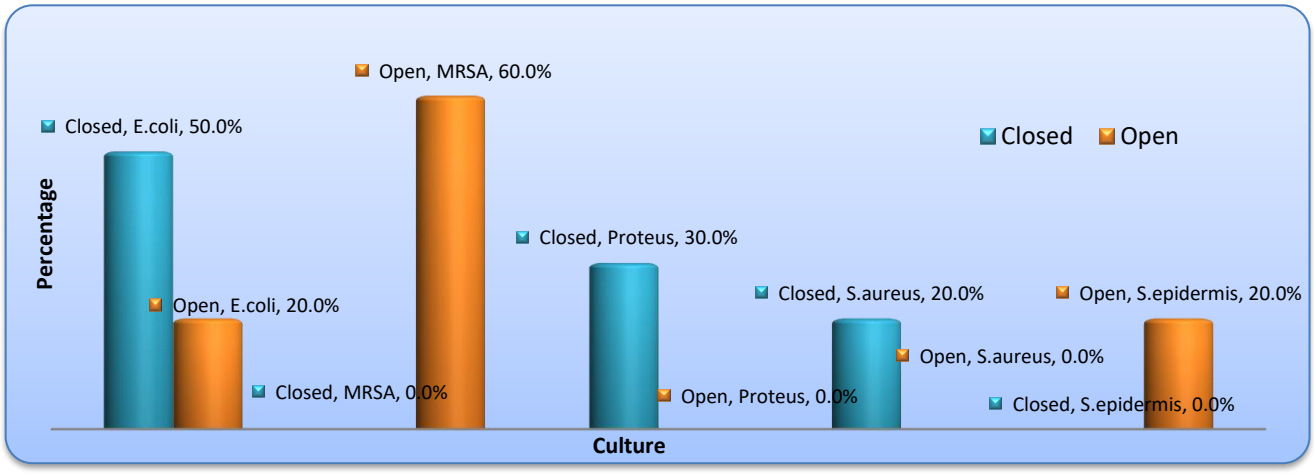
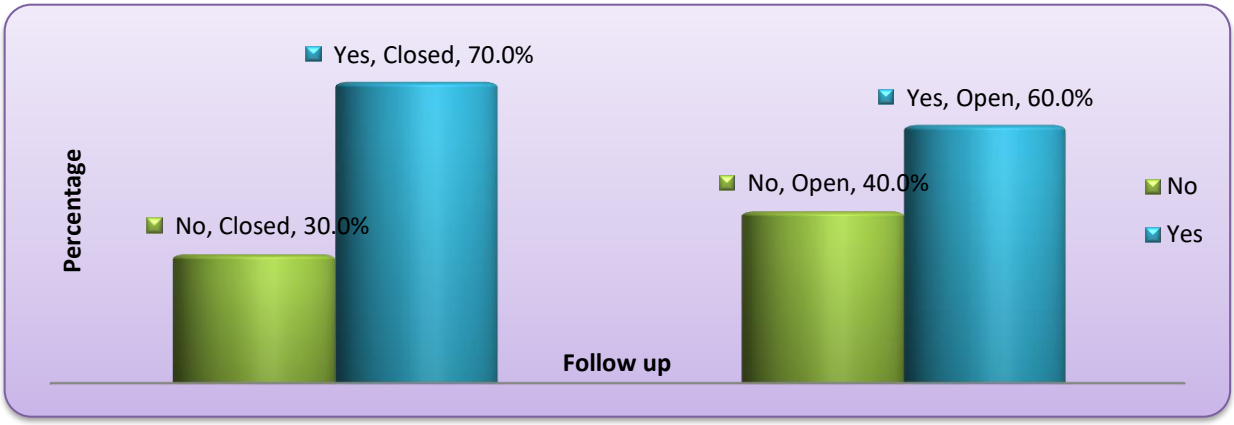


Fig 11: Follow up No significance



The mean age was different in various studies (mean age – 32) vlitzsch et al from sweden and AF Christensen et al from Denmark (mean age – 36) in the study

In the study right sided breast abscess is of 55% (33 patients) and left sided breast abscess is of 45% (27 patients)

In present study post operative pain is measure according to visual analogue scale and analgesic requirement. In group I (closed drainage) has reduced post operative pain (80%) when compared to patient underwent open drainage 40% with significant in P value of less then 0.001. similar findings were observed in Edino et al and also co-relates with Santhosh Davi et al Sudharshan Odiya et al, Raguveer et al. In post-operative period open incision and drainage had more pain give to due repeated dressings and closed drainage were void of it.

