

Mastitis

Fact sheet for Health Care Professionals

Mastitis is a tender, hot, swollen, wedge shaped area of breast associated with pyrexia, flu-like aching and systemic illness. However, 'mastitis literally means, and is defined herein, as an inflammation of the breast, this inflammation may or may not involve a bacterial infection' (Amir and the Academy of Breastfeeding Medicine Protocol Committee, 2014, p.1).

Mastitis can be non infective or infective (Wambach and Riordan, 2016). 'There appears to be a continuum from engorgement to non infective mastitis to infective mastitis to breast abscess' (Amir *et al*, 2014, p.1).

Non infective and Infective Mastitis

Non infective mastitis where the symptoms of heat, redness and soreness in an area of the breast present, may arise from milk stasis due to poor removal, sudden changes in the baby's feeding pattern, trauma and from pressure of clothing or pressure from holding the breast resulting in a plugged or blocked duct (Wambach and Riordan, 2016). The onset is gradual and unilateral, and the mother feels generally well (Lawrence and Lawrence, 2016).

Infective mastitis is caused by infections either in the outer skin of the breast or within the glandular tissue of the breast. If left untreated this may develop to the formation of a breast abscess (Wambach and Riordan, 2016).

The incidence of mastitis ranges from 3-20% as estimated by prospective studies depending on the definition and length of postnatal follow up (Lawrence and Lawrence, 2016). The highest occurrence is generally 2-3 weeks after the birth of the baby however, mastitis can occur at any stage during the course of lactation (Walker, 2016). The most common causative organism is *Staphylococcus aureus* however other organisms may also be involved.

The infection is usually unilateral and located in one area of the breast, often the upper outer quadrant because much of the breast tissue is located there. Mastitis on occasion can involve both breasts and could occupy a larger part of the breast (Wambach and Riordan, 2016).

Risk factors

There are many risk factors that may predispose a mother to developing mastitis these according to (Wilson-Clay and Hoover 2013, Wambach and Riordan 2016, Amir *et al* 2014, and Walker 2016) include

- Stress and fatigue
- Poor positioning and attachment of baby to the breast
- Damaged nipples and nipple pain – where there may be breakdown in the dermis which allows a pathway into the breast tissue

- Plugged or blocked ducts
- Ample milk supply - an abundant milk supply may mean more blocked ducts and subsequent mastitis than a mother with a more regular milk volume
- Engorgement or milk stasis - a decrease in the number of breast feedings presents potential for both. 'Engorgement may occur between day 3 and 10. Sometimes there is too much of the extra fluid (oedema) or more milk is made than needed. One or both breast can get overfull, tight, shiny skin, warm, hard and painful, and the nipple may be pushed flat by the engorgement and feel firm' (BFHI link, issue 53)
<http://www.babyfriendly.ie/images/BFHI%20Link%20Issue%2053%20Dec%202014%20Overfull.pdf>
- Use of supplements, bottles or pacifiers
- Too rapid weaning
- Uneven breast drainage
- Distractions that prevent or delay the baby or mother breastfeeding
- Illness in mother or baby
- Sustained pressure on the breast e.g. ill fitting bra, breast shells worn for too long in a bra with too small cups
- Sling with straps that press into the breast for too long
- Stomach sleeping
- History of mastitis with a previous baby
- Breast trauma
- Type 1 diabetics have an increased incidence of non infective mastitis
- Nipple piercings- scar tissue could interfere with milk transfer and contribute to blocked ducts and mastitis

Diagnosis

- A detailed history is required. This involves a breastfeeding history, pain history, mothers own history and baby's history. For further information please see [http://www.bfmed.org/Media/Files/Protocols/persistent%20pain2016%20\(2\).pdf](http://www.bfmed.org/Media/Files/Protocols/persistent%20pain2016%20(2).pdf)
- The mother's general appearance, and nipples and breast need to be examined. When inspecting the mother's breast and nipples this is done with her permission and ensure the mother is treated with dignity and respect at all times.

