



Comparison between Ultrasound Guided Aspiration versus Incision and Drainage for the management of Breast Abscess

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I. INTRODUCTION

- Breast abscess is defined as accumulation of pus within the breast, due to untreated mastitis or complication of mastitis.
- 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.
- 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.
- Non lactational breast abscess are uncommon in India, when compared to western countries.
- Early diagnosis and treatment of mastitis will prevent the complications of breast abscess like milk fistula, scarring, etc.
- In infective mastitis, Staphylococcus aureus is the most common pathogen. Less commonly, Streptococcus (such as Group A or Group B streptococcus) or Escherichia coli. Community-acquired methicillin-resistant S. aureus (MRSA) is increasingly being identified as the causative agent.
- The intermediary is usually the infant. After the second day of life, 50% of infants harbor staphylococci in the nasopharynx.
- From the fissured nipple the organisms from the infants oral cavity enters into the breast through the duct.
- Risk factors for breast abscess are inadequately treated mastitis and sudden weaning during an episode of acute mastitis.
- 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.
- 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.
- 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 place where efficient radiologist available and is associated with less complications, less postoperative stay, early postoperative recovery, excellent cosmetic result.
- 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.
- 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.



AIMS AND OBJECTIVES

1. The aim of this study is to compare the results of **ultrasound guided aspiration and incision and drainage in the management of breast abscess.**

II. REVIEW OF LITERATURE

- According to Haagensen(1971) “The conventional treatment of breast abscess has been surgical incision and drainage under general anaesthesia, a curved incision in the skin line is used and a penrose drain is left in a place for 72 hours”. The gold standard of puerperal breast abscess drainage described by Haagensen is supported by Webster with addition of gauze packing.²
- In 1990 Karstrup et al reported their experience that 18 out of 19 patients were treated successfully with ultrasound guided percutaneous drainage of breast abscess.³
- In 1995 Berna JD et al described about the success of percutaneous catheter drainage of breast abscess in twelve patients.⁴
- From 1997-2007 Harish.K evaluated the treatment of puerperal breast abscess by catheter drainage procedure in 75 patients.⁵
- In 1998 Pluchinotta.AM et al performed percutaneous pigtail catheter drainage of peripheral non lactational breast abscess successfully in eight patients.⁶
- In 1998 Tan.SM et al described about the non operative treatment of breast abscess-needle aspiration and oral antibiotics as a viable alternative to conventional incision and drainage. Nineteen out of twenty one patients were successfully treated by needle aspiration and antibiotics.⁷
- In 2004 Berna-erna JD et al reported their experience with percutaneous management of breast abscess by means of needle aspiration (for fluid collection ≤ 3 cm) and catheter drainage(for fluid collection >3 cm) in 39 patients.⁸
- In 2006 MallikaTewari et al described a minimally invasive palpatory method of drainage of breast abscess i.e., percutaneous placement of suction drain. 30 patients between 18 and 34 years of age were treated by this novel technique. The abscess healed in 5-8 days time and there was no complication of residual or recurrent breast abscess, fistula or sinus formation, induration or distortion of breast parenchyma and breast feeding was not interrupted in any patient.²
- In 2006 Kalpesh J Gajiwala et al described about a simple technique of small puncture

followed by drainage and irrigation of abscesses.⁹

- In 2008 SairaSaleem et al compared the percutaneous ultrasound guided placement of suction drainage catheter V/s conventional incision and drainage in the treatment puerperal breast abscess.

ANATOMY

The breast is the most important organ present in the pectoral region. Its anatomy is of great importance in clinical and surgical aspect. The breast is found in both sex, but is rudimentary in the male. It is well developed in the female after puberty. The breast is a modified sweat gland. It forms an important accessory organ of the female reproductive system and provides nutrition to the newborn in the form of milk.

The breast situated in the superficial fascia of the pectoral region. It is divided by a 2 imaginary line across the nipple, one horizontal and one vertical, into four quadrants i.e. upper medial, upper lateral, lower medial and lower lateral. A small extension of the upper later quadrant called the axillary tail of spence, passes through an opening in the deep fascia and lies in the axilla. That opening is called foramen of langer.

(1)Vertically it extends from the second to sixth rib.

(2) Horizontally, it extends from the lateral border of the sternum to the Midaxillary line.

The deep surface of the breast is related to the following structures:

1. The breast lies on the deep fascia (pectoral fascia) covering the pectoralis major muscle.
2. Still deeper there are the parts of three muscles namely the pectoralis minor, the serratus anterior and the external oblique muscle of the abdomen.
3. The breast is separated from the pectoral fascia by loose areolar tissue called the retromammary space. Because of the presence of this loose areolar tissue, the normal breast can be moved freely over the pectoralis major muscle.

The structure of the breast is conveniently studied by dividing it into the skin, the parenchyma, and the stroma.

A. THE SKIN

It covers the gland the presents the following features.

1. A conical projection, called the nipple is present just below the centre of the breast at



the level of the fourth intercostal space. The nipple is pierced by the 15 to 20 lactiferous ducts. It contains circular and longitudinal smooth muscle fibers which can make the nipple stiff or flatten it, respectively. It has a few modified sweat and sebaceous glands.

It is rich in its sensory nerve supply and has many sensory end organs at the termination of the nerve fibers.

2. The skin surrounding the base of the nipple is pigmented and forms a circular area called the areola. This region is rich in modified sebaceous glands, particularly at its outer margin. These become enlarged during pregnancy and lactation to form raised tubercles of Montgomery. Oily secretions of these glands lubricate the nipple and areola and prevent them from cracking during lactation. Apart from sebaceous glands, the areola also contains some sweat glands, and accessory mammary glands.

The skin of the areola and nipple is devoid of hair and there is no fat subjacent to it.

B. THE PARENCHYMA

It is made up of glandular tissue which secretes milk. The gland consists of 15 to 20 lobes. Each lobe is a cluster of alveoli, and is drained by a lactiferous duct. The lactiferous ducts converge towards the nipple and open on it. Near its termination each duct has a dilatation called a lactiferous sinus.

Alveolar epithelium is cuboidal in the resting phase and columnar during lactational phase. In distended alveoli, the cells may appear cuboidal due to stretching, but they are much larger than those in the resting phase. The smaller ducts are lined by columnar epithelium, the larger ducts by two or more layers of cells, and the terminal parts of the lactiferous ducts by stratified squamous keratinized epithelium. The passage of the milk from the alveoli into and along the ducts is facilitated by contraction of the myoepitheliocytes, which are found both around the alveoli and around the ducts, lying between the epithelium and the basement membrane.

C. THE STROMA

It forms the supporting framework of the gland. It is partly fibrous and partly fat. The fibrous stroma forms septa, known as the suspensory ligaments of Cooper which anchor the skin and gland to the pectoral fascia. The fatty stroma forms

the main bulk of the gland. It is distributed all over the breast, except beneath the areola and nipple.

BLOOD SUPPLY

The mammary gland is extremely vascular. It is supplied by branches of the following arteries.

1. Internal thoracic artery, a branch of subclavian artery through its perforating branches.
2. The lateral thoracic, superior thoracic and acromiothoracic branches of the axillary artery.
3. Lateral branches of the posterior intercostal arteries.

The arteries converge on the breast and are distributed from the anterior surface.

The posterior surface is relatively avascular.

VENOUS DRAINAGE

The veins follow the arteries. They first converge towards the base of the nipple where they form an anastomotic venous circle, from where veins run in superficial and deep sets.

1. The superficial veins drain into the internal thoracic vein and into the superficial veins of the lower part of the neck.
2. The deep veins drain into the internal thoracic, axillary and posterior intercostal veins. These posterior intercostal veins connect with the Batson's plexus of veins.

NERVE SUPPLY

The breast is supplied by the anterior and lateral cutaneous branches of the 4th to 6th intercostal nerves. The nerves convey sensory fibers to the skin, and autonomic fibers to smooth muscle and to blood vessels. The nerves do not control the secretion of milk. Secretion is controlled by the hormone prolactin, secreted by the pars anterior of the hypophysis cerebri.

LYMPHATIC DRAINAGE OF BREAST

Lymphatic drainage of the breast assumes great importance to the surgeon because carcinoma of the breast spreads mostly along lymphatics to the regional lymph nodes. The subject can be described under two heads, the lymph nodes and the lymphatics.

LYMPH NODES:

Lymph from the breast drain into the following lymph nodes.

1. The axillary nodes, chiefly the anterior (pectoral) group. The posterior, lateral, central



and apical groups of nodes also receive lymph from the breast either directly or indirectly.

2. The internal mammary nodes which lie along the internal thoracic vessels.
3. Some lymph from the breast also reaches the supraclavicular nodes, the cephalic (deltopectoral) node, the posterior intercostal nodes (lying in front of the heads of the ribs), the subdiaphragmatic and subperitoneal lymph plexuses.

LYMPHATIC VESSELS

- A. The superficial lymphatics drain the skin over the breast except for the nipple and areola. The lymphatics pass radially to the surrounding lymph nodes (axillary, internal mammary, supraclavicular and cephalic).
 - B. The deep lymphatics drain the parenchyma of the breast. They also drain the nipple and areola.
1. About 75% of the lymph from the breast drains into the axillary nodes, 20% into the internal mammary nodes, and 5% into the posterior intercostal nodes. Among the axillary nodes, the lymphatics end mostly in the anterior group (closely related to the axillary tail) and partly in the posterior and apical groups. Lymph from the anterior and posterior groups passes to the central and lateral groups and through them to the apical group. Finally it reaches the supraclavicular nodes.
 2. The internal mammary nodes drain the lymph not only from the inner half of the breast, but from the outer half as well.
 3. A plexus of lymph vessels is present deep to the areola. This is the subareolar plexus of sappy. Subareolar plexus and most of lymph from the breast drains into the anterior or pectoral group of lymph nodes.
 4. The lymphatics from the deep surface of the breast and pass through the pectoralis major muscle and clavipectoral fascia to reach the apical nodes, and also to the internal mammary nodes.
 5. Lymphatics from the lower and inner quadrants of the breast may communicate with the subdiaphragmatic and subperitoneal lymph plexuses after crossing the costal margin and then piercing the anterior abdominal wall through the upper part of the linea alba.

EMBRYOLOGY OF BREAST

The breast develops from an ectodermal thickening, called the mammary ridge, milk line, or line of Schultz. This ridge extends from the axilla

to the groin. It appears during the fourth week of intrauterine life, but in human beings, it disappears over most of its extent persisting only in the pectoral region. The gland is ectodermal, and the stroma mesodermal in origin.

The persisting part of the mammary ridge is converted into a mammary pit.

Secondary buds (15 -20) grow down from the floor of the pit. These buds divide and subdivide to form the lobes of the gland. The entire system is first solid, but is later canalized. At birth or later, the nipple is everted at the site of the original pit.