In our present study closed drainage (Group I) had no residual abscess when compared to open drainage there was 20% residual abscess (12) patients. It is due to continous negative section created in the walls of abscess cavity that thus not allow residual secretions. With significant p value of 0.001 Khanna et al reported residual abscess in 3% of cases in their study. Macfic et al documented of 11.4% in their respective study. Kaushal S et al in their study found 3 patients with residual abscess. Chandika et al in their study noticed no residual abscess in closed drainage but had in incision and drainage. Sarhan HH in their study said the importance of ultrasound in the follow up to sec for residual abscess in the absence of clinically evident abscess. Khanna YK et al which show residual abscess in 6% of cases of primary closure and study of Dubey V et al which shows residual abscess in 4.4% of cases of primary closure. In present study no recurrence is seen in group 1 and there is 1 case of more recurrence out of 25 cases (4%) in group 2 suggestive of more recurrence in group 2 as compared to group 1. Similar finding were observed in study by Anirrudha K where recurrence was 3 times more in cases of conventional incision and drainage as compared to primary closure. Similar findings were observed In study by Khanna et al.

In the study closed drainage group I had better and minimal cosmetics scarring went compared to group II open drainage which had ugly and maximum scarring thesis due to minimal exposure and handling of tissues. With significant P value 0.001 which is also supported by Abraham et al and Khanna et al. Imperiable et al in their study said the cosmetic result was optimal in all cases. Kaushal S et al said that all the patients who underwent incision and drainage complained of an ugly scar. Dieter Ulitzsch et al and Singh et al in their study reported 96% of patients treated by closed drainage was satisfied by the cosmetic results. Accoding to Chandika et al needle aspiration was a highly accepted modality. The high acceptance rate may be because of the convenience of the procedure which was a minimum scar.

In the study mean duration of hospital stay and time required for complete healing is of significance < 0.001. Similar finding was observed in a study conducted by Abraham et al. they found that hospitalization was reduced by 40-60% in closed drainage (group I).

In the study closed drainage group I had no secondary infection when compare to open drainage Group II which is due to exposure of tissues to external environment. With a secondary infection of 30% in the open drainage with significant P value 0.001

Culture and sensitivity shown E.coli (50%) 15 patients , proteus species (30%) 9 patients and S. aureus (20%) 6 patients in group-1(closed drainage). In open drainage E.coli (20%) 6 patients MRSA (60%) 18 patients S. epidermidis (20%) 6 patients

Overall 65% of patients who underwent procedure for breast abscess either closed or open drainage had follow up.

In 1995 Berna JD et al described about the success of percutaneous catheter drainage of breast abscess in twelve patients. Harish K evaluated the treatment of puerperal breast abscess by catheter drainage procedure

in 75 patients. In 1998 Pluchinotta Am et al performed percutaneous pigtail catheter drainage of peripheral non lactational breast abscess successfully in eight patients. In 1998 Tan.SM et al described about the non-operative treatment of breast abscess-needle aspiration and oral antibiotic as a viable alternative to conventional incision and drainage. Nineteen out of twenty one patients were successfully treated by needle aspiration and antibiotics. In 2004 Berna-serna JD et al reported their experience with percutaneous management of breast abscess by means of needle aspiration and catheter drainage patients. Tewari M et al described a minimally invasive palpatory method of drainage of breast abscess i.e., percutaneous placement of suction drain but in trochar only so there were still chances of remaining loculi and recurrent abscess. Avoidance of repeated aspiration was the advantage 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.

CONCLUSION:

In the study of open and closed drainage of breast abscess of 60 patients conducted in Aarupadai Veedu Medical College & Hospital showed most common in age group affected is 21-32 years of age. Right side of affected in 55% of patients. All patients complaint of swelling, pain and all and showed signs of inflammation. Closed drainage is effective alternative method of treatment to incision and drainage in properly selected patients. 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 in comparison the approach of closed drainage which leaves behind a better scar, breast feeding is started very early and breast regains it suppleness very fast. Furthermore Post operative pain, Scar formation, Residual abscess, Secondary infection, time for complete healing and hospital stray is better with closed drainage of breast abscess.

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