LACTATION CHALLENGES

FACT SHEET: ENGORGEMENT, DUCTAL NARROWING, MASTITIS AND ABSCESS

Engorgement

- Normal for breasts to feel warm, heavy and tender, when breast milk comes in, between days 3-5
- Encourage unlimited skin to skin contact, responsive feeding, in laid back position at least 10-12 times in 24 hours
- Encourage breast seeking behaviors through unlimited skin to skin contact
- Encourage hand expressing technique and reverse pressure softening to assist baby to latch
- Gentle breast compressions during feeding, may promote effective milk transfer by the baby
- Avoid formula which replaces breastfeeds, unless medically indicated
- If wearing a bra (non-wired, non-padded), ensure it is fitting appropriately and not too tight
- Drink to thirst, to avoid over hydration
- Avoid use of soother, which may replace breastfeeds, until breastfeeding is established
- Where engorgement is a challenge:
  - Apply ice packs 1-2 hourly and after a feed for 10 minutes.
  - If needed and where no contraindication exists, take pain-relief and non-steroidal anti-inflammatory drugs (NSAIDs) regularly. These agents can be alternated
  - Avoid excessive heat, deep tissue massage this may cause further trauma to the breast gland

Ductal narrowing

- Inflammation of the breast can result in narrowing of milk ducts, causing enlarged sore breasts, hot to touch, +/- redness to the breast, and low grade temps (38.3°C)
- Encourage all advice above for engorgement for physiological management
- Where a breast pump is used (e.g. baby is unable to latch), avoid overstimulation beyond baby's physiological need. Choose correct flange size and suction pressure on the breast pump
- Encourage mother to contact local breastfeeding support /refer to skilled lactation support

Mastitis

- Despite following advice above, if no improvement or worsening of symptoms or sustained fever of >38.3°C, refer to GP
- Continue breastfeeding during mastitis if possible. If unable to feed directly from the breast, hand express or pump just enough to soften the breast to the point it usually feels after a feed
- Continue NSAIDs and paracetamol for pain regularly, as required
- Refer to skilled lactation support within public health nursing or maternity services
- If physiological management for 24hrs has proven ineffective, antibiotics is indicated
- For non-severe infections in the community setting refer to HSE Antibiotic Prescribing Guidelines for Treatment of Community Infections available on www.antibioticprescribing.ie or treat in line with local antimicrobial guidelines
- If symptoms not resolving within 48hrs on antibiotics, or for reoccurring episodes consider breastmilk sample for culturing
- The optimal length of therapy is not definite, treatment duration usually 5-10 days
- Avoid excessive heat to the breast, or soaking in warm water.

Abscess

- Refer to breast clinic to confirm diagnosis and for further management
- It is safe for a healthy baby to continue breastfeeding from the affected breast
- Discuss and support the mothers' goals and preferences for feeding
- Advise not to abruptly stop breastfeeding/expressing
- Refer to skilled breastfeeding support to manage milk supply and latching to a painful breast
- If too painful, advise mother to hand express or use a breast pump. Choose appropriate flange size, particularly if abscess/inflammation encroaches into the area where the flange covers

Acknowledgement: Summary adopted from Wexford Hospital

1.0 Engorgement while breastfeeding

It is normal for the breasts to feel warm, heavy and tender as milk continues to build over the first three to five days after birth. However, if the breasts feel hot, painful, hard and tight, this needs to be addressed in order to prevent future problems. Engorgement is common in the first week after birth, but can also happen at any time if the milk is not being removed effectively from the breasts.

Engorgement means that there is an excessive accumulation of blood, fluid +/- milk within the breast. With changing hormone levels after birth, breasts swell and enlarge as milk production increases. Extra blood and fluids are directed to the breasts to boost milk production. This causes congestion and swelling which will decrease as the body adjusts.



Fig 1. Engorgement, Day 7. © B. Wilson-Clay. Used with permission.

