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Original Research Article

Ultrasound guided aspiration versus incision and drainage in the management of breast abscess

Prashanth C., Neetha V.*, Likhith Kumar R., Manohar T. M.

Department of Surgery, Sri. Siddhartha Institute of Medical Sciences and Research Institute, Bangalore, Karnataka, India

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***Correspondence:**
Dr. Neetha V.,
E-mail: Neethavinayak27@gmail.com

ABSTRACT

Background: The aim of this study is to compare the results of ultrasound guided aspiration and incision and drainage in the management of breast abscess.
Methods: This is a comparative study of between ultrasound guided aspiration and incision and drainage, consist of 50 patients with breast abscess who underwent both the treatment alternatively in our institution Sri. Siddhartha Institute of Medical Sciences and Research Begur during 2021 to 2023. 7th and 14th day following aspiration, patients should be assessed both clinically and by USG breast. Results were tabulated and analyzed.
Results: 4 patients developed complications following Incision and drainage. 3 milk fistula and wound gaping, 1 recurrence and 3 patients developed complications following USG guided aspiration All 3 cases were recurrence.
Conclusions: USG guided aspiration is simple, painless, day care procedure and effective alternative method of treatment to incision and drainage in properly selected patient and with timely support by sonologist with early postoperative recovery and good patient satisfaction.

Keywords: Abscess, Drainage, Fistula, Ultrasound

INTRODUCTION

Breast abscess is defined as accumulation of pus within the breast, due to untreated mastitis or complication of mastitis.[1] Breast abscess is less common in developed countries due to improved puerperal hygiene, nutrition, early administration of antibiotics and standard of living, breast abscess remains a morbid condition among lactating women in developing countries.[2] Breast abscess is a most common cause of morbidity in puerperal women. Breast abscess ranges from mastitis to deep abscess. The Incidence of lactational breast abscess is high in India.[3] Early diagnosis and treatment of mastitis will prevent the complications of breast abscess like milk fistula, scarring, etc.[4,5] From the fissured nipple the organisms from the infants oral cavity enters into the breast through the duct.[6] Risk factors for breast abscess are inadequately treated mastitis and sudden weaning during an episode of acute mastitis.[7] Clinical examination along with ultrasound breast is useful in the diagnosis and to find out the location of breast abscess. In addition to the signs and symptoms of mastitis, there may be swelling, pain and tenderness at the site of the abscess. Patient with an encapsulated abscess may present with no systemic symptoms but will present with a breast lump and usually describe a recent episode of mastitis.[8] Traditionally, the breast abscess management involves incision and drainage. But this is associated with need for general anesthesia, prolonged healing time, regular dressing, difficulty in breast feeding, and possible unsatisfactory cosmetic outcome.[9,10] Milk fistula from the incision site is common and will not allow the proper healing. USG breast is very much useful in the diagnosis of breast abscesses, guiding needle placement during aspiration and also enables visualization of multiple

abscess loculation and thus useful in needle aspiration of breast abscesses. This procedure is successful in many places where efficient radiologist available and is associated with less complications, less postoperative stay, early postoperative recovery, excellent cosmetic result.[11,12] The important points in the management of breast abscess are symptom management like simple analgesia, warm and cold applications, antibiotics and encouraging continued milk flow from the affected breast. The surgeon should tell the patient that antibiotics and pain killers will not affect her baby. The patient should be reassured to continue breastfeeding, and to drink plenty of fluids. Close monitoring is needed to ensure that the infection resolves.[13] The infant must be examined to look for adequate growth and hydration. Examination of the baby's mouth to look for any candida infection which is defined as a white filmy layer adherent to the buccal mucosa and to look for anatomical conditions like cleft palate or tongue-tie these are all the factors interfere with the baby attachment to the nipple. Observation of breastfeeding also plays important role, as this will give the poor placement of baby to the nipple and areola complex. So the aim of my study is to compare these two modalities of puerperal breast abscess treatment.[14,15]

Aims and objectives

The aim of this study is to compare the results of ultrasound guidedaspiration and incision and drainage in the management of breast abscess.

METHODS

Study type, location, duration and sample size

This is a comparative study between ultrasound guided aspiration and incision and drainage, consist of 50 patients who underwent both the treatment alternatively in our institution, Sri Siddhartha Institute of Medical Sciences and Research Institute Begur during 2021 to 2023 (2 years).

Inclusion and exclusion criteria

All women with clinically and radiologically diagnosed breast abscess were included. Patients with immunosuppression and with recurrent abscess, necrotic skin overlying the abscess, old age, very large abscess were excluded.

