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# Lactational mastitis and breast abscess

## Diagnosis and management in general practice

### Background

Lactational mastitis is common, affecting one in 5 breastfeeding women. As well as causing significant discomfort, it is a frequent reason for women to stop breastfeeding.

### Objective

This article outlines an evidence based approach to the diagnosis and management of lactational breast infections in general practice.

### Discussion

Lactational mastitis is usually bacterial in aetiology and can generally be effectively managed with oral antibiotics. Infections that do not improve rapidly require further investigation for breast abscess and nonlactational causes of inflammation, including the rare cause of inflammatory breast cancer. In addition to antibiotics, management of lactational breast infections include symptomatic treatment, assessment of the infant's attachment to the breast, and reassurance, emotional support, education and support for ongoing breastfeeding.

**Keywords:** mastitis; breast abscess; lactation; general practice

### Epidemiology

Lactational mastitis affects approximately 20% of breastfeeding Australian women in the first 6 months postpartum.<sup>7</sup> It is most common in the first 6 weeks of breastfeeding<sup>1,5</sup> with the highest incidence occurring during the second and third weeks.<sup>6,9</sup> It is initially localised to one segment of the breast, but untreated can spread to affect the whole breast.<sup>5</sup> Around 3% of lactating women with mastitis will develop a breast abscess,<sup>1,10</sup> although an incidence of up to 11% has been reported.<sup>10</sup>

### Risk factors and prevention

The main risk factor for mastitis is breastfeeding during the early postpartum period.<sup>6</sup> Milk stasis and cracked nipples may contribute to the development of mastitis,<sup>1,3-6</sup> although the evidence for this is inconclusive.<sup>1</sup> Other implicated factors include previous mastitis,<sup>6</sup> maternal fatigue<sup>1,3</sup> and primiparity.<sup>9</sup> Reported risk factors for breast abscess include a past history of mastitis, maternal age over 30 years and gestational age greater than 41 weeks.<sup>5</sup>

There are no interventions that have been consistently proven to prevent mastitis. Encouraging emptying of milk from the breast is often recommended, however, evidence for its efficacy is inconclusive.<sup>6</sup> The most commonly practised intervention is the prevention and management of damaged nipples; in some settings this may reduce the risk of developing mastitis.<sup>3</sup> A Cochrane review found that anti-secretory factor cereal, mupirocin ointment, fusidic acid ointment and breastfeeding advice had no significant impact on the initiation or duration of breastfeeding or the incidence of symptoms of mastitis.<sup>11</sup>

### Microbiology

The most common causative organism for mastitis is *Staphylococcus aureus*.<sup>8,10</sup> Strains of methicillin

Lactational mastitis is an inflammatory process affecting the lactating breast.<sup>1-4</sup> It is usually bacterial in aetiology. It affects the breast parenchyma, causing localised pain, tenderness, erythema and engorgement,<sup>3-6</sup> and may be accompanied by systemic features such as fever, malaise, rigors, nausea and vomiting.<sup>4-8</sup>

A breast abscess, a localised collection in the breast tissue that results in a painful breast lump, is potentially secondary to bacterial mastitis that is rapidly progressive or is not managed expeditiously. Effective management is essential to control the discomfort and reduce the likelihood of discontinuation of breastfeeding, which may occur as a consequence of mastitis.<sup>6,7</sup> Mastitis and breast abscess may develop in women who are not breastfeeding; this article will focus on lactational breast infections.

resistant *S. aureus* (MRSA) have been identified, particularly in hospital acquired infections. Other organisms include streptococci and *S. epidermidis*. Patients who suffer with recurrent breast abscesses have a higher incidence of mixed flora, including anaerobic organisms.<sup>5</sup> On rare occasions *Candida albicans*, not an uncommon cause of nipple pain in lactating women,<sup>9</sup> can cause parenchymal infection.<sup>12</sup>

## Clinical assessment

### History and physical examination

Breast pain is the primary symptom of mastitis.<sup>7</sup> High fever is common, along with other generalised flu-like symptoms including malaise, lethargy, myalgia, sweating, headache, sometimes nausea and vomiting and occasionally rigors.<sup>1,5-7</sup>

Clinical examination of the breast should focus on looking for signs of inflammation (erythema, localised tenderness, heat, engorgement and swelling) (Figure 1) and signs of nipple damage. General observations including temperature, pulse and blood pressure are important to exclude sepsis, which requires hospital admission.

Breast abscess is characterised by symptoms similar to mastitis, with the additional sign of a discrete tender lump, which may be tense or fluctuant. The mass may have overlying skin necrosis suggesting that the abscess is 'pointing' (abscess is sitting close to the surface of the skin). Less frequently, breast abscess presents as a non-tender lump without erythema ('cold abscess').

### Examination of the infant and attachment to the breast

The infant should be examined to ensure adequate growth and hydration. Examination of the baby's mouth can exclude candida infection (white film adherent to the buccal mucosa),<sup>2</sup> or anatomical conditions such as cleft palate or tongue-tie which may interfere with attachment.<sup>6,9</sup> Observation of breastfeeding can determine if there are difficulties with attachment to the breast. A lactation consultant may be helpful.