1.1 Prevent or minimise engorgement

Engorgement is managed by making sure that milk is removed efficiently from the breast, so it is not allowed to build up excessively. Mothers[1] vary in how engorged their breasts become in the weeks after birth. Some experience slight oedema, minimal enlargement and minimal tenderness, to extremely painful, marked over - distension and severe oedema. Breast pain and engorgement are common reasons for cessation of breastfeeding soon after birth.

It is important that engorgement is addressed quickly and effectively in order to prevent complications such as a reduced milk supply, narrowed ducts and mastitis.

1. Encourage breast seeking behaviour and feeding through unlimited skin to skin contact throughout the mother's breastfeeding journey.
2. Responsive[2] breastfeeding, at least 10–12 times in 24 hours, adapting a laid back breastfeeding position should be encouraged. One episode of feeding should take no longer than 40-45 minutes.
3. Learn to position baby for effective attachment and a deep latch – (tummy to tummy, head free to tilt back, chin to underside of the breast and comfortable).
4. If baby is sleepy after birth, encourage baby to breastfeed, and, if indicated, alternative feeding methods may be needed, e.g. administering a small volume of breast milk via dropper

[1] The HSE supports all parents who are breast/chest feeding; whilst acknowledging this, and for the purposes of this document, the terms breastfeeding and mother will be used throughout.

[2] Responsive breastfeeding – where a mother is responding to her baby's cues as well as her own desire to feed her baby. Crucially, feeding responsively recognises that feeds are not just for nutrition, but also for love, comfort and reassurance between baby and mother. Breastfeeds can be long or short and at varying times in the day or night, depending on why the mother and her baby have decided to feed. The term 'responsive breastfeeding' is more than "baby led" or "demand" feeding; and it encourages successful breastfeeding. It is a partnership between a mother and her baby, with the needs of the mother also being addressed in the relationship

Acknowledgement: Summary adopted from Wexford Hospital

(1-2mls syringe) to help baby's increased energy levels/allow baby to then latch and breastfeed.

5. Encourage mother to do therapeutic breast massage, referred to as 'breast gymnastics', which requires lifting and gently moving the breasts in various directions, often with circular movements using the whole of the hand or palm laid gently over the breast, as often as she wishes. Upper limb stretching movements may also help1[1].
6. If required and where no contraindication exists, take pain-relief and non-steroidal anti-inflammatory drugs (NSAIDs) regularly (E.g. paracetamol and ibuprofen) according to the manufacturer's or prescriber's instructions. These agents can be alternated.
7. If baby is unable to breastfeed, hand express as often as the baby would feed, i.e. 10-12 times in 24 hours until milk 'comes in'(which will wary depending on individual circumstances), then combine with using a hospital-grade electric breast pump.
   NOTE: hand expression is more effective at removing colostrum compared with the pump until the mother's milk comes in. Once milk comes in, the pump can then become effective when combined with hand expressing.
8. Encourage rest as much as possible between breastfeeds, keeping baby close and consider safety around bed sharing (where baby should sleep).
9. Drink to thirst. Over-hydration may, potentially, make the problem worse.
10. Avoid infant formula, which replaces breastfeeds, unless medically indicated.
11. Discourage use of a soother which may reduce the frequency of breastfeeding/mask a feeding cue, until breastfeeding is established (4-6 weeks).
12. If wearing a bra (non-wired, non-padded), ensure it is fitting appropriately and not too tight.

If engorgement is a challenge, the health care professional will advise steps 1-12 above and the following;

13. Apply cold packs to reduce inflammation and relieve pain[2]. Apply after a feed, or in between feeds, until some relief is gained. Apply for no more than 10 mins, and, if needed, at recurring intervals of 30 minutes. Apply a layer of fabric between the ice/cold compress to avoid "freezer burn".
14. Gently hand expressing some milk at the start of feeds to soften the breast tissue can help baby to attach - Use reverse pressure softening to soften the areola
15. Avoid excessive heat as this may cause inflammation and impede optimum milk flow.