Growth of the mammary glands, at puberty is caused by oestrogens. Apart from estrogens, development of secretory alveoli is stimulated by progesterone and by the prolactin hormone of the hypophysiscerebri.

Developmental anomalies of the breast are:

1. Amastia
2. Athelia
3. polymastia
4. Polythelia
5. Gynaecomastia

GROWTH OF BREAST

Normal development of the female breast, which begins at puberty and progresses with cyclic changes during each menstrual cycle is brought about by the coordinated activity of a number of hormones

1. Estrogens cause the development of duct system of mammary gland and the stroma, and favours fat deposition. It also increases vascularity of the gland.

Fat moulds the shape of breast.

2. Progesterone is responsible for the development of lobulo-alveolar (glandular) system of breast. It is effective only if the gland has been acted upon previously by oestrogens or if oestrogens are simultaneously available.

(1:20 to 1:100) is desirable for alveolar development.

Both these hormones are effective only in the presence of intact pituitary, or if growth hormone or prolactin are present. Both hormones inhibit milk secretion (lactation), but oestrogen is more effective, especially exogenous estrogen. Diethylstilboestrol is given when milk suppression becomes necessary. Oestrogens have a direct inhibitory effect on breast. Bromocriptine which



acts by inhibiting prolactin secretion by the anterior pituitary is also effective in milk suppression.

3. Other hormones which play a role are glucocorticoids, insulin and GH. They have a permissive effect on mammary growth caused by oestrogens and progestones in hypophysectomized animals. But neither of these hormones, nor growth hormone and prolactin can cause growth of mammary glands by themselves. Though thyroid hormone deficiency affects breast development and lactation is uncertain. Relaxin and prolactin is also believed to play a role in mammary development during pregnancy.

The mammary gland reaches maximum development during pregnancy, especially of the lobulo-alveolar system, due to the action of large amounts of oestrogens and progesterone secreted by the placenta during pregnancy.

Nipple enlarges and areola becomes larger and pigmented.

4. Prolactin causes formation and secretion of milk in a gland which has previously been acted upon by oestrogens and progesterone. Placental lactogen probably also contributes to milk secretion. It helps prepare breast for milk production, in the later part of pregnancy. Though the mammary gland has the capacity for milk secretion by the middle of pregnancy, lactation begins only after delivery. The high oestrogen levels during pregnancy stimulates proliferation of pituitary lactotrophs and the secretion of prolactin thus preparing the breast for lactation. But the high oestrogens also inhibit prolactin action on the breast so that lactation does not occur until oestrogen levels fall after delivery.
5. Oxytocin is essential for expulsion of milk. Even if the breast is filled with milk, pressing on the breast will not cause milk flow unless oxytocin is present. Oxytocin causes contraction of the myoepithelial cells around the alveoli which causes ejection of milk. This is called 'let-down' phenomenon.

The milk ejection reflex is a neuro-endocrine reflex. Suckling of the infant stimulates the nipple and areola, and nerve impulses set up reach the hypothalamus, and cause the release of oxytocin from the neurohypophysis, which reaches the mammary gland via blood stream and causes contraction of myoepithelial cells and milk ejection. The infant's mouth makes an air-tight connection

around the nipple, but does not cause a negative pressure by

Suction; actually a positive pressure is caused by blowing its cheek. The reflux can be affected by some emotional or psychological factors, crying of the infant will provoke flow of milk in the mother. An emotional upset will inhibit milk ejection. Adrenaline prevents oxytocin reaching the myoepithelial cells. This is probably because constriction of blood vessels caused by adrenaline prevents oxytocin reaching the myoepithelial cells. Direct application of oxytocin to the gland after adrenaline injection causes local contraction of myoepithelial cells.

Oxytocin only helps expulsion of milk already present in the breast, and does not directly increase milk secretion. But suckling not only causes milk ejection, but also helps formation of large quantities of milk by increasing prolactin secretion.

During lactation blood flow to the breast is considerably increased. Milk secretion lasts for 7 to 9 months and is prolonged for a year if suckling is discontinued. When lactation is well established, about 850ml of milk is secreted per day. It is estimated that the average daily milk secretion during the year, in Indian women is 400-600ml. During the period of breast feeding, ovulation and menstruation are suppressed, and lactation is regarded as a natural method of contraception. However, ovulation may occur before the return of the first menstrual period.

ETIOLOGY

Staphylococcal and streptococcal organisms are most commonly seen in the culture of breast abscess. Staphylococcal infections are mostly present as a localized collection, situated deep in the breast tissues. But streptococcal infections present with diffuse superficial involvement and they are treated non pharmacological managements like, application of warm compression, and when needed antibiotics like flucloxacillin or cephalixin. Breast abscess are rarely chronic, if present mostly it is recurrent abscess due to tuberculosis etiology. In those places, Culture and sensitivity should done to identify acid-fast bacilli, anaerobic, and fungi. Uncommon organisms rarely seen in the culture and requires long-term antibiotic therapy. Biopsy from the abscess cavity wall is usually taken when abscess present in older age group and taken at the time of incision and drainage to rule out breast cancer. As it present due to the tumour necrosis.



Hospital-acquired breast infections are much less common now, but lactating women who present with milk stasis or noninfectious inflammation may still develop this problem. Epidemic puerperal mastitis is usually started by highly virulent strains of methicillin-resistant *S. aureus* that are transmitted via the suckling neonate and sometimes causes substantial morbidity and rarely mortality. Purulent fluid may be expressed from the nipple. In these situation, breastfeeding is stopped, and expressed manually. Antibiotics are started, and surgical therapy is initiated. Non epidemic puerperal mastitis is defined as involvement of the interlobular connective tissue of the breast by an infectious process. The patient will develop nipple fissuring followed by milk stasis, due to non breastfeeding because of the pain, that causes a retrograde bacterial infection. Frequent emptying by using breast suction pumps will reduce the duration of signs and symptoms and reduces the incidence of recurrences. The addition of antibiotics like flucloxacillin/ cephalexin produces a satisfactory outcome in >95% of cases. Fungal infections causing breast abscess are rare and usually the causative organisms are sporotrichosis or blastomycosis. The pathogenesis of fungal breast abscess is usually by intraoral fungi that are inoculated into the breast tissue by the suckling infant produces these fungal infections, which are all classically present in close proximity to the nipple-areola complex. Pus along with blood is expressed from the nipple. Antifungal agents should be started for the treatment of systemic (noncutaneous) infections. This medical management usually prevent the surgical procedures like I & D, but rarely incision and drainage of an abscess, or sometimes partial mastectomy, is necessary to completely eliminates a persistent fungal infection. *Candida albicans* usually affecting the skin of the breast and presents as erythematous, scaly lesions of the inframammary folds and axillary folds. The treatment of candida infections is usually to remove the risk factors like local application of nystatin and macerations.

PATHOGENESIS OF BREAST ABSCESS

Breast abscess are most commonly affects the lactational mothers, especially 2nd to 3rd weeks of puerperium. It clearly explain the association of breast feeding with breast abscess. The infant usually harbor the staphalococci in their nasopharynx in the 2nd week of life. When the patient have other risk factors like fissured nipple these organisms are easily entered into the breast

tissue through the lactiferous duct and causes infection and further abscess.

Breast tissue is soft parenchymal structure which is responsible for easy and extensive spreading of infection throughout the breast which necessitating early intervention to prevent the skin necrosis and further complications.

TYPES OF BREAST ABSCESS

1. LACTATIONAL BREAST ABSCESS

2. NON LACTATIONAL BREAST ABSCESS

CLINICAL FEATURES OF LACTATIONAL BREAST ABSCESS

Lactational breast abscess are usually occurs as a result of **improper treatment of mastitis in a lactating women.**

MASTITIS:

occurs through the fissured/cracked nipple to the breast parenchyma. The risk factors are improper positioning of infant to the nipple and areola complex. The symptoms include pain, fever, lethargy.

These patients are usually treated with the non pharmacological management. The principle of management of mastitis is effective drainage of breast milk by breast feeding and/or manual breast milk expression. Simple analgesia like paracetamol 500mg thrice daily should be given for pain relief. Hot and cold compression before and after breastfeeding respectively to facilitate the breast milk flow.

Investigations are not usually required. When patient have fever >39°C or suspecting breast abscess complete blood count and ultrasound breast are needed along with breast milk culture and sensitivity. The breast milk should be sterile and midstream breast milk is expressed manually into the sterile container and sent for culture and sensitivity.

Antibiotics are started when non pharmacological management fails within first 2 days. Flucloxacillin or dicloxacillin 500mg 6th hourly is the drug of choice. In case of penicillin allergy patients, first generation cephalosporins like cephalexin should be given.

When mastitis features are not resolving with antibiotics and non pharmacological management, should suspect breast abscess and go for ultrasound of breast without any delay.

LACTATIONAL BREAST ABSCESS

These patients are usually present with painful breast during the lactational period. Others symptoms are painful enlarged breast, skin redness over the breast, fever. The signs are we tender lump



with/without fluctuation, local warmth over the breast, fissured nipple and tender axillary lymphadenopathy.

One should not wait for fluctuation to develop in breast abscess unlike in other abscess.

In our study overall 50 patients, all patients complaints of pain and tenderness. 46 patients complaints of swelling , 38 patients have fever and 36 patients have erythema.

CLINICAL FEATURES	FREQUENCY	PERCENTAGE
PAIN	50	100%
SWELLING	46	92.85%
FEVER	38	75.71%
TENDERNESS	50	100%
ERYTHEMA	36	72.85%

Breast abscess patients must be examined clinically as well by radiological investigations to look for any other abscess within the same breast

and also for axillary lymphadenopathy which is usually tender and mark the site for incisional drainage.



NON LACTATIONAL BREAST ABSCESS

Non lactational breast abscess is common in smokers, immunosuppressed patients, rheumatoid arthritis patients, women taking steroids and underwent recent breast intervention.

NON LACTATIONAL BREAST ABSCESS FURTHER DIVIDED INTO

- Tubercular breast abscess
- Subareolar abscess
- Periductal abscess
- Duct ectasia
- Zuska's disease

TUBERCULOSIS IN BREAST ABSCESS

It can affect any age group, as tuberculosis is very common in india. We should tuberculosis when, the breast abscess occurs in a non lactating women and when recurrent breast abscess present. The patient should investigate for tuberculosis by

chest x ray, sputum AFB, mantoux, pus culture and sensitivity for tuberculosis, pus for AFB, histopathological examination and PCR.

Usually patient presents with mastalgia with low grade fever.

Local examination shows warmth, mild to moderate tenderness and tender lump.

After drainage either by I & D or Ultrasound guided aspiration and sent for the culture and sensitivity, AFB, Histopathological examination and PCR These patients are usually started with CAT 1 ATT.

Depending upon the response, the chest physician will decide the further management.

