**Lactational Breast Abscess**

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**Summary:**
- Lactational breast abscess is defined as a localized collection of pus within the breast during the period of lactation. It is often a complication of lactational mastitis which is an inflammation of breast tissue secondary to stasis of milk and bacterial colonization (mostly Staphylococcus species).
- Infection starts in one segment of the breast and presents with a painful, erythematous, tender and fluctuant swelling of the breast. This may be associated with systemic symptoms including fever and malaise.
- Management of lactational breast abscess includes general supportive measures and specific measures. The two fundamental cornerstones of specific measures include infection control and breast emptying.
- Surgical options include incision and drainage, needle aspiration and vacuum assisted biopsy. Needle aspiration with concurrent antibiotic therapy is currently recommended as the first line therapy for the treatment of lactational breast abscesses. Incision and drainage is indicated only in large breast abscesses (>5cm), abscesses with thinning or necrosis of overlying skin, failure of needle aspiration therapy and recurrent abscesses.

**Case Scenario**
A 29 year old lady delivered at term by low forceps delivery. Breast feeding was initiated within one hour of birth and the baby was exclusively breast fed. She started developing engorgement in the right breast on the 14th postnatal day. Manual expression of milk was carried out but she was unable to empty completely. Three days later, she developed redness and swelling of the right breast associated with fever and chills. She found it difficult to feed the baby on the right side. She was managed with breast emptying, antibiotics, analgesics, antipyretic and magnesium sulphate dressing. Ultrasound of the breast showed a multi-loculated collection in lower outer quadrant. Percutaneous needle aspiration of the abscess was done with ultrasound guidance. Approximately 45 ml of pus was drained out. Two days later, the right breast showed persistent induration and tenderness on palpation. A repeat ultrasound showed some residual fluid and she underwent incision and drainage of the abscess. Her postoperative course was uneventful.

**Introduction**
Lactational breast abscess is defined as a localized collection of pus within the breast during the period of lactation. Formation of an abscess may be preceded by a period of generalized inflammation of the breast (mastitis) secondary to stasis of milk in the breast. The most common causative organisms are *Staphylococcus aureus* species and *Streptococcus species*. The risk of infection with Methicillin Resistant Staphylococcus aureus (MRSA) is higher in hospitalized patients.

**Epidemiology**
Lactational breast abscess occurs most often in the first 12 weeks of pregnancy and is seen in 0.4 – 11% of all lactating mothers. It is more commonly seen among primigravida women more than 30 years of age and in pregnancies more than 41 weeks of gestation.
Maternal risk factors also include obesity and smoking. About 85% of lactational breast abscesses occur in either the first month or beyond 6 months after delivery.

Pathogenesis and clinical features
Breast abscess is a common complication of lactational mastitis (See Box 1). Milk is an ideal culture medium and an infection develops readily if the engorged breast is not adequately and frequently emptied.

The usual route of transmission of bacteria is postulated to be direct contact, with entry of bacteria via the nipple into the duct system. The bacteria may enter via cracked nipples in the first month. Beyond 6 months of age, trauma to the nipple by the baby’s teeth has a role to play in the increased risk. Occasionally, it may also be haematogenous, with bacterial seeding from an infection elsewhere in the body.

Breast abscesses are most commonly seen in the upper outer quadrant of the breast due to increased amount of parenchyma in this quadrant. Infection starts in one segment of the breast and presents with a painful, erythematous, tender and fluctuant swelling of the breast. This may be associated with systemic symptoms including fever and malaise.

Investigations
Lactational breast abscess is essentially a diagnosis made on clinical examination. However, an ultrasound of the breast may be done in clinically equivocal cases, to identify possible multiloculated abscesses and to guide/assess drainage of the abscess cavity.

Management
Management of lactational breast abscess includes general supportive measures and specific measures.

General measures
General supportive measures include analgesics for pain relief, antipyretics and adequate breast support. Garments for adequate breast support helps in relaxing the stretched Coopers ligaments, reducing painful movement of the breast and reducing edema. Recent studies exploring the ancient practice of using cold cabbage leaves for breast abscess have found that cabbage leaves, cold or not, help in reducing breast engorgement and hastening recovery.

Specific measures
The two fundamental cornerstones of specific measures include infection control and breast emptying.

Infection control
Antibiotics: Infection control includes administration of appropriate antibiotics and adequate drainage of pus. Empiric choice of antibiotics should always be directed toward Staphylococcal species (Cap. Cloxacillin 500mg four times daily) as evidence suggests its predominance in lactational breast abscesses. However, the antibiotic should be tailored based on the culture susceptibility report and should be continued for a period of 10 days.

Abscess drainage: Various options exist for providing adequate drainage – incision and drainage, initial antibiotic therapy with repeated needle aspiration of the abscess, ultrasound guided vacuum-assisted biopsy.

a) Incision and drainage - In traditional teaching, incision and drainage of the abscess was recommended as the primary modality of treatment. However, recent studies show that this modality is associated with prolonged recovery time, a need for repeated dressings, poor cosmetic outcomes, difficulty in breast feeding and the possibility of a “milk fistula”. Thus, it is now indicated only in large breast abscesses (>5cm), abscesses with thinning or necrosis of overlying skin, failure of needle aspiration therapy and recurrent abscesses.
b) **Needle aspiration with concurrent antibiotic therapy** – This is currently recommended as the first line therapy for the treatment of lactational breast abscesses. It is associated with faster time to healing, better cosmetic outcome and patient satisfaction. However, it is associated with a failure rate of up to 15%.14

c) **Ultrasound guided Vacuum assisted biopsy(VAB)** - is an emerging modality of treatment for lactational breast abscesses. In comparison to needle aspiration, VAB was found to have similar outcomes with shorter healing times. In addition, the VAB needle was found to be better for large, multiloculated abscesses with thick pus and abscesses which refill rapidly, owing to its

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**Box 1: LACTATIONAL MASTITIS**

Lactational mastitis is an inflammation of the breast tissue secondary to stasis of milk and bacterial colonisation. It's most common in breastfeeding women, usually within the first three months post partum. The breast becomes swollen, hard and painful and may be associated with systemic symptoms like fever and body ache. Breast abscess is often a complication of mastitis. Hence prevention of mastitis through simple measures is important.

**Practical tips to prevent mastitis:**
- Encourage the mother to feed frequently, particularly when the breasts feel overfull.
- Empty the breast after each feed.
- Ensure your baby is well attached to the breast during feeds. During every feed the mother must be taught to look for signs of good attachment such as: the baby’s mouth must be wide open, areola must be inside the baby’s mouth, baby’s lower lip should be turned out and baby’s chin should touch the breast. Good latching is mandatory to prevent and avoid sore nipples and to manage nipple pain. Encourage the mother to reposition the baby correctly on her breast. A comfortable nursing position for both mother and baby helps in good attachment. Currently nursing pillows are available for this purpose.
- Allow the baby time to finish the feeds – most babies release the breast when they’ve finished feeding; try not to remove the baby off the breast unless they're finished.
- Avoid suddenly going longer between feeds – if possible, cut down gradually.
- Care of nipple – Sore nipples and dry, cracked nipples predispose to mastitis. Dryness of the nipple can be managed by application of expressed breast milk on the nipple to keep the nipple soft and supple.
- avoid pressure on breasts from tight clothing, including bras.

**Treatment of mastitis:** Mastitis can usually be easily treated and most women make a full recovery very quickly. The main principles of treatment of mastitis are:

1. **Supportive counseling** – counseling the mother regarding the prevention of mastitis is helpful, however, this has to be repeated to be effective.
2. **Effective and frequent milk removal** - Feed more frequently than usual, express any remaining milk after a feed and express milk between feeds. Breastfeeding should be continued when you have mastitis, even if you have an infection, won't harm your baby and can help improve your symptoms.
3. **Symptomatic treatment** – Analgesics, anti-pyretics, dressings that reduce oedema (e.g. Mg So4 dressing) and breast support.
4. **Antibiotic therapy** – Infected mastitis may benefit from antibiotics especially if the organism is identified. Evidence for its effectiveness is lacking though. A Cochrane review showed that there was insufficient evidence to recommend antibiotics in Lactational mastitis. However, antibiotics did lead to a more rapid relief from symptoms.
larger bore and the negative pressure generated by the machine.3,7

Breast emptying

Lactational breast abscess occurs due to stasis of milk. Hence emptying of the breast is an important component of the management of lactation breast abscess. This allows for proper drainage of ducto-lobular system of the breast. Breast emptying may be done either by suckling of the infant or by manual expression of breast milk.3,6

Continuing breast feeding does not present any risk to the baby as mother’s milk provides immunological protection by the oral supply of specific antibody and immunocompetent cells acting against mother’s causative microbiologic agent. Suckling may be difficult following surgical drainage of an abscess due to pain, presence of a drain or dressing over the affected site. In these situations, the mother should be encouraged to feed from the unaffected side and the affected side should be emptied mechanically.

Recommendations for surgical management – Our practice in CMC Vellore:(Fig. 3)

- If there is necrosis of the overlying skin or if there is imminent skin rupture, we prefer incision and drainage as the intervention of choice.
- If the abscess has not caused skin necrosis, we offer the patient ultrasound guided needle aspiration along with a course of antibiotics. The patient is advised to review after three to five days to re-evaluate her symptoms and re-screen the breast with an ultrasound. Residual collection on the ultrasound may require a re-aspiration.

A precondition for conservative treatment with aspiration is a patient who is well-informed about the problem and who is willing for regular follow-up and repeated aspirations if required. If the patient is unlikely to follow up (due to logistical or any other reasons), the safer option would be to do an incision and drainage at the first sepsis.
Conclusions

Management of lactational breast abscess includes general supportive measures and specific measures. The two fundamental cornerstones of specific measures include infection control and breast emptying. Preventive measures and supportive treatment during a mastitis episode can prevent progression to an abscess.

If the overlaying skin is normal, ultrasound guided need aspiration is the surgical intervention of choice. Repeated aspirations may be needed. If the overlaying skin is thinned out or necrotic, incision and drainage is advisable.

References
15. ShayanazJahanaf, Chirk Jenn Ng, Cheong LiengTeng. Antibiotics for mastitis in breastfeeding women. Cochrane Database of Systematic Reviews. Published Online: 28 Feb 2013

Box 2: Vacuum assisted biopsy (VAB)

Vacuum-assisted breast biopsy is a relatively new tissue sampling technique used primarily for obtaining tissue samples from malignant breast tumours that can be localized using ultrasound. Increasingly, it is being used for biopsy and treatment of benign breast lumps and also for the aspiration of multiloculated breast abscesses.

The technique uses a hollow biopsy probe to remove samples of breast tissue through a single, small skin incision under imaging guidance (ultrasound). The lesion is localized and once the probe has been positioned, a vacuum pulls the breast tissue through an opening in the side of the probe. A rotating blade then separates the tissue from the surrounding breast tissue and places it in a sampling chamber of the device.

Advantages of VAB
1. VAB allows removal of more tissue through a single incision when compared to a traditional core biopsy. It is also a less invasive procedure than an open surgical biopsy.
2. This technique does not have the ‘forward throw’ of the needle (as in a standard core biopsy). This reduces the risk of touching sensitive structures. It may therefore be used for lesions close to the nipple, the thoracic wall, the skin, or the axillary region.
3. There is less epithelial displacement of a malignant tissue when compared to core biopsy and open biopsy.

Limitation: It is expensive.

Image source: http://medicaldialogues.in
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### Investigations

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**General measures**

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Issue in focus – LACTATIONAL BREAST ABSCESS

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