NOTE: Gentle warmth (e.g. from a shower/warm face cloth) to the breast for a few minutes may provide comfort for some. Others may experience worsening of symptoms when excessive heat is applied. Encourage the mother to choose heat and /or cold depending on what feels most effective and soothing to the mother. In some cultures, using cold as a treatment after birth is considered inappropriate [3,22]

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16. Consider lymphatic drainage[4] to help reduce congestion and for comfort. This involves very gentle stroking movements up towards the armpit, sternum or clavicle, for no more than 12-15 repetitions. The pressure should be similar to the pressure you would use stroking the baby's face. Avoid deep massage, as this may cause harm to the breast gland (Fig 2).

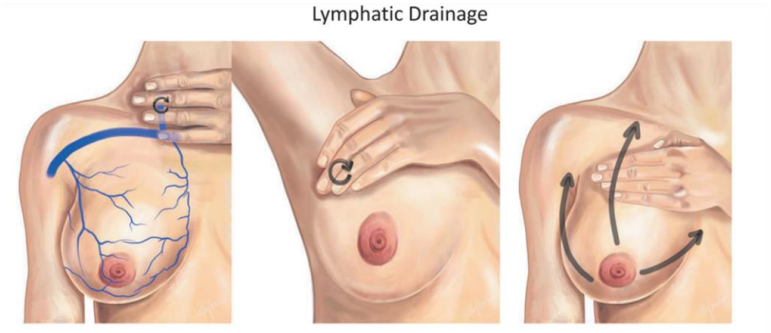


Fig 2 – Therapeutic breast massage to encourage lymphatic drainage

(Source: Academy of Breastfeeding Medicine; Clinical Protocol #36: The Mastitis Spectrum, Revised 2022)

2.0 Ductal narrowing

Inflammation within the breast can result in narrowing of the milk ducts. If the breast is inflamed, milk may not flow easily through the ducts. The breast may be warmer than usual, have a tender spot or a sore lump, or might show redness or darkening, depending on skin tone. Treat any engorgement or narrowing of the ducts, caused by inflammation, promptly to avoid developing mastitis, and address any possible causes.

2.1 Take prompt action to relieve the inflammation. The health care professional will advise steps 1-16 and the following;

17. If the mother is in discomfort/feels overly full she can encourage her baby to feed even if baby is a sleep or not showing signs of needing to feed.
18. Where needed, e.g. sleepy baby to continue feeding, prematurity or where mother is overly engorged, encourage gentle breast compressions[5] (Fig 3) to promote effective milk transfer by the baby.
19. Remove milk until the affected breast feels comfortable, either by feeding or expressing. Avoid over stimulation of the affected breast, beyond the baby's physiological need. This is to prevent over production of milk on the affected side.
20. Encourage the use of regular pain-relief, particularly NSAIDs for the anti-inflammatory effect in the short term, e.g. Ibuprofen, unless contraindicated.

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Breast compression & steps [5]

1. Support the breast with one hand – thumb on one side, fingers on the other.
2. Do not compress while baby breastfeeds actively.
3. When baby's swallowing slows, compress the breast firmly to enhance milk flow and encourage swallowing.
4. Hold the breast squeezed until the baby starts to feed again, then stop compression allowing baby to feed.
5. If the baby stops sucking compress again to enhance milk flow.

Rotate the hand around the breast and repeat step 2 on different areas of the breast. Do it gently – this should not hurt. Feed on both breasts depending on baby's satiety cues.



Fig 3: Source: Jack Newman
Breast Compression – International Breastfeeding Centre: ibconline.ca

Where a breastfeeding challenge has been identified, skilled breastfeeding support should be sought. This person will:

- Observe and assess the baby having a full breastfeed (Appendix 1: Breastfeeding Observation and Assessment Tool).
- Ensure the mother is able to identify active nutritive suckling and milk transfer compared to non-nutritive sucking/comfort sucking.
- Review positioning and attachment and offer recommendations if necessary.
- Encourage her to make contact with the local breastfeeding support group and if needed, refer mother to skilled breastfeeding support in her area.