SUB AREOLAR BREAST ABSCESS

It is one type of breast abscess that occur in a non lactating women. These are infected lumps that occur just under the areola. In the past these



infections were called “lactiferous fistulas” or ZUSKA’S disease, after the doctor who first wrote about them.

CAUSES OF SUBAREOLAR ABSCESS

Subareolar abscess is caused by a blocked duct or gland inside the breast. This blockage can lead to an infection under the skin. Subareolar breast abscess usually occur in a young or middle aged women who are not currently breast feeding. Most commonly, they occur following breast jewelry piercings.

The clinical features include pain and swelling under the areola. If untreated swelling ruptures and discharge purulent material and ultimately forms fistula

Nipple inversion also occurs in severe form of subareolar abscess.

Diagnosis is usually by clinical examination along with Ultrasonogram of affected breast. MRI is rarely indicated in RECURRENT SUBAREOLAR ABSCESS.

Treatment is incision and drainage or ultrasound guided aspiration with

parenteral antibiotics.

ZUSKA’S DISEASE

Zuska's disease, also called recurrent periductal mastitis, is a condition of Recurrent retroareolar infections and abscesses. This syndrome is managed symptomatically, by antibiotics coupled with incision and drainage as necessary.

Attempts to obtain durable long-term control by wide débridement of chronically infected tissue and/or terminal duct resection are frequently frustrated by postoperative infections. Smoking is documented risk factor for this condition

COMPLICATIONS OF BREAST ABSCESS

Breast abscess spread very rapidly within the breast tissue due to soft breast parenchyma and produce troublesome complications like **skin necrosis, spontaneous rupture with milk fistula, wound gaping and recurrence Psychological disturbances**

NEGLECTED CASE OF BREAST ABSCESS WITH SKIN NECROSIS AS A COMPLICATION



MILK FISTULA FOLLOWING SPONTANEOUS RUPTURE OF BREAST ABSCESS AS A COMPLICATION



INVESTIGATIONS

- Hb% , TC, DC, ESR, BT, CT
 - a. In cbc total count and polymorphs are elevated
 - b. BT and CT should be done to ruleout bleeding diseases
- RBS , Blood urea, Serum creatinine
 - a. Blood sugar should be done for gestational diabetes.
 - b. In case of severe sepsis urea and creatinine may be elevated.
- Blood grouping, cross matching
- ECG, X RAY CHEST
- HIV and HBsAg

- **ULTRASOUND BREAST**

The main use of usg breast in breast abscess/mastitis is to find whether there is an abscess and to determine its maturity and the presence of multiloculation and to guide the pus aspiration from the abscess cavity.

By ultrasonogram of breast, breast abscess is classified into

1. Peripheral abscess
2. Central abscess

PERIPHERAL ABSCESS

Peripheral abscess arising from puerperal mastitis is mainly due to pre Existing galactocele. Whereas

in non puerperal mastitis it is usually arise from inflammatory cysts.

CENTRAL ABSCESS

Central abscess whether arising from puerperal or non puerperal mastitis it is due to mainly from rupture of an inflamed or infected duct and tend to be elongated in a plane that is parallel to the inflamed duct.

Ultrasound is considered the most useful initial imaging modality when a breast abscess is suspected. It is also the imaging modality of choice to monitor the progression, response to therapy and followup of the patient and ensure the resolution of abscess.

Three dimensional measurement of abscess should be given and approximate volume of breast abscess is must before the interventional procedure.

Using 8 – 14MHZ high frequency linear probe transducer placed over the affected as well as opposite breast and should be screened for breast abscess.

SONOGRAPHIC FEATURES SUGGESTIVE OF BREAST ABSCESS

1. Hypochoic collection mostly multiloculated surrounded by a hypochoic rim
2. No vascularity within the collection
3. Acoustic enhancement due to fluid content
4. An echogenic, vascular rim



The grading of echogenicity of the abscess was classified from grade 0 to grade 5.

The contours of the lesions were described as smooth, macrolobulated, microlobulated, irregular, zigzag, spiculate or indistinct.

- MRI (rarely) in case of recurrent breast abscess
- MAMMOGRAPHY

Only in non puerperal breast abscess in old age to rule out malignancy.

- PUS CULTURE AND SENSITIVITY, GRAM STAINING, AFB (if needed)
- TREATMENT

Treatment of breast abscess includes the following headings:

1. Management of symptoms
2. Ensure and support continued breast feeding
3. Early and frequent review
4. I & D or Aspiration under USG guidance
5. Post operative antibiotic therapy
6. Psychological support

Management of symptoms:

Simple pain killers like oral paracetamol is first line treatment. Nonsteroidal anti-inflammatory drugs can also added when needed.

Hot and cold packs before and after the breast feeding to breast shows some relief due to the easy emptying of milk due to hot pack and pain relief when applying cold packs. But there is no clear evidence for this management.

SUPPORT FOR CONTINUED BREAST FEEDING

In case of mastitis continue breastfeeding and frequent emptying the breast as fully as possible with each feed is important. This will reduce the symptoms like pain and also reduces the possibility of progression to breast abscess. There is no proof that when mastitis mother breastfeeds her child the baby will be affected by the infection. When baby attachment is in wrong position or baby has cleft palate/lip or very painful breastfeeding, a breast pump can be used to drain the breast until the mastitis features come down to normal to allow the baby to breastfeed from the breast.

Baby attachment to the breast should be checked and corrected when present. Referral to a breast feeding services if present may be helpful. In spite of the support and encouragement by consultants some women choose to cease breastfeeding. These women should be supported and also encouraged to wean gradually, preferably after the infection has resolved. Sudden cessation

of breastfeeding increase the likelihood of the risk of abscess formation.

EARLY AND FREQUENT REVIEW

When a woman presents with mastitis features, they should be reviewed within 24–48 hours to confirm that the symptoms and signs are decreasing. If no or minimal improvement occurs in signs and symptoms, patient should be subjected to breast ultrasound to rule out abscess formation. USG can detect any abscess and can guide the needle placement into the abscess cavity. Ultrasound is also useful to identify or exclude other causes of inflammation in breast like inflammatory breast cancer.

IDENTIFICATION AND DRAINAGE OF BREAST ABSCESS

Breast abscess in a lactational woman are usually present in a late stage and when they present they usually in large abscess with skin necrosis and other complications.

Gold standard treatment of breast abscess is incision and drainage to evacuate the pus under tension and break all the loculi by finger dissection. It should be done in general anesthesia. This is now largely replaced by ultrasound guided aspiration under local anesthesia as an outpatient procedure where surgeons and radiologists are available. In rural areas where surgeons or radiologists or both are not available, incision and drainage is the gold standard of treatment.

INCISION AND DRAINAGE

It is the traditional procedure for breast abscess in older days and also in rural areas where radiological imaging are not available. After confirming the diagnosis by clinical and radiological imaging patient placed in supine position under general anesthesia.

After painting the affected breast and axilla by betadine solution drape the parts with draping towel. Incision and drainage done with 11 blade. The pus evacuated and by blunt dissection all the loculi must be broken and abscess cavity packed with betadine soaked Wick gauze. Then breast bandage is applied using gauze and pad. The pus should be sent for pus culture and sensitivity.

Empirical oral antibiotics are started with flucloxacillin or dicloxacillin 500mg every 6th hourly. Dressing should be changed daily. Patient should be followed up in 7th and 14th day post operatively. Clinical and radiological examination done for residual collection by asking symptoms and signs like pain, swelling, fever, local warmth



and tenderness. Radiologically by doing repeat ultrasound of breast, look for any residual collection in any other sites of breast. And antibiotics are given according to the pus culture and sensitivity which was sent by previous

drainage procedure. At 14th day if there is no collection clinically and radiologically, it is called as complete cure. If there is collection again it is called as recurrence.

RIGHT BREAST ABSCESS PLANNED FOR INCISION AND DRAINAGE



RIGHT BREAST ABSCESS PAINTED AND DRAPED UNDER SHORT GA



USING 11 BLADE INCISION AND DRAINAGE OF BREAST ABSCESS DONE



AFTER INCISION OVER THE ABSCESS THE PUS DRAINING FROM THE BREAST ABSCESS



COMPLICATIONS FOLLOWING INCISION AND DRAINAGE IN BREAST ABSCESS

1. MILK FISTULA
2. POOR WOUND HEALING
3. POOR PATIENT SATISFACTION
4. PSYCHOLOGICAL DEPRESSION



MILK FISTULA DEVELOPED FOLLOWING INCISION AND DRAINAGE IN BREAST ABSCESS



POOR WOUND HEALING FOLLOWING INCISION AND DRAINAGE OF BREAST ABSCESS



USG GUIDED ASPIRATION OF BREAST ABSCESS

By using high frequency linear probe ultrasound 8MHZ – 14 MHZ, the breast abscess is diagnosed initially by the classical feature like hypochoic lesion surrounded by a rim. This is

marked with a marker. The parts are painted with betadine solution over the breast where we insert the needle and draping should be done. 2% lignocaine is injected into the skin where we



marked already. Wait for 2 mins for lignocaine action to take place.

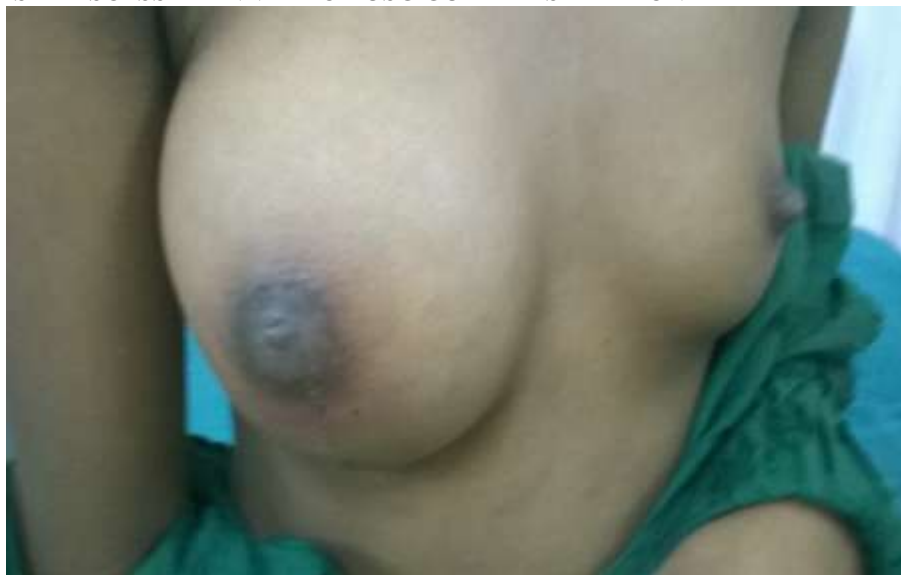
Then insert the 16 GAUZE needle into the breast tissue under the ultrasound guidance. We can able to see the needle tip in ultrasound screen and place the needle in the middle of the abscess cavity. Start aspirating the pus until there is nil aspirate. Look for the collapse of abscess cavity in the USG screen. A tight compression elastic bandage applied over the site where we aspirated. The pus should be sent for culture and sensitivity. Empirical Oral antibiotics are given to the patients like flucloxacillin or dicloxacillin every 6th hourly and follow up the patient.