Study population

Study population included patients with breast abscess who are undergoing treatment in Sri Siddhartha institute of medical sciences and research institute. Patients were selected in an alternative basis for both procedures and explained about the procedure with consent. For one group of patients, under short General anesthesia with aseptic precautions, incision and drainage done with 11 blade and abscess cavity packed with wick gauze. For other group of patients, under local anesthesia with ultrasound guidance, aspiration done with 16G needle with compressive bandage done. In USG guided aspiration, patients will be followed up in 7th and 14th day following the procedure.

On the 7th day, if abscess recollects again do re aspiration under ultrasound guidance, and followed up in 14th day. On the 14th day, if again recollects consider as failure and go for I&D. On the 7th and 14th day following aspiration, patients should be assessed both clinically and by ultrasonogram of breast. Clinically by the presence of erythema, swelling, tenderness and fever and consider as successful aspiration if no collection. Results were tabulated and analyzed. The following factors are taken into account; size, type of anesthesia, complications after both procedures, recurrence, post-operative healing time following both procedures, patient satisfaction after the procedure and etiology.

Statistical analysis

Data was presented as Mean±Standard deviation and median with rangewhichever is appropriate. In the case of qualitative variables, the groups will be compared by Chi-Square test, in case of quantitative variables the groups will be compared with students unpaired t test or Mann-Whitney U test whichever is appropriate with 95% confidence interval, p value of less than 0.05 is considered significant. Statistical analysis was done using SPSS version 20.0.

RESULTS

Mean age was less in the incised group and more in the aspirated group it was well appreciated in the people between the age group of 20 to 30 years when compared to the people between 30 to 40 years the incidence was less.

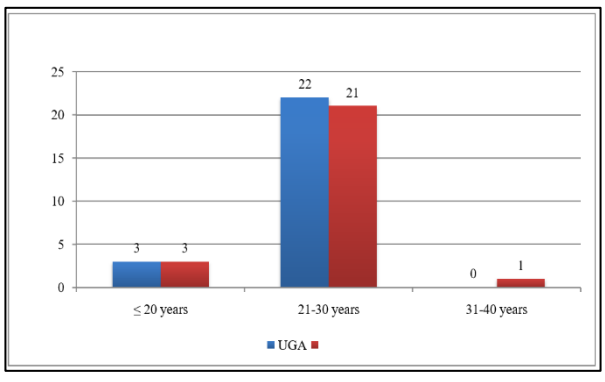

Figure 1: Age distribution.

Volume of the abscess were more in the ultrasound aspiration group and when compared to the incision and drainage. Complications were more in the patients who underwent incision and drainage when compared to that

of the people who underwent ultrasound guided aspiration.

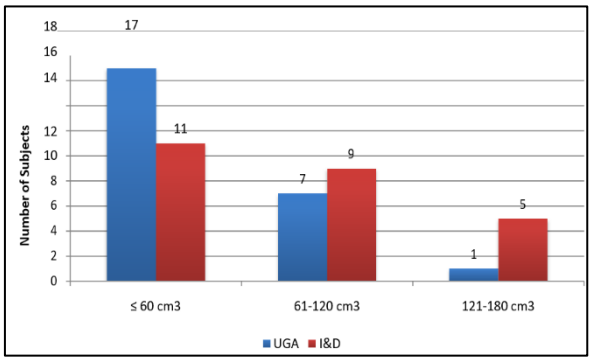

Figure 2: Volume of abscess.

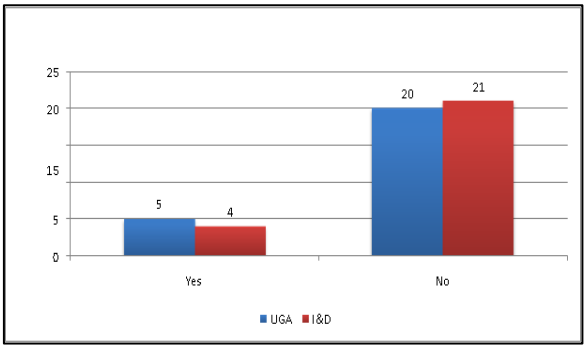

Figure 3: Complications.

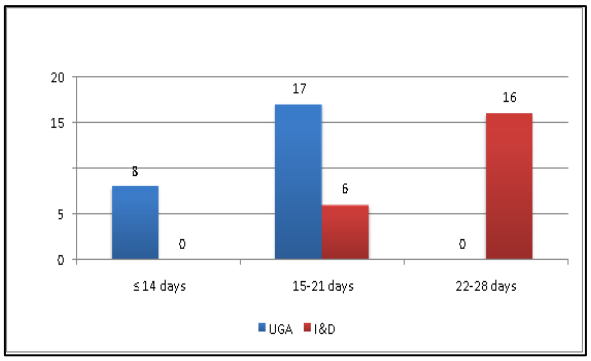

Figure 4: Healing time.