3.0 Lactation related white spots/blebs

There are three types of lactation related white spots/blebs: Milium, Milk blister and Hyperkeratosis[6]

Milium:

A milium is a painless, small white dermal cyst of keratin, lined by a layer of stratified squamous epithelium, which may appear in the crevices of the nipple face. A milium cyst may appear prominent and very white after a breastfeed or expressing. It usually disappears in time and no treatment is required[6].

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A milium may go away on its own within about 48 hours. In rare cases, it may require further attention to determine the cause and manage the pain that can be associated with it.

Milk blister:

A milk blister is an exquisitely painful, white spot or lesion on the nipple face, usually with a clearly demarcated border. It is sometimes associated with a lump or cord like area extending from the nipple blister in to the breast from buildup of milk in the main duct behind the milk blister. This results in elevated intra luminal pressure in the glandular tissue drained by branches of that duct. This triggers inflammation and high white cell count[6].

Hyperkeratosis of Lactation related white spot:

Due to repetitive and high mechanical trauma during breastfeeding or expressing, an area of stratum corneum in the nipple can become thickened. This thickened plaque of stratum corneum can be highly vascular and dense with sensory nerve endings placing pressure on the dermis and can be painful to even mild pressure. It may appear pale white, cream or yellowish. The spot may be larger with more diffuse borders than a milk blister. Multiple irregular sized hyperkeratotic spots may be formed due to repetitive trauma. Attempts to un-roof a hyperkeratotic area which is highly vascular, mistaking it for a milk blister, will worsen hyperkeratosis[6].