Follow up is on 7th and 14th day post operatively. Patient is examined clinically and radiologically. Clinically by asking the symptoms like pain, swelling and fever and signs of temperature, tenderness, and local warmth over the breast. Radiologically by doing Ultrasound of BREAST for any residual collection. If any residual collection is present, it should be aspirated again under the ultrasound guidance by the same procedure. And again elastic compression bandage applied over the breast. Antibiotics given according to the pus culture and sensitivity which was sent by previous aspiration.

PUS ASPIRATED FROM BREAST ABSCESS UNDER USG GUIDANCE



RIGHT BREAST ABSCESS PLANNED FOR USG GUIDED ASPIRATION



ASPIRATED PUS UNDER THE GUIDANCE OF ULTRASONOGRAPHY



ANTIBIOTIC THERAPY IN BREAST ABSCESS

Antibiotics are very much useful in breast abscess. This should be guided by pus culture and sensitivity. Staphylococcus aureus is the most common organism responsible for breast abscess. Antibiotic of choice is flucloxacillin or dicloxacillin in a dose of 500 mg four times per day. **Tetracycline, ciprofloxacin and chloramphenicol** should be avoided, because they are unsafe in lactating women.

Hospitalisation for intravenous antibiotics is rarely required but is indicated if there are systemic signs of sepsis. Candida is a rare cause of mastitis and is characterized by the presence of intense pain, particularly noted after the breast empties, and the absence of breast erythema.

Oral antibiotics should be continued for at least 5 days. Improvement should be seen within 2 to 3 days of antibiotic treatment. If improvement is slow, milk should be collected for culture and sensitivity. Any baby whose mother is on antibiotic therapy should be monitored for systemic effects such as changes to the gastro-intestinal flora (with symptoms such as diarrhea, vomiting and thrush) or skin rashes. IV antibiotics should be continued for at least 48 hours or until substantial clinical improvement is seen.

Flucloxacillin or dicloxacillin are the antibiotics of choice for mastitis according to the Australian Therapeutic Guidelines (Antibiotic) 2010. Both antibiotics are compatible with breastfeeding. Small amounts of flucloxacillin or dicloxacillin are excreted into breastmilk but the concentration is probably too low to have a significant effect on the breastfed infant.

First generation cephalosporins are also effective as first-line treatment for patients hypersensitive to penicillin (excluding immediate hypersensitivity). Small amounts of cephalexin are excreted into breastmilk but they are unlikely to have a therapeutic effect on the breastfed baby.

Clindamycin is the drug of choice when there is immediate allergic reaction to dicloxacillin and/or flucloxacillin. Bloody diarrhea is noted in one case when using this clindamycin.

Vancomycin is used as an alternative antibiotic for patients with serious allergy to Dicloxacillin and/or flucloxacillin and first generation cephalosporins. Very low adverse effects are seen when vancomycin are used because they excrete very low amount in breast milk. Lincomycin is used as an alternative antibiotic for patients with serious hypersensitivity reaction to dicloxacillin and/or flucloxacillin and first generation cephalosporins. Very less side effects are seen when lincomycin are used because it is excreted very less amount in breast milk to produce some serious side effects

MRSA is often sensitive to non-β lactam antibiotics such as Septran and macrolides. Septran also known as co-trimoxazole, is an alternative drug for Methicillin-Resistant Staphylococcus aureus (MRSA). It is excreted into breastmilk and is and does not cause any serious adverse effects in the infant who breastfeed..

The antibiotics should be changed after the pus culture and sensitivity report and Start according to the report.

RECOMMENDED ANTIBIOTIC REGIMEN IN LACTATIONAL BREAST ABSCESS

DRUG	ROUTE
FLUCLOXACILLIN/DICLOXACILLIN 500mg 6 th HOURLY	ORAL
FLUCLOXACILLIN/DICLOXACILLIN 2G IV EVERY 6 TH HOURLY	IV



ADVERSE EFFECTS	POINTS TO NOTE
Nausea, skin rashes and nausea. Rarely – anaphylactic shock, obstructive jaundice	Check liver function test when antibiotics are used for more than 14 days, especially when other risk factors are present.

IF PATIENT ALLERGIC TO PENICILLIN (exclude immediate hypersensitivity reaction)

DRUG	ROUTE
Cephalexin 500mg 6 th hourly for 5 days	Oral
Cephazolin 2g iv 8 th hourly	IV

ADVERSE EFFECTS	POINTS TO NOTE
diarrhea, nausea and rashes over skin rarely anaphylaxis	Cephalexin usually used when there is a history of hypersensitivity to dicloxacillin and/or flucloxacillin. Patients who are all undergoing treatment with penicillin group of drugs have cross reactions with first generation cephalosporins.

WHEN THERE IS IMMEDIATE HYPERSENSITIVITY REACTION TO PENICILLINR GROUP IS PRESENT

DRUG	ROUTE
Clindamycin 450mg 8 th hourly for 5 days	oral
VANCOMYCIN 1.5mg IV <u>bd</u>	IV



ADVERSE EFFECTS	POINTS TO NOTE
Vomiting, nausea and diarrhea. Rarely – anaphylactic shock, hepatitis	Used as a second choice when individuals cannot tolerate usual therapy.
Common– thrombophlebitis (IV) Rare –serious skin reactions.	Only use if pathogen is resistant to first-line therapy.

IN CASE OF COMMUNITY ACQUIRED METHICILLIN RESISTANT STAPHYLOCOCCAL AUREUS IS PRESENT

DRUG	ROUTE	ADVERSE EFFECTS	POINTS TO NOTE
Clindamycin 450mg 8 th hourly for 5 days	Oral	Nausea and diarrhea, vomiting. Anaphylaxis , jaundice	look for diarrhea, allergic rashes and oral thrush when mother using clindamycin.
Trimethoprim+Sulphamet hoxazole(co-trimoxazole) 160+800mg 12 th hourly	Oral	Nausea, vomiting, anorexia and allergic skin rashes.	Use very cautiously in breastfeeding mothers with critically sick baby or preterm baby and also babies with G6PD deficiency.

PSYCHOLOGICAL SUPPORT

Psychological support is very much essential for breastfeeding mothers with breast abscess. Because of the pain, the patients will have a lot of psychological and emotional disturbances. And also have a fear that infant will suffer all infections due to the breast abscess.

Breast abscess is usually associated with mental and physical hazards. Breast abscess mostly associated with many Emotional symptoms and produces great physical, hormonal and lifestyle Change. Resulting in Depression, anxiety, helplessness, distress. And worried about breastfeeding during the episodes of mastitis. Looking at these problems involved in breastfeeding, the surgeon can help mothers by providing support, encouragement and reassure the mother that her milk is mainly useful to her child's health and nutrition. There are many lactational consultants and Breast feeding Associations present all over the country. They will provide the free information and support and women should be encouraged to use this resource.

METHODOLOGY

MATERIALS AND METHODS:

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, Govt Medical College, Omandurar Government Estate during 2022 –2023.

THE INCLUSION CRITERIAS

all women with clinically and radiologically diagnosed breast abscess.

THE EXCLUSION CRITERIA

Patients with immunosuppression, recurrent abscess, necrotic skin overlying the abscess, old age, very large abscess.

- Period of study : 2 years
- Type of study : Comparison study (cross sectional)
- Sample size : 50
- Population included: patients with breast abscess who are undergoing treatment in Government Medical College, Omandurar Government Estate, Chennai - 600002.
- Patients will be 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.
- Pus should be sent for culture and sensitivity.
- Patient was started parenteral antibiotics and analgesia post operatively.
- On the 7th day, if abscess recollects again do reaspiration 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 ultra sonogram 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

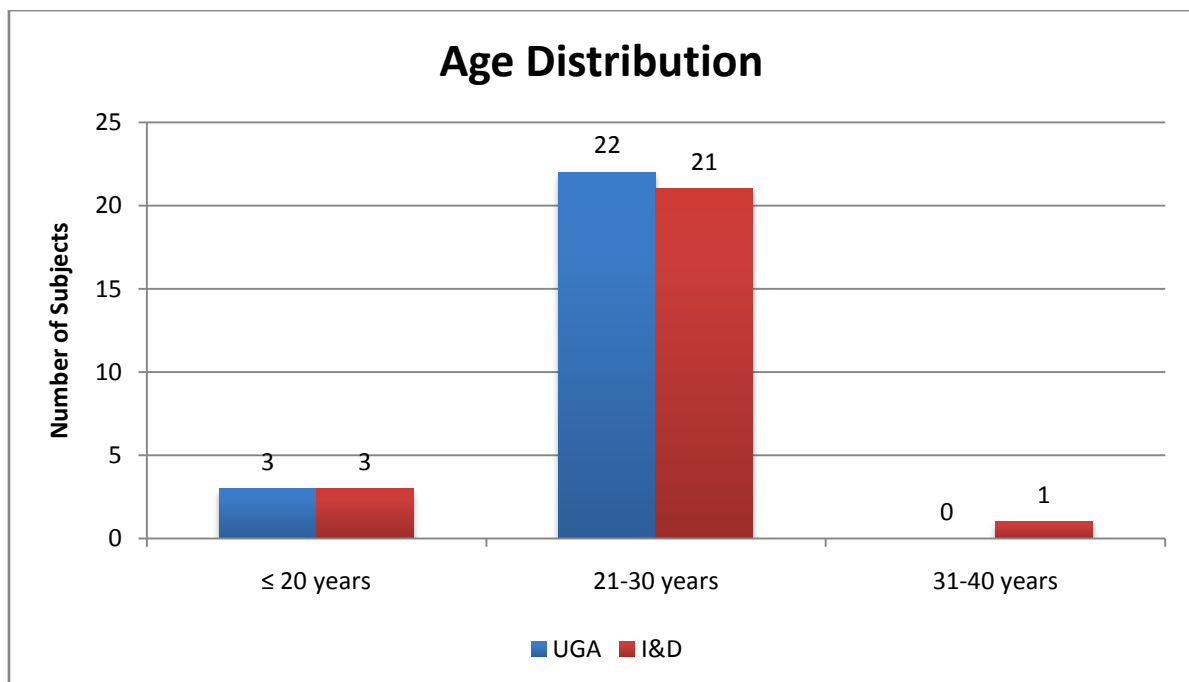
1. SIZE
2. TYPE OF ANESTHESIA
3. COMPLICATIONS AFTER BOTH PROCEDURES
4. RECURRENCE
5. POST OPERATIVE HEALING TIME FOLLOWING BOTH PROCEDURES.
6. PATIENT SATISFACTION AFTER THE PROCEDURE
7. ETIOLOGY