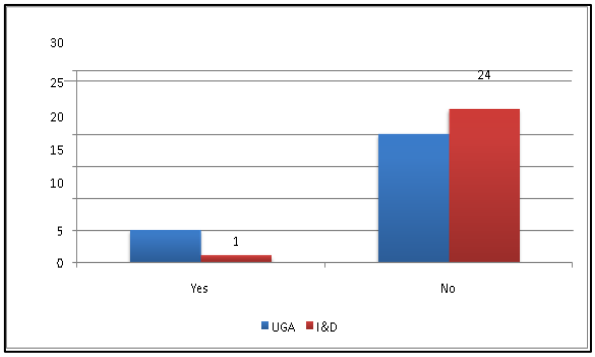

Figure 5: Recurrence.

Healing time was more in patients who underwent incision and drainage when compared to ultrasound guided aspiration the maximum time period extended upto 28 days in case of incision and drainage. Recurrence rate was high in ultrasound guided aspiration patients the recurrence rate was very less in people who underwent incision and drainage.

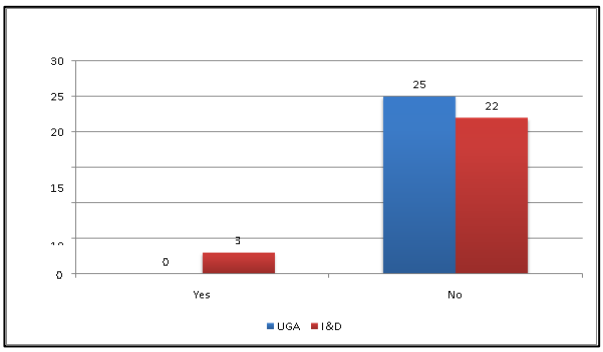

Figure 6: Milk fistula.

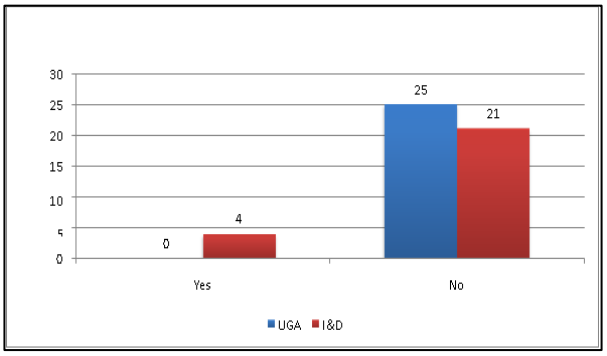

Figure 7: Wound gaping.

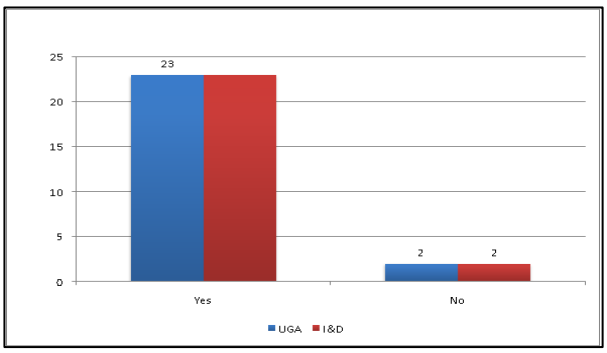

Figure 8: Lactation period.

Complication like milk fistula was noted more in the incision and drainage group when compared to people who underwent ultrasound guided aspiration. Wound gaping was more in patients who underwent incision and drainage, there was no wound gaping or zero wounding gaping observed in 5 subjects who underwent incision and drainage. No change in lactation period was observed in both the groups. The lactation period was equal in both the groups. Tuberculosis was the most common cause of

breast abscess also gram-positive cocci being the factor was observed in both the group patients. Patient satisfaction was more in the group who underwent ultrasound guided aspiration when compared to patients who underwent incision and drainage. 22 out of 25 patients had good satisfaction with UGA.