## Investigation

Mastitis is a clinical diagnosis and investigations are not indicated in the initial assessment.<sup>1</sup>

Breast infection that does not improve with a course of appropriate antibiotics should be investigated with breast ultrasound.<sup>5</sup> This

may distinguish inflammation (mastitis) from a collection of pus in the breast (abscess) (Figure 2). Ultrasound also allows guided aspiration of any abscess providing drainage and fluid for microscopy and culture. A malignant lesion may mimic an inflammatory collection on ultrasound. Hence, following aspiration, if a significant

lump remains, no fluid is obtained or fluid is bloodstained rather than purulent, then core biopsy is recommended to exclude breast cancer.<sup>13</sup> Mammography is not a first line investigation in lactating women but is indicated if there are clinical, sonographic or biopsy features suspicious for malignancy.<sup>13</sup>



Figure 1. Mastitis is characterised by a tender area of localised erythema  
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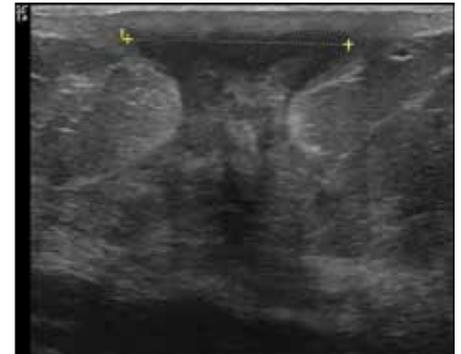


Figure 2. Ultrasound of a breast abscess. Image shows a heterogeneous area which has the typical appearance of a breast abscess

**Table 1. Common breast problems in the puerperium**

### Benign conditions

#### Conditions related to lactation

- Engorgement
- Breast infection (mastitis or abscess)
  - bacterial infection – usually *S. aureus*
  - fungal infection (*C. albicans*; uncommon)
  - viral (herpes; very rare)
- Galactocoele (noninfected milk-filled cyst)
- Nipple pain
  - cracked/damaged nipples
  - incorrect attachment: misalignment of mother's nipple and baby's mouth
  - infant causes: poor sucking, tongue-tie, cleft palate
  - incorrect use of breast pump
  - *C. albicans* nipple infection

#### Other conditions

- Benign breast disease: fibroadenoma, fibrocystic change, cyst, benign phyllodes tumour
- Musculoskeletal conditions
  - tender costochondral junctions (Tietze syndrome)
  - sleeping or breastfeeding in an uncomfortable position
- Raynaud disease of the nipple

### Malignant causes

- Breast cancer
  - lobular and ductal carcinoma
  - inflammatory breast cancer (may mimic bacterial mastitis)
  - malignant phyllodes tumour

## Differential diagnosis

Other less common breast problems may present in the puerperium (Table 1). These differentials should be kept in mind, particularly if the clinical features are not of a classic nature.

Inflammatory breast cancer is a rare presentation but should be considered if mastitis is not responding to treatment<sup>1,2</sup> (Figure 3). Nonbreast causes of fever (such as urinary tract infection or endometritis, ie. following complications of Caesarean delivery) should be considered where the presentation is with fever rather than breast pain and erythema.<sup>2</sup>

## Management

The key components of management are symptom control, oral antibiotics and encouraging continued milk flow from the affected breast (Table 2). The patient should be reassured that antibiotics and simple analgesics will not harm her baby. Women should be encouraged to continue breastfeeding, to rest whenever possible and to drink plenty of fluids. Close monitoring is required to ensure that the infection resolves.

### Management of symptoms

#### Simple analgesia

Regular oral paracetamol is first line treatment. Nonsteroidal anti-inflammatory drugs can be added. Both are safe in breastfeeding.<sup>1,2</sup>

#### Hot and cold packs to breast

Evidence is inconsistent, however, breastfeeding authorities recommend:

- gentle massage and warm compress prior to feeding (may encourage milk flow)<sup>1,4,6</sup>



Figure 3. Inflammatory breast cancer may mimic mastitis. Classically it presents with a poorly defined clinical mass with erythema, skin thickening and peau d'orange ('orange peel' appearance to the skin)  
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Table 2. Management approach to breast infections

#### Clinical assessment

- Localised inflammatory features (pain, erythema, heat, swelling)
- Systemic features (fever, malaise, myalgia)
- Assessment of infant hydration and weight

#### Symptom management

- Simple analgesia
- Hot packs before feeding
- Cold packs after feeding

#### Antibiotic therapy

- Flucloxacillin or dicloxacillin 500 mg qid for at least 5 days
- For abscess – guided by microbiological culture and sensitivity

#### Support continued breastfeeding

- Education and reassurance
- Regular and complete drainage of breast (use breast pump if needed)
- Observe feeding and attachment
- Referral to lactation consultant
- Referral to Australian Breastfeeding Association

#### Early and frequent review

- Review in 24–48 hours; investigate if not settling
- If not settling, ultrasound to look for breast abscess and rare causes of inflammation such as inflammatory breast cancer
- Aspiration of abscess collection
- Biopsy lesions suspicious for malignancy