III. RESULTS

Age

Age Distribution	UGA	%	I&D	%
≤ 20 years	3	12.00	3	12.00
21-30 years	22	88.00	21	84.00
31-40 years	0	0.00	1	4.00
Total	25	100	25	100

Age Distribution	UGA	I&D
N	25	25
Mean	23.52	26.04
SD	3.02	4.05
P value Unpaired t Test	0.1163	

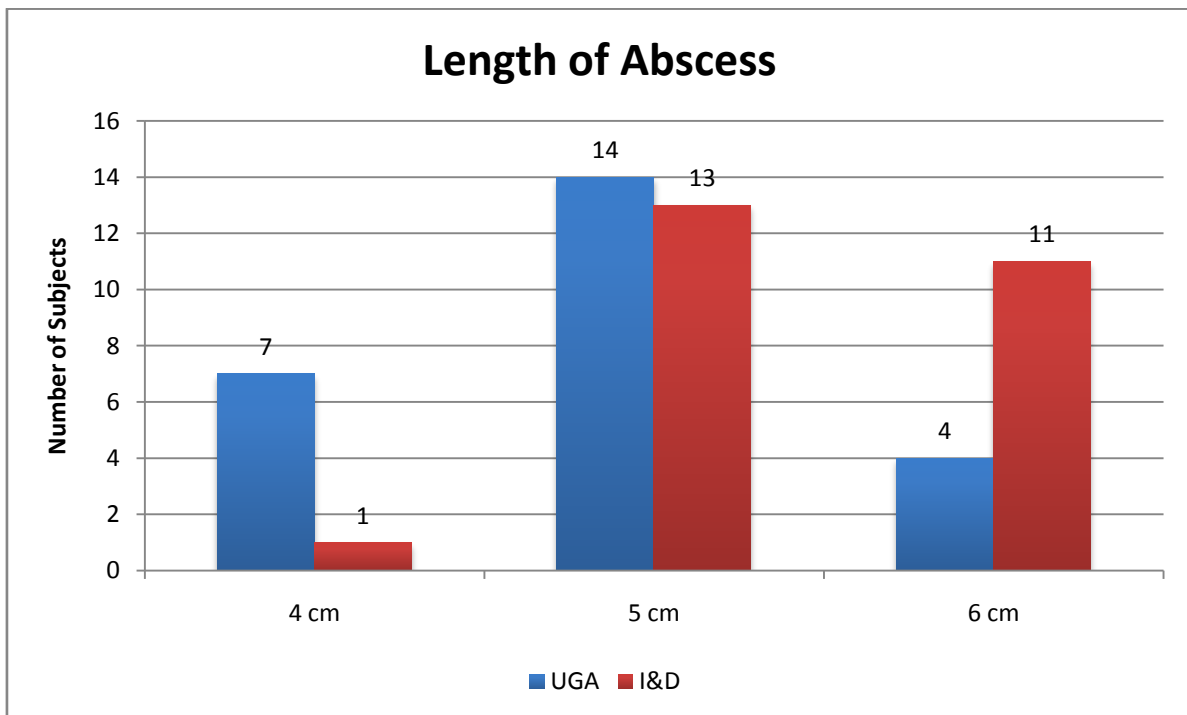




Length of Abscess

Length of Abscess	UGA	%	I&D	%
4 cm	7	28.00	1	4.00
5 cm	14	56.00	13	52.00
6 cm	4	16.00	11	44.00
Total	25	100	25	100

Length of Abscess	UGA	I&D
N	25	25
Mean	4.88	5.40
SD	0.67	0.58
P value Unpaired t Test		0.0049



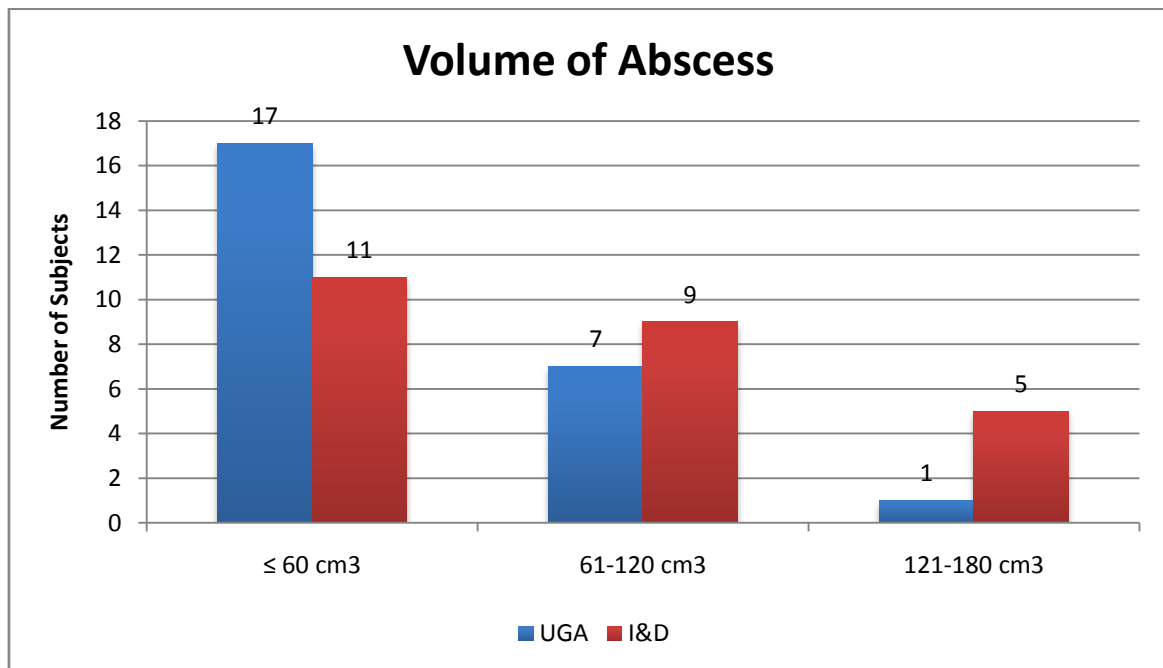
Volume of Abscess

Volume of Abscess	UGA	%	I&D	%
≤ 60 cm ³	17	68.00	11	44.00
61-120 cm ³	7	28.00	9	36.00



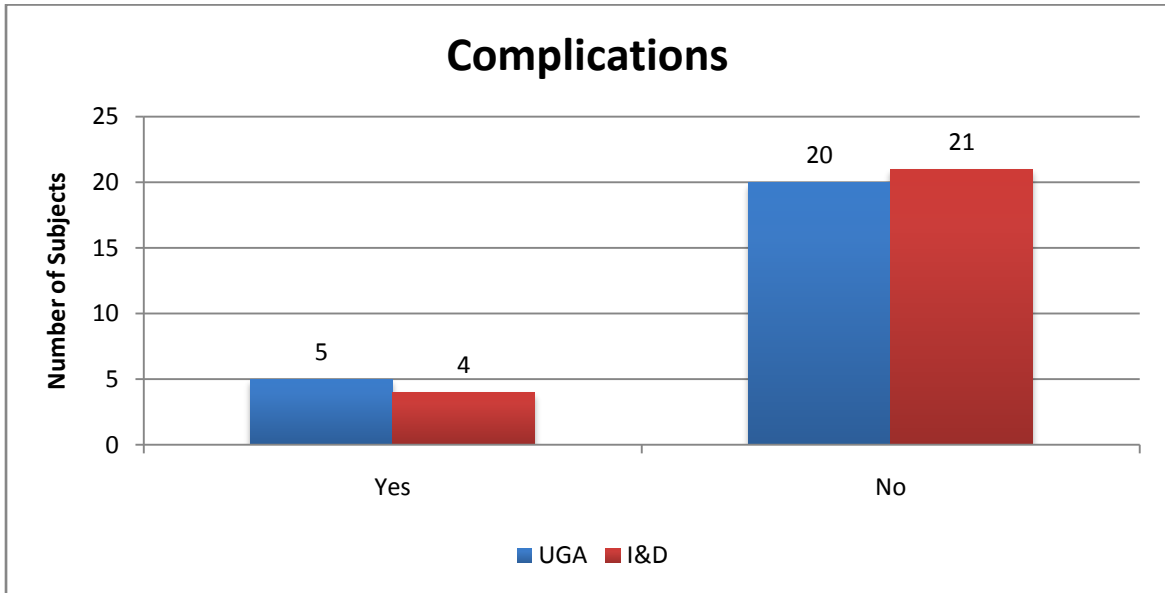
121-180 cm ³	1	4.00	5	20.00
Total	25	100	25	100

Volume of Abscess	UGA	I&D
N	25	25
Mean	60.04	88.04
SD	29.18	48.44
P value Unpaired t Test	0.0177	



Complications

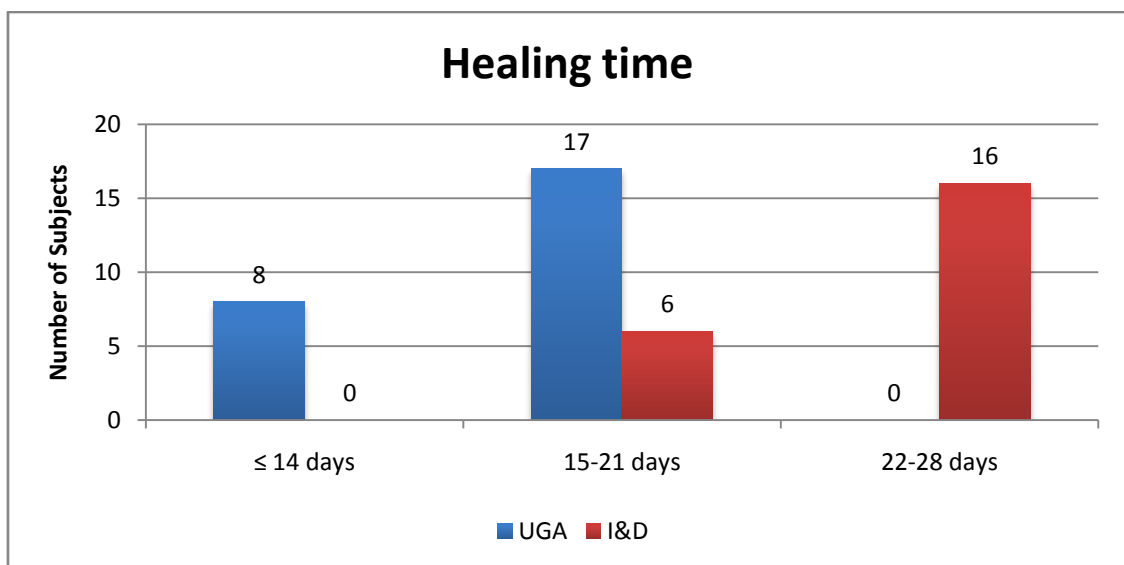
Complications	UGA	%	I&D	%	
Yes	5	20.00	4	16.00	
No	20	80.00	21	84.00	
Total	25	100	25	100	
P value Fishers Exact Test				0.7317	