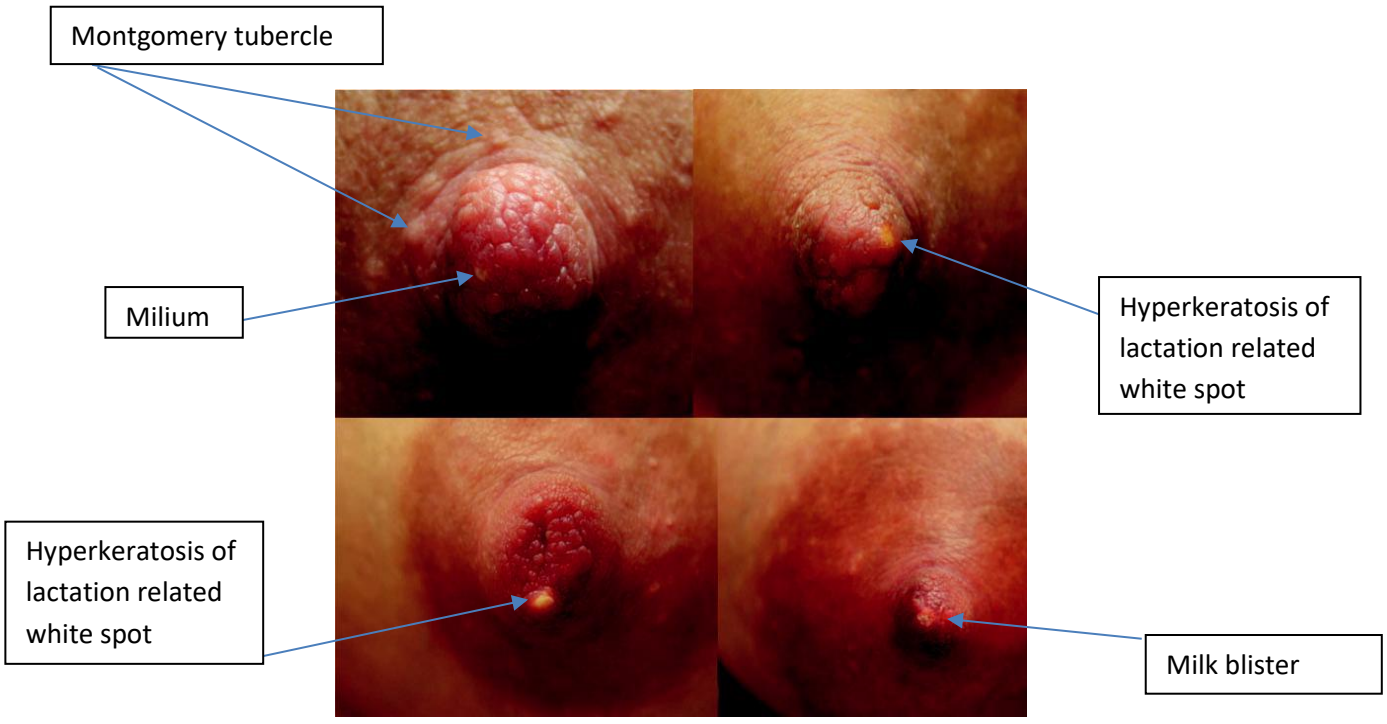


Fig. 4. Examples of different presentations of lactation related white spots

(Source: Academy of Breastfeeding Medicine; Clinical Protocol #36: The Mastitis Spectrum, Revised 2022)

Acknowledgement: Summary adopted from Wexford Hospital

3.1 Take prompt action to identify the cause.

The health care professional will advise the following steps for management of lactation related white spots.

a. Careful feeding assessment to identify the cause and severity of the problem.
Review position of baby for effective attachment and deep latch to eliminate repetitive rubbing causing trauma while feeding or expressing. Encourage baby - led breastfeeding positions to minimise trauma.

b. Use strategies to minimise damage to nipple while expressing;
   i. Check the correct flange size - the nipple should be able to retract easily without rubbing off the sides of the flange
   ii. Ensure suction pressure is not too high or low, expressing should be comfortable. (Higher pressure does not yield more milk)
   iii. Always turn off the pump before the funnel is removed.

c. Ensure the mother is linked in with breastfeeding support to ensure good breastfeeding management, following steps 1-20 above.

Strategies no longer recommended:

- "pop" a bleb/interrupt the integrity of the skin, as this may allow infection to develop and may cause over-granulation or scar tissue to form over the nipple pore.
- Avoid topical applications to the nipple during lactation, including; anti-fungal treatments, mupirocin antibiotic cream, hydrogel discs, lanolin, vitamin A and E, Vaseline, 'All Purpose Nipple Ointment'. These have been shown ineffective for nipple pain and damage and risk epithelial over hydration and Moisture Associated Skin Damage (MASD).[6]

Hyperkeratosis of Nipple and areola[23,24]

Hyperkeratosis of the nipple and areola can happen outside of pregnancy and lactation. It is a warty pigmented thickening of the nipples and areolae. It can be primary, idiopathic (may be due to hormonal changes) or secondary to another disorder.





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4.0 Mastitis

There can be a continuum from engorgement to ductal narrowing to non-infective mastitis to infective mastitis and to breast abscess. Mastitis tends to occur more commonly in the postpartum period but it can, more rarely, develop during pregnancy. Smoking increases the risk of mastitis and breast abscess [25]

Mastitis is inflammation; often the first sign is a tender, hot, swollen area of the breast. There may be colour changes to the skin of the breast, often occurring in the upper outer quadrant. However, the absence of skin changes does not mean that mastitis is not present. This may be accompanied with flu-like symptoms, ranging from mild to severe, with or without fever. This feeling can start suddenly and may worsen very quickly. This inflammation may or may not involve a bacterial infection.

Non-infective mastitis presents as above and there may be a rise in temperature that usually resolves within 24hrs by following steps 1-20 above.

With Infective mastitis, if there is no improvement or worsening of symptoms, after the first 24-48 hours and/or fever of >38.3°C develops despite following steps 1-20 above, antibiotic therapy may be indicated. Staphylococcus aureus (found on normal skin flora) is the most common causative organism; however, other organisms may also be involved.