Amir *et al* (2014, p1) citing the WHO (2000) states

'Laboratory investigation (breastmilk culture and sensitivity) are not routinely performed unless

- There is no response to antibiotics within 2 days
- The mastitis recurs
- It is hospital-acquired mastitis
- The patient is allergic to usual therapeutic antibiotics
- In severe or unusual cases'
- There is a suspicion of a breast abscess which may require surgical intervention

'Breastmilk culture may be obtained by collecting a handexpressed midstream clean-catch sample into a sterile urine container (i.e. a small quantity of the initially expressed milk is discarded to avoid contamination of the sample with skin flora, and subsequent milk is expressed into the sterile container, taking care not to touch the inside of the container). Cleansing the nipple prior to collection may further reduce skin contamination and minimise false-positive culture results. Greater symptomatology has been associated with higher bacterial counts and/or pathogenic bacteria' (Amir *et al*, 2014, p. 1&2).

Management

Optimal breastfeeding management is important to prevent the occurrence of both non infective and infective mastitis. The development of mastitis may be largely preventable through better patient education and practical training (Martic *et al*, 2012). Mothers need to be supported to correctly position and attach their baby to the breast and act on the early feeding cues. It is the role of the health care professional to support the breastfeeding mother or if necessary refer the mother to skilled breastfeeding support. Good antenatal breastfeeding education and proper positioning and attachment in the first week after birth would assist in the prevention of nipple damage and subsequent infection (Kent *et al*, 2015).

In the case of non infective mastitis where the symptoms of heat, redness and soreness in an area of the breast presents, which may result in a plugged or blocked duct, the onset is gradual, unilateral, and the mother feels generally well (Lawrence and Lawrence, 2016). Some of the treatment measures include

- Practice good hand hygiene
- Remove the source of pressure e.g. clothing or bra that is too tight
- Apply moist heat to the breast for 15-20 minutes before feeding
- Frequent and effective milk removal beginning if possible on the affected breast
- Gentle breast massage just behind the sore area, while feeding
- Ensure adequate fluid intake by the mother
- Vary feeding positions by positioning the baby with his chin facing the blockage of the affected breast which will promote better drainage (Huggins, 2010)
- 'If this doesn't work, get into the shower. With your breast well soaped, apply steady but gentle pressure behind the plugged area, pressing toward the nipple'(Huggins, 2010,p. 162)
- 'Any breast lump that does not get significantly smaller within a week, should be examined by a doctor'(Huggins, 2010,p. 161)
- 'A successful multimodal approach to the treatment of blocked milk ducts includes the use of heat, ultrasound, specific manual techniques and patient education' (Walker, 2016, p. 606).
- 'One tablespoon per day of oral granular Lecithin has been reported to relieve plugged ducts and to prevent their recurrence' (Walker, 2016, p. 606 and Lawrence and Lawrence, 2016).
- ' Be alert for signs of a developing breast infection- fever, chills and achiness' (Huggins, 2010,p. 162)