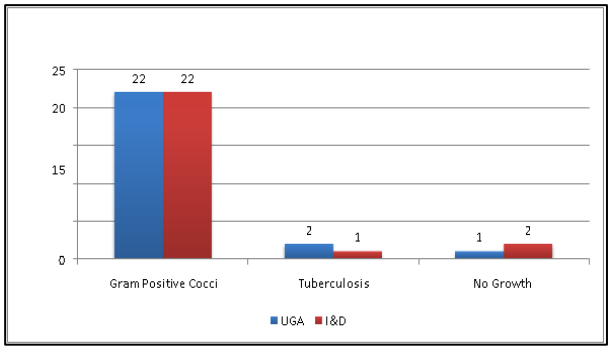

Figure 9: Etiology.

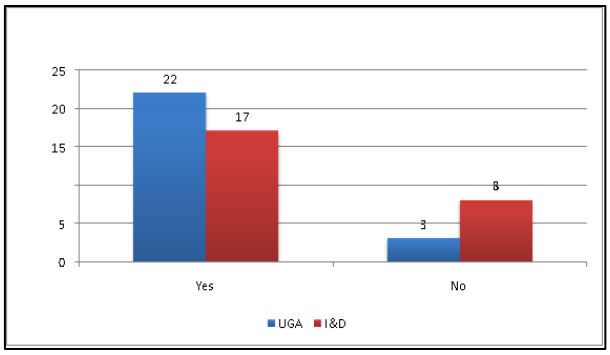

Figure 10: Patient satisfaction.

DISCUSSION

The present study was carried out among the patients of breast abscess attending the department of surgery at Sri Siddhartha institute of medical sciences. There were total 50 patients with breast abscesses which were alternatively into 25 for ultrasound guided aspiration and 25 for incision and drainage intervention. The mean age was 23.52in aspirated and 26.04 years in incised group. Francisco et al, Dieter et al also observed similar findings in their study.[1,2] In our study swelling, pain over swelling, tenderness and raised local temperature was present in all patients of breast abscess in both groups i.e. in incised group and in USG aspirated group. While fever was present in 75.5% of patient, this consistent with study of Isabelle et al.[3,4] All patients in incised group had swelling, erythema, increased local temperature and tenderness. Schwarz et al and Elagili et al also observed similar signs and symptoms in their study.[3,4] Among the USG guided aspiration patients, the cure rate was 88% whereas patients managed by incision and drainage procedure with cure rate of 96%. O'Hara et al reported an 85% cure rate, some of them aspirated without sonographic guidance. Garg et al 15 reported success rate of 84%. Elagili et al reported success rate of 83.3% with USG guided aspiration of breast abscess.[7-9] Alphonce et al observed cure rate of 93.1% in ultrasound guided aspiration.[4,5,10,11] In our study recurrence rate of USG guided aspiration was 12% which correlates with study conducted by Markus et al.[10] Out of 25 patients managed by incision and drainage one patients 4% developed recurrent breast abscess within four months of primary surgery. And this was consistent with the findings of Srauss et al.[6] The mean healing time in USG guided aspiration group was 15.5 days while in incision-drainage group was 24.4 days which correlates with the study of Markuset al.[7-9]

Three patients in 12% incision drainage group had developed milk fistulas which correlate with the study by Saleem et al 18.[10] Milk fistula healed spontaneously after by interruption of breast feeding in these three patients. While there was no milk fistula noted in USG guided aspirated group. In the present study 88.58% patients continued breast feeding in USG guided aspiration while in all lactating females managed by incision-drainage group breast feeding was interrupted which correlate with the study of Saleem et al.[11,12] Satisfaction in patients treated by USG guided aspiration was 88% and in incision-drainage group was 68% and the findings were in correlation with the study of Dieter et al and Saleem et al.[13,14] Cosmetic results in incision-drainage group were unsatisfactory while there were no cosmetic problems in USG guided aspiration.

Even though recurrence rate is slightly high in USG guided aspiration whencompared to incision and drainage, USG guided aspiration is effective method of treatment in breast abscess with good patient satisfaction. Milk fistula and poor wound healing were most troublesome complications of I&D, was absent in USG guided aspiration. The patient acceptance was good in USG guided aspiration of breast abscess when compared to I&D. In case of recurrent abscess, especially in non-lactating women always suspect TB. USG guided aspiration of breast abscess with simultaneous oral antibiotic management of lactational breast abscesses as an op procedure is safe, easy andeffective. This method should become the gold standard treatment of breast abscess here after for the management of all lactational breast abscessesin a selected patient.

Limitations

Limitation was regular follow up of the patient needed hence cannot be applied to all patients as many do not turn up for a follow up scan and the tests are not cost effective for the general population.

CONCLUSION

In our study USG guided aspiration is simple, painless, day care procedure and effective alternative method of treatment to incision and drainage in properly selected patient, especially in early cases of breast abscess and

with timely support by sonologist with early post operative recovery and good patient satisfaction.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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