Healing time

Healing time	UGA	%	I&D	%
≤ 14 days	8	32.00	0	0.00
15-21 days	17	68.00	6	24.00
22-28 days	0	0.00	16	64.00
29-35 days	0	0.00	3	12.00
Total	25	100	25	100

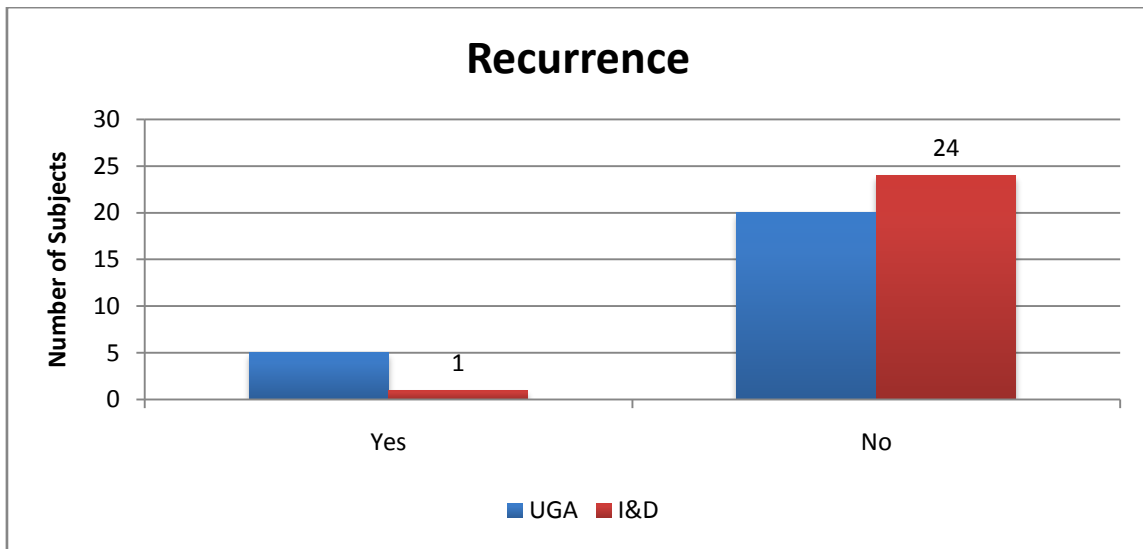
Healing time	UGA	I&D
N	25	25
Mean	15.52	24.40
SD	2.60	4.06
P value Unpaired t Test		0.0000





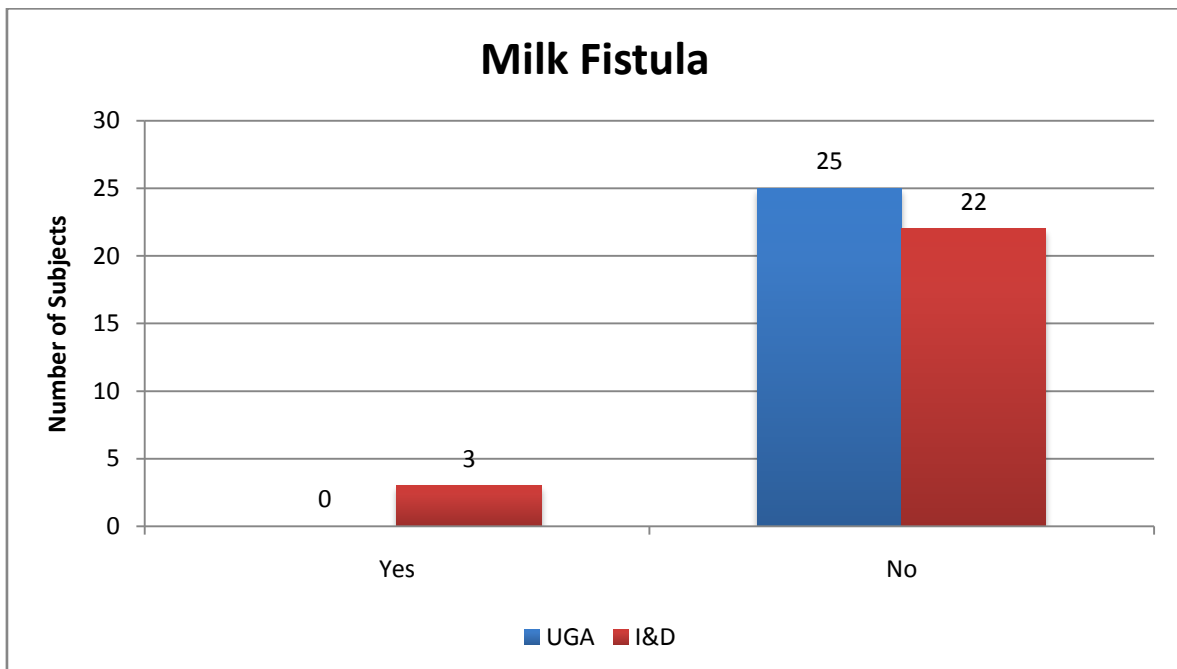
Recurrence

Recurrence	UGA	%	I&D	%
Yes	3	12.00	1	4.00
No	22	82.00	24	96.00
Total	25	100	25	100
P value Fishers Exact Test			0.1059	



Milk Fistula

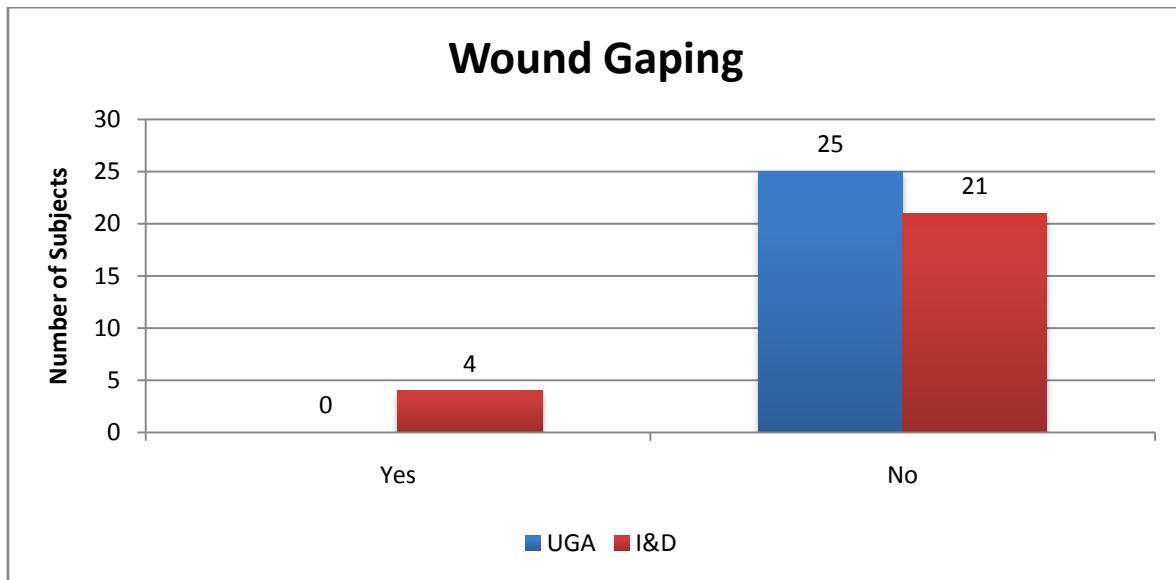
Milk Fistula	UGA	%	I&D	%
Yes	0	0.00	3	12.00
No	25	100.00	22	88.00
Total	25	100	25	100
P value Fishers Exact Test			0.1173	





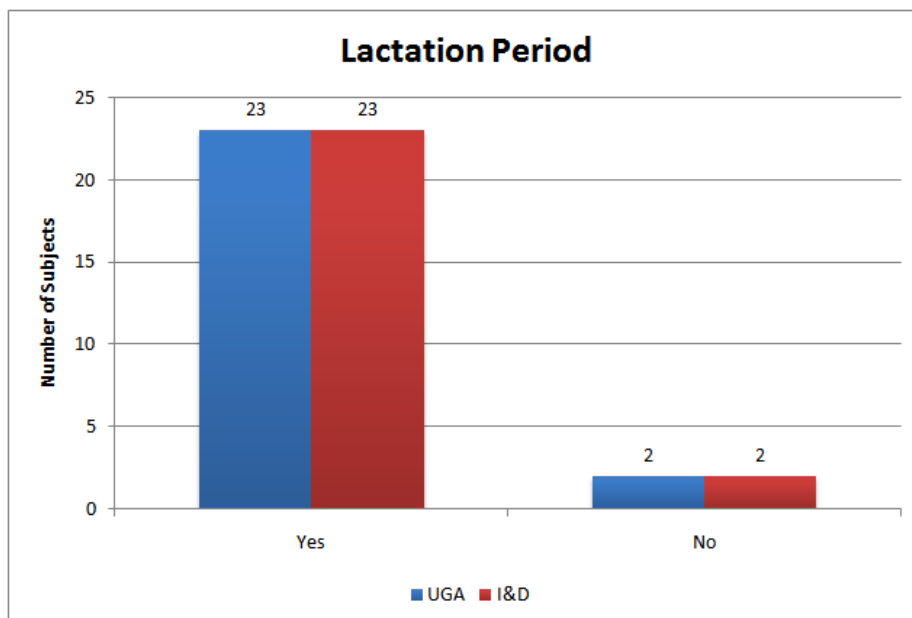
Wound Gaping

Wound Gaping	UGA	%	I&D	%
Yes	0	0.00	4	16.00
No	25	100.00	21	84.00
Total	25	100	25	100
P value Fishers Exact Test			0.1099	



Lactation Period

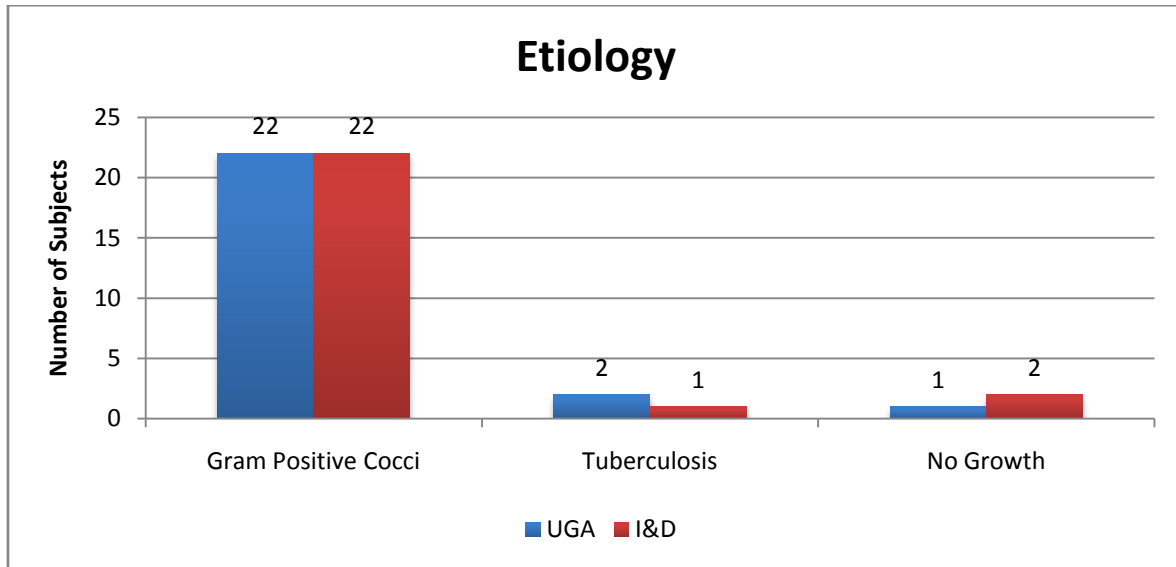
Lactation Period	UGA	%	I&D	%
Yes	23	92.00	23	92.00
No	2	8.00	2	8.00
Total	25	100	25	100
P value Fishers Exact Test			0.9999	





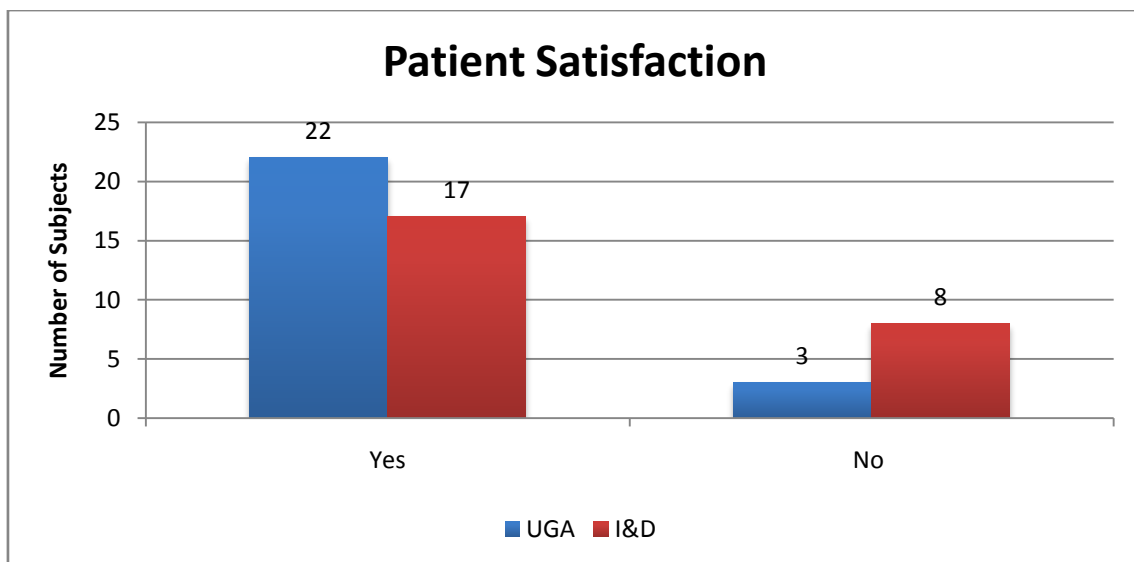
Etiology

Etiology	UGA	%	I&D	%
Gram Positive Cocci	22	88.00	22	88.00
Tuberculosis	2	8.00	1	4.00
No Growth	1	4.00	2	8.00
Total	25	100	25	100
P value Fishers Exact Test			0.8502	



Patient Satisfaction

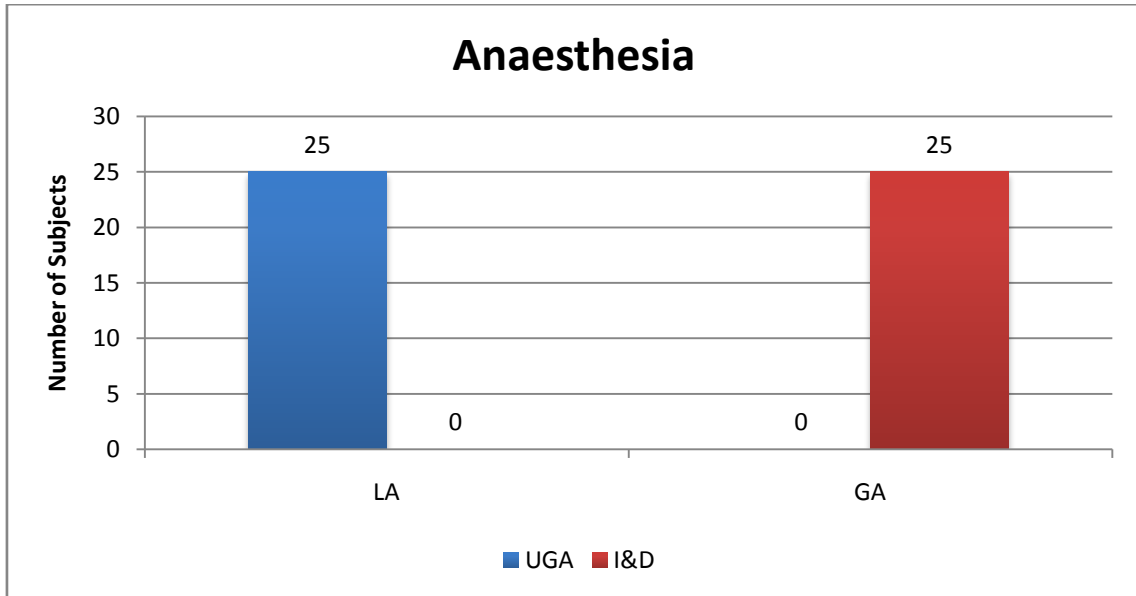
Patient Satisfaction	UGA	%	I&D	%
Yes	22	88.00	17	68.00
No	3	12.00	8	32.00
Total	25	100	25	100
P value Fishers Exact Test			0.1040	





Anaesthesia

Anaesthesia	UGA	%	I&D	%
LA	25	100.00	0	0.00
GA	0	0.00	25	100.00
Total	25	100	25	100



IV. DISCUSSION

The present study was carried out among the patients of breast abscess attending the department of surgery at Government Medical College, Omandurar Government Estate – Chennai 600002. 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.

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. All patients in incised group had swelling, erythema, increased local temperature and tenderness. Schwarz et al and Faisal Elagili et al also observed similar signs and symptoms in their study.

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 14 reported an 85% cure rate, some of them aspirated without sonographic guidance. Garg et al 15 reported success rate of 84%. Faisal Elagili et al 9 reported success rate of 83.3% with USG guided aspiration

of breast abscess. Alphonse et al 11 observed cure rate of 93.1% in ultrasound guided aspiration.

In our study recurrence rate of USG guided aspiration was 12% which correlates with study conducted by Markus et al 16 . 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.

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 Markus et al .

Three patients (%) in 12% incision drainage group had developed milk fistulas which correlate with the study by Dr. SairaSaleem et al 18 . 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 Dr. SairaSaleem et al.

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 SairaSaleem et al.



Cosmetic results in incision-drainage group were unsatisfactory while there were no cosmetic problems in USG guided aspiration.

V. CONCLUSION

- Even though recurrence rate is slightly high in USG guided aspiration when compared 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 a procedure is safe, easy and effective. This method should become the GOLD STANDARD treatment of breast abscess here after for the management of all lactational breast abscesses in a selected patients.

IN MY 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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மார்பகசீழ்கட்டியுள்ளபெண்ணோயாளிகளின் சிகிச்சை முறைகளில் மேன்மையானது கீறுதல் மற்றும் வடிகால் அல்லது அதீத ஒலிப்படப்பரிசோதனை உதவியுடன் உறிஞ்சியிருந்தல் என ஒப்பிட்டுப்பார்க்கும் ஆய்வு.

ஆய்வாளர்: மரு. செல்லதுரை, முதுநிலைப்பட்ட மேற்படிப்புமாணவர், அறுவைசிகிச்சைப்பட்டபடிப்பு. வழிகாட்டி: பேராசிரியர் மரு. விஷ்வநாதன், அறுவைசிகிச்சை பேராசிரியர், அரசுஸ்டான்லிமருத்துவமனை.

சுயஒப்புதல்படிவம்பெயர்: வயது: உள்ளிருப்புஎண்:

இந்தமருத்துவ ஆய்வின் விவரங்கள் எனக்கு விளக்கப்பட்டது. என்னுடைய சந்தேகங்களைக் கேட்கவும், அதற்கான தகுந்த விளக்கங்களைப் பெறவும் வாய்ப்பளிக்கப்பட்டது.

நான் இவ்வாய்வில் தன்னிச்சையாகத் தான் பங்கேற்கிறேன். எந்த காரணத்தினாலும், எந்த கட்டத்திலும், எந்த சட்ட சிக்கலும் இன்றி இந்த ஆய்விலிருந்து விலகிக் கொள்ளலாம் என்றும் அறிந்து கொண்டேன்.

நான் ஆய்விலிருந்து விலகிக் கொண்டாலும் ஆய்வாளர் என்னுடைய மருத்துவ அறிக்கைகளைப் பார்ப்பதற்கோ அல்லது உபயோகிக்கவோ என் அனுமதி தேவையில்லை எனவும் அறிந்து கொண்டேன். என்னைப்பற்றிய தகவல்கள் இரகசியமாகப் பாதுகாக்கப்படும் என்பதையும் அறிவேன்.

இந்த ஆய்வின் மூலம் கிடைக்கும் தகவல்களையும் பரிசோதனை முடிவுகளையும் ஆய்வாளர் அவர் விருப்பத்திற்கேற்ப எவ்விதமாகப் பயன்படுத்திக்கொள்ளவும், அதனை பிரசுரிக்கவும் முழுமனதுடன் சம்மதிக்கிறேன்.