In the case of Infective Mastitis

- It is important that new parents and all health care professionals involved in their care, practice good hand hygiene as the often causative organism of mastitis, *Staphylococcus aureus*, is a common commensal which is frequently present in hospitals and communities. Also if a breast pump is being used then appropriate care of the attachments and pump, as per hospital or home use guidelines is essential (Amir *et al*, 2014).
- Frequent and effective milk removal is an important management strategy in a case of mastitis. If the mother can breastfeed her baby, she should continue to do so starting if possible on the affected breast. If pain interferes with the let down reflex she can begin on the unaffected breast and change to the affected breast as soon as the breast milk starts releasing (Amir *et al*, 2014).
- Removing residual breastmilk from the affected breast to assist in resolving symptoms can be achieved by expressing breastmilk by hand or by pump after the feed (Wilson-Clay and Hoover, 2013).
- If breastfeeding is too painful for the mother she will need to use a hospital grade electric breastpump to ensure frequent and effective milk removal (Wilson-Clay and Hoover, 2013). It may help if the mother begins pumping on a low setting and the setting adjusted upwards according as the mother can tolerate same.
- The mother may get relief from use of a non steroidal anti-inflammatory drug such as Ibuprofen if she has a low grade temperature and a painful and aching breast (Walker, 2016).
- Varying feeding positions by positioning the baby with his chin facing the blockage of the affected breast will assist also in effective milk removal (Amir *et al*, 2014)
- 'Breast massage with an edible oil or non toxic lubricant on the fingers' (Amir *et al*, 2014, p. 240) will also help with milk elimination. Massage should be directed from the blockage moving towards the nipple. Wiessenger *et al* (2010, p.399) described the 'bag of marbles massage'. This involves encouraging the mother to hold her breast with interlaced fingers and with gentle kneading motion shift the marbles all around the inside of the 'bag' or breast. This should be performed several times a day. Witt *et al*, (2016) in a first study of its kind concluded Therapeutic Breast Massage in lactation (TBML) was helpful in reducing breast pain associated with milk stasis.
- 'Application of heat e.g. a shower or hot pack to the breast prior to feeding may help with let down and milk flow' and 'after the breastfeed or after milk is expressed from the breasts cold packs can be applied to the breast in order to reduce pain and oedema'(Amir *et al*, 2014, p.240).
- A mother with mastitis should be greatly encouraged and supported to rest and it should be ensured she has adequate fluids and nutrition. It would be really important for the mother to receive as much support and help as possible from her partner and family. Wiessenger *et al* (2010.p.399) in referring to the importance of support for a mother with mastitis suggests the following 'Empty breast and lots of rest' and 'Don't stand if you can sit, don't sit if you can lie, don't try to stay awake if you can sleep'.

- After the resolution of mastitis the affected breast may produce less milk temporarily than before the infection. The mother can increase her milk supply by regular, uninterrupted breastfeeding and contact with her baby (Mohrbacher, 2010).

Antibiotic Treatment for Infective Mastitis

The following is the treatment for Infective Mastitis as recommended by Medication Guidelines for Obstetrics and Gynaecology - Antimicrobial Prescribing Guidelines, (Health Service Executive/Clinical Programme in Obstetrics and Gynaecology, 2017, p. 17)

Postnatal Infection	No penicillin allergy	Non-immediate penicillin allergy	Severe or immediate penicillin allergy	Notes
Infective mastitis	Flucloxacillin 500mg -1g QDS PO	Cephalexin 500mg TDS PO	Clindamycin 300-450mg QDS PO	The woman should be encouraged to continue to breastfeed

Hospital admission with rooming in facilities for the baby may be considered if the mother is ill and requires intravenous antibiotics and fluids (Amir *et al*, 2014). ‘Many authorities recommend a 10-14 day course of antibiotics, however this recommendation has not been subjected to controlled trials’ (Amir *et al*, 2014, p. 240).

Breast Abscess

‘A breast abscess is a walled - off, localised collection of pus that lacks an outlet for the material from the affected area. Once encapsulated it requires surgical drainage’ (Walker, 2016, p.613). ‘A breast abscess can be a complication of mastitis and is usually the result of delayed or inadequate treatment’ (Lawrence and Lawrence, 2016, p.573). Risk factors include previous episodes of mastitis, mothers who do not breastfeed on the affected breast where mastitis presents, or weaning from the breast too quickly (Walker, 2016). The incidence is between 3% (Amir *et al*, 2014) and 11% (Wilson-Clay and Hoover, 2013). Abscesses are more common in primiparous women, women aged > 30 years, and mothers who give birth post term (Wilson-Clay and Hoover, 2013).

Management

An abscess requires prompt medical treatment and a diagnostic breast ultrasound will identify existence of a collection of fluid (Wilson-Clay and Hoover, 2013).