4.1 Differential diagnosis – Assess the mother for symptoms for other systemic infections and take a detailed history of the mother and baby dyad;

- general appearance of the mother and baby, nipples and breasts
- mother and baby's medical and birth history
- breastfeeding pattern since birth (including any missed feeds/top ups given/frequency of pumping and reason for same/use of soothers)
- pain/tissue damage to nipples
- Pyrexia due to other infections

4.2 Mastitis treatment

Overgrowth of bacteria produces a thicker, viscous biofilm which causes milk ducts to narrow, forming the plug. When pressure builds up behind the plug, it causes the junctions between milk producing cells to open and milk components leak in to surrounding tissue, causing inflammation. Thickened or stringy looking milk may be seen on expressing, that may look like a thin strand of spaghetti. This is due to some milk components leaking from the glands in to the surrounding tissues. Milk, during mastitis, may have higher sodium content; some babies may show temporary breast refusal due to this [7]

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If infective mastitis is suspected, take prompt action to relieve the inflammation. The health care professional will advise steps 1-20 along with the following;

21. Encourage the mother to contact her GP and skilled breastfeeding support in her area. https://www2.hse.ie/babies-children/breastfeeding/
22. If an antibiotic is prescribed, ensure that it is taken as directed and complete the course, even if she feels better.
23. Continue to breastfeed if possible. If needed, hand express or pump just enough to soften the breast to the point it usually feels after a feed, (not to 'empty' the breast). Expressed milk can be used unless the milk smells foul or contains visible pus[8]. (Do not routinely advise to dump the expressed milk).
24. Therapeutic ultrasound, if available in your area, may be helpful to reduce inflammation.
25. After the resolution of mastitis, a temporary reduction in supply may be noted in the affected breast. This will resolve spontaneously if responsive feeding and skin to skin is continued during mastitis. If regular feeding/adequate milk removal through expressing did not continue during mastitis, mother may need skilled lactation support to reestablish supply on the affected side. However, return of the milk supply to pre mastitis levels may take up to two weeks or more.

4.3 Antibiotic treatment for infective mastitis

Before prescribing antimicrobials consider the following:

- Local antimicrobial sensitivities and resistance data
- Previous experience and antimicrobial treatment the woman has been prescribed for the current and previous infections
- The allergy status of the woman

For non-severe infections in the community setting, refer to HSE Antibiotic Prescribing Guidelines for Treatment of Community Infections[9]available on www.antibioticprescribing.ie or treat in line with local antimicrobial guidelines where available.

Higher, and more frequent, 6-hourly doses of antibiotics are required in mastitis treatment to ensure adequate tissue penetration. Deviations from treatment recommendations (dose or frequency of dosing) may result in treatment failure and antimicrobial resistance.

The optimal length of therapy is not definitive. The HSE antimicrobial guidelines advise that treatment duration is usually 5-10 days. However, treatment failures do occur. Shorter courses (5 to 7 days) can be used if the response to therapy is rapid and complete, however, a longer duration of 10-14 days may be needed for some women.

Women prescribed antimicrobial therapy for mastitis should be reassessed after 5 days, or sooner if needed. If improving but not fully resolved, an extended course could be considered.

Acknowledgement: Summary adopted from Wexford Hospital

Severe mastitis or breast abscess may require intravenous antibiotics. Refer to local hospital guidelines on the management of severe mastitis for recommendations on drug, dose and duration. In the absence of severe mastitis guidelines, follow recommendations for skin/soft tissue infections or sepsis.

Hospital admission, with rooming in facilities, should be considered if the mother is ill and requires intravenous antibiotics and fluids. She should be encouraged to have her baby admitted with her in order to continue breastfeeding, which will help to resolve mastitis.

Flucloxacillin, Cephalosporins and other antibiotics commonly used to treat mastitis are considered compatible with breastfeeding. Gastro-intestinal disturbances and oral candida infection may occur in the