இந்த ஆய்வில் பங்கு கொள்ள ஒப்புக்கொள்கிறேன். எனக்கு கொடுக்கப்பட்ட அறிவுரைகளின்படி நடந்து கொள்வதுடன் ஆய்வாளருக்கு உண்மையுடன் இருப்பேன் என்றும் உறுதியளிக்கிறேன். என் உடல்நலம் பாதிக்கப்பட்டாலோ அல்லது வழக்கத்திற்கு மாறான நோய்க்குறி தென்பட்டாலோ உடனே அதை தெரிவிப்பேன் என உறுதி கூறுகிறேன். இந்த ஆய்வில் எனக்கு எவ்விதமான பரிசோதனைகளையும், சிகிச்சைகளையும் மேற்கொள்ள நான் முழுமனதுடன் சம்மதிக்கிறேன்.



இப்படிக்குநோயளியின்கையொப்பம்
ஆய்வாளர்கையொப்பம்
பெயர்(மரு.செல்லதுரை.)

மார்பகசீழ்கட்டியுள்ளபெண்நோயாளிகளின்சிகிச்சைமுறைகளில்மேன்மையானதுகீறுதல்மற்றும்வடிகால் அல்லதுஅகீதலிப்படப்பரிசோதனைஉதவியுடன்உறிஞ்சியிழுத்தல்எனஒப்பிட்டுப்பார்க்கும்ஆய்வு.
ஆய்வாளர்:மரு.செல்லதுரை,
முதுநிலைபட்டமேற்படிப்புமாணவர்,
அறுவைசிகிச்சைபட்டபடிப்பு.
வழிகாட்டி:பேராசிரியர்மரு.விஷ்வநாதன்,
அறுவைசிகிச்சைபேராசிரியர்,
அரசுஸ்டான்லிமருத்துவமனை.

பங்கேற்பாளரின்தகவல்படிவம்
நீங்கள்இந்தஆய்வில்பங்கேற்கஅழைக்கப்படுகிறீர்கள்.
இந்தஆய்வில்பங்கேற்கும்முன்,இதன்நோக்கத்தையும்,முறைகளையும்,இதனால்ஏற்படும்பின்விளைவுகளையும்நீங்கள்அறிந்துகொள்ளஆய்வாளர்அளிக்கும்தகவல்:
மார்பகசீழ்கட்டியுள்ளபெண்நோயாளிகள்இந்தஆய்வில்சேர்த்துக்கொள்ள

ப்படுவார்கள்.உங்கள்நோயின்வரலாறு
ம்,உங்களின்முழுஉடல்பரிசோதனையு
ம்தெளிவாகவும்விரிவாகவும்பதிவுசெ
ய்யப்படும்.உங்களுக்குமேற்கூரியிரு
முறைகளில்ஏதேனும்ஒருமுறையில்
சிகிச்சைஅளிக்கப்படும்.

இந்தஆய்வின்முடிவுகள்மருத்துவகார
ணங்களுக்காகவும்,மருத்துவகல்விக்
காகவும்பயன்படுத்தப்படும்.இந்தஆய்வு
பற்றியசந்தேகங்களுக்குஉரியமுறையி
ல்விளக்கமளிக்கப்படும்.தங்களைப்பற்
றியதகவல்கள்இரகசியமாகபாதுகாக்க
ப்படும்.

இந்தஆய்வில்இருந்துஎப்போதுவேண்
டுமானாலும்தாங்கள்எவ்விதமுன்னறி
விப்பின்றியும்,

எவ்விதசட்டசிக்கலும்இன்றிவிலகிக்
கொள்ளலாம்.

இந்தஆய்வில்பங்கேற்குமாறுகேட்டுக்
கொள்கிறேன்.

நன்றி,

ஆய்வாளர்கையொப்பம்
(மரு.செல்லதுரை)
நோயாளியின்கையொப்பம்



S.NO	NAME	AGE	IP.NO	PROCEDURE	SIZE OF ABSCESS	COMPLICATIONS	HEALING TIME	RECURRENCE	ANESTHESIA	MILK FISTULA	WOUND GAPING	LACTATION PERIOD	ETIOLOGY	PATIENT SATISFACTION
1	Sumathi	25	125672	I & D	5x4x3cm	NIL	22 days	No	GA	NO	NO	YES	G+COCCI	YES
2	Meena	19	125692	UGA	4x4x2cm	NIL	11 days	No	LA	NO	NO	YES	G+COCCI	YES
3	Rajamani	26	125572	I & D	5x4x3cm	YES	27 days	No	GA	YES	YES	YES	G+COCCI	NO
4	Solayamal	28	135772	UGA	5x3x3cm 6x5x3	NIL	12 days	No	LA	NO	NO	YES	G+COCCI	YES
5	Manjula	24	135678	I & D	cm	NIL	22 days	No	GA	NO	NO	YES	G+COCCI	NO
6	kavitha	28	136678	UGA	5x5x3cm 6 x6x5	NIL	18 days	No	LA	NO	NO	YES	G+COCCI	YES
7	Mariyammal	25	137882	I & D	cm 5x4x4	NIL	24 days	No	GA	NO	NO	YES	G+COCCI	YES
8	Pattu	28	137892	UGA	cm 6x4x3	NIL	15 days	No	LA	NO	NO	YES	G+COCCI NO	YES
9	chellama	27	137897	I & D	cm	NIL	19 days	No	GA	NO	NO	YES	GROWTH	YES
10	rosa	22	138789	UGA	4x4x3cm	NIL	16 days	No	LA	NO	NO	YES	G+COCCI	YES
11	priyanka	23	138991	I & D	5x5x4cm 5x4x2	NIL	22 days	No	GA	NO	NO	YES	G+COCCI	YES
12	priya	25	138991	UGA	cm 5x5x4	NIL	16 days	No	LA	NO	NO	YES	G+COCCI	YES
13	sudha	19	138991	I & D	cm 5x4x3	NIL	23 days	No	GA	NO	NO	YES	G+COCCI	NO
14	latha	28	139921	UGA	cm 5x5x2	YES	17 days	YES	LA	NO	NO	YES	G+COCCI	YES
15	Lakshmi	26	139893	I & D	cm 5x3x3	NIL	26 days	No	GA	NO	NO	YES	G+COCCI	YES
16	prabha	18	138913	UGA	cm	YES	15 days	YES	LA	NO	NO	NO	TB	NO
17	rukmani	27	138933	I & D	5x5x2 cm 4x4x2	NIL	21 days	No	GA	NO	NO	YES	G+COCCI	YES
18	revathi	26	148101	UGA	cm 6x6x5	NIL	17 days	No	LA	NO	NO	YES	G+COCCI	YES
19	rasathi	27	140121	I & D	cm 4x3x2	NIL	20 days	No	GA	NO	NO	YES	G+COCCI	YES
20	manimegalai	22	140132	UGA	cm	NIL	16 days	No	LA	NO	NO	YES	G+COCCI	YES
21	Swetha	29	140221	I & D	6x6x5cm 4x4x3	YES	35 days	No	GA	YES	YES	YES	G+COCCI	NO
22	dhanam	25	140382	UGA	cm 5x5x2	NIL	14 days	No	LA	NO	NO	YES	G+COCCI	YES
23	elaveni	27	140482	I & D	cm 5x4x3	NIL	25 days	No	GA	NO	NO	YES	G+COCCI	YES
24	vanmathi	22	140472	UGA	cm 5x5x2	YES	20 days	YES	LA	NO	NO	NO	TB NO	NO
25	abinaya	26	140482	I & D	cm 5x4x2	NIL	28 days	No	GA	NO	NO	YES	GROWTH	YES
26	pushpa	22	141382	UGA	cm 5x5x2	NIL	12 days	No	LA	NO	NO	YES	G+COCCI	NO
27	Ramyra	26	142332	I & D	cm 4x3x3	NIL	28 days	No	GA	NO	NO	YES	G+COCCI	YES
28	subathra	27	142221	UGA	cm 5x5x3	NIL	17 days	No	LA	NO	NO	YES	G+COCCI	YES
29	chandra	40	142232	I & D	cm 4x4x2	NIL	22 days	No	GA	NO	NO	NO	G+COCCI	YES
30	punitha	24	142235	UGA	cm 6x3x2	NIL	14 days	No	LA	NO	NO	YES	G+COCCI	YES
31	lavanya	26	145543	I & D	cm 6x3x4	NIL	28 days	No	GA	NO	NO	YES	G+COCCI	YES
32	kanmani	22	145621	UGA	cm 5x5x3	YES	19 days	yes	LA	NO	NO	YES	G+COCCI	YES
33	devaki	28	156221	I & D	cm 6x6x3	NIL	23 days	No	GA	NO	NO	YES	G+COCCI	NO
34	padma	23	156621	UGA	cm 6x6x4	NIL	15 days	No	LA	NO	NO	YES	G+COCCI	YES
35	vani	29	156671	I & D	cm	NIL	20 days	No	GA	NO	NO	YES	G+COCCI	YES



36	surabhi	21	156781	UGA	5x4x2 cm	NIL	18 days	No	LA	NO	NO	YES	NO GROWTH	YES
37	fathima	24	167332	I & D	6x3x2 cm	NIL	24 days	No	GA	NO	NO	YES	G+COCCI	YES
38	ganga	22	168332	UGA	5x5x2 cm	NIL	17 days	No	LA	NO	NO	YES	G+COCCI	YES
39	udhayarani	26	167891	I & D	6x5x3 cm	NIL	21 days	No	GA	NO	NO	YES	G+COCCI	YES
40	menaka	18	169881	UGA	6x6x4 cm	NIL	16 days	No	LA	NO	NO	YES	G+COCCI	YES
41	komalavalli	19	168991	I & D	5x5x3 cm	YES	30 days	Yes	GA	NO	YES	NO	TB	NO
42	kanchana	23	178921	UGA	5x4x3 cm	NIL	13 days	No	LA	NO	NO	YES	G+COCCI	YES
43	elizabeth	27	179212	I & D	5x5x2 cm	NIL	20 days	No	GA	NO	NO	YES	G+COCCI	YES
44	viji	22	178921	UGA	5x4x3cm 4x4x3	NIL	11 days	No	LA	NO	NO	YES	G+COCCI	YES
45	kamala	25	178219	I & D	cm 5x5x3	NIL	26 days	No	GA	NO	NO	YES	G+COCCI	NO
46	noorjagan	26	189921	UGA	cm	NIL	12 days	No	LA	NO	NO	YES	G+COCCI	YES
47	mercy	20	189932	I & D	6x5x4cm	NIL	22 days	No	GA	NO	NO	YES	G+COCCI	YES
48	bhuvana	22	189981	UGA	5x5x3cm 6x6x5	NIL	18 days	No	LA	NO	NO	YES	G+COCCI	YES
49	mangai	30	189990	I & D	cm 6x5x4	YES	32 days	No	GA	YES	YES	YES	G+COCCI	NO
50	kalpana	25	198291	UGA	cm	YES	19 days	Yes	LA	NO	NO	YES	G+COCCI	YES