- The collection can be drained by needle aspiration under ultrasound guidance and often repeated aspirations of the abscess may be necessary (Amir *et al*, 2014). A sample should be sent for culture and sensitivity. Empirical treatment should be in line with local guidelines. Consideration should be given to using antimicrobials to cover MRSA if there is a history of MRSA, repeated hospitalisation or susceptibility results confirm the presence of MRSA.

- Surgical drainage may be necessary if there is a large or multiple abscess presence (Amir *et al*, 2014)
- After the abscess drainage the mother should be prescribed antibiotics. For severe infections and where there is an abscess present, the woman should be commenced on IV treatment.

The following is the recommended antibiotics for Severe Mastitis with suspected Breast Abscess as recommended by Medication Guidelines for Obstetrics and Gynaecology - Antimicrobial Prescribing Guidelines, (HSE /Clinical Programme in Obstetrics and Gynaecology, 2017, p. 17)

Postnatal Infection	No penicillin allergy	Non-immediate penicillin allergy	Severe or immediate penicillin allergy	Notes
Severe mastitis with suspected breast abscess	Flucloxacillin 1-2g QDS IV AND Clindamycin 450mg QDS PO	Option 1: Cefuroxime 1.5g QDS IV AND Clindamycin 450mg QDS PO Option 2: Clindamycin 900mg TDS IV	Clindamycin 900mg TDS IV For women with known clindamycin resistant S.aureus or if the woman is systemically unwell consider adding Vancomycin 15mg/kg BD IV (max 2g/dose)	If the woman is colonised with MRSA or thought to be at high risk (e.g. healthcare professional), then discuss with Microbiology

- Breastfeeding from the unaffected breast should continue and from the affected breast it should be encouraged as it promotes the drainage and resolution of infection of this area (Walker, 2016). However 'the baby's mouth should not come in direct contact with purulent drainage or infected tissue' (Amir *et al*, 2014, p. 241). Hand washing and routine hygiene are really important. If breastfeeding is too painful for the mother she will need to use a hospital grade electric breastpump to ensure frequent and effective milk removal (Wilson-Clay and Hoover, 2013). When she feels comfortable to do so, she can recommence breastfeeding her baby.
- A breast abscess is a 'painful and disruptive outcome of mastitis' (Walker, 2016, p. 614) and the experience can be overwhelming for mothers, babies and the family. If a mother wishes to discontinue breastfeeding she needs to be supported to do this gradually and hence avoid further challenges.

Breastfeeding Support

It is important to receive good support when a mother breastfeeds. In addition to the care of the medical team, the role of breastfeeding support is crucial in helping a mother with a diagnosis of

mastitis. There is a wide range of breastfeeding support available in Ireland offered by Public Health Nurses, voluntary groups such as La Leche League, Cuidiu, Friends of Breastfeeding, Hospital clinics and International Board Certified Lactation Consultant (IBCLCs). The breastfeeding supporter can help identify issues and make a plan with parents for improving breastfeeding in conjunction with the health care team. Links to nationwide support include:

Nationwide database of hospital, public health and voluntary breastfeeding support

<https://www.breastfeeding.ie/Support-search/>

To find International Board Certified Lactation Consultants (IBCLC)

<http://www.alcireland.ie/find-a-consultant/>

The National Medicines Information Centre (NMIC) aims to promote the safe, effective and efficient use of medicines. This is undertaken through their clinical enquiry answering service, publication of information outputs and education.

Evidence-based information is provided to healthcare professionals on a range of topics including:

- Indications, contraindications and dosage for specific drugs
- Drug interactions and adverse effects
- Drug use in pregnancy, breastfeeding, liver and renal impairment
- Identification of medicines
- Information on sourcing of medicines

<http://www.stjames.ie/nmic/index.html>

The following is a link to the NMIC Breastfeeding bulletin

<http://www.stjames.ie/GPsHealthcareProfessionals/Newsletters/NMICBulletins/NMICBulletins2014/NMIC%20June%202014%20-%20MEDICATION%20USE%20IN%20BREASTFEEDING%20WOMEN.pdf>

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