#### Management of breast abscess if present

- Aspiration with antibiotic cover is a safe first line approach where specialist breast clinics or ultrasound guidance are available
- Incision and drainage if not settling or aspiration is unavailable
- Other management (as per mastitis)

#### Psychological support

- Reassurance and support
- Evaluation for depression
- Referral to Australian Breastfeeding Association

- application of cold packs after feeding (may help alleviate pain).<sup>1,4,9</sup>

Cabbage leaves have demonstrated inconsistent effects; producing postfeeding symptom relief similar to-ice packs in some studies,<sup>5</sup> while demonstrating no effect in others.<sup>9</sup>

### Antibiotic therapy

Adequate antibiotic therapy is essential. Where possible this should be guided by microbiological culture and sensitivity (such as when fluid is aspirated from an abscess).<sup>14</sup> As *S. aureus* is the common causative organism, antibiotic therapy of choice at least 5 days of flucloxacillin or dicloxacillin in a dose of 500 mg four times per day.<sup>15</sup> Due to antibiotic packaging in Australia this may require two consecutive 6 day courses of antibiotics. For patients allergic to penicillin,

options include cephalexin or clindamycin.<sup>15</sup> Alternatives used overseas include amoxicillin/clavulanic acid and macrolides (erythromycin, clarithromycin).<sup>5</sup> Avoid tetracycline, ciprofloxacin and chloramphenicol as they are unsafe for use in lactating women.<sup>5</sup> Hospitalisation for intravenous antibiotics is rarely required but is indicated if there are systemic signs of sepsis.<sup>5,15</sup> *Candida* is a rare cause of mastitis and is characterised by the presence of intense pain, particularly noted after the breast empties, and the absence of breast erythema.<sup>2,9,12</sup>

### Support for continued breastfeeding

The aim of therapy is to continue breastfeeding and to empty the breast as fully as possible with each feed. This relieves symptoms and reduces

the likelihood of progression to breast abscess. There is no evidence of risk of harm to a healthy infant feeding from an infected breast.<sup>1,4,6</sup> If attachment is painful, a breast pump can be used to drain the breast until the infection settles enough to allow the baby to feed from the breast (Figure 4). Infant attachment to the breast should be checked and corrected. Referral to a lactation consultant may be helpful. The Australian Breastfeeding Association is also useful for mother-to-mother support (see *Resource*).

Despite support and encouragement, some women choose to cease breastfeeding. These women should be supported in their decision and encouraged to wean gradually, preferably after the infection has resolved. Sudden cessation of breastfeeding may exacerbate the infection, increasing the risk of abscess formation.<sup>1,4</sup> Medication to suppress milk production is not recommended in this situation.

### Early and frequent review

Women with mastitis should be reviewed within 24–48 hours to ensure that the inflammation is settling. If minimal improvement occurs, breast ultrasound is indicated (Figure 2). Ultrasound helps detect any abscess and can guide aspiration.<sup>1,4,5</sup> Ultrasound can identify or exclude other causes of inflammatory breast signs such as inflammatory breast cancer and can facilitate ultrasound guided biopsy if indicated by the imaging findings.



Figure 4. Continued breastfeeding is encouraged for women with mastitis and/or breast abscess. Emptying of the breast can be helped by the use of a breast pump  
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### Identification and drainage of breast abscess

Lactating women with a breast abscess often present late when the abscess is established and of large volume.<sup>5</sup> The traditional management of breast abscess was surgical incision and drainage under general anaesthetic. This has been largely replaced by percutaneous (outpatient) aspiration under local anaesthetic where specialist breast clinics or radiology services are available.

Surgery can usually be avoided and outcomes are better for outpatient clinic management than surgical management (including reduced pain and scarring and increased likelihood of continued breastfeeding).<sup>5,10,14</sup> Access to specialist breast clinics may be limited in some areas, particularly in rural areas, so surgical incision and drainage may be the treatment of choice in this setting.

### Psychological issues

As well as the severe physical pain, mastitis is often associated with complex emotions. It occurs at a time of great physical, hormonal and lifestyle change.<sup>7</sup> Depression, distress, anxiety, tearfulness, helplessness and concerns about milk supply have been associated with episodes of mastitis.<sup>7</sup> By acknowledging the difficulties involved in breastfeeding, general practitioners can help mothers while providing support, encouragement and reassurance that their milk is extremely valuable to the health of their child, and is safe for their baby when they are taking appropriate antibiotics. The Australian Breastfeeding Association is an excellent source of free information and support and women should be encouraged to use this resource.

### Summary

Lactational breast infections are common and require prompt and effective management to minimise associated morbidity. Management of mastitis includes antibiotic therapy and encouragement of milk flow from the affected breast, ideally with ongoing breastfeeding. Close monitoring is important to detect poor responders, trigger investigation and identify breast abscess to allow urgent referral for specialist management.

### Resources

The Australian Breastfeeding Association provides advice for health professionals and support for

breastfeeding women including telephone and email counselling and helpful resources:

- Breastfeeding Helpline 1800 mum 2 mum (1800 686 286)
- www.breastfeeding.asn.au
- Lactation Resource Centre www.lrc.asn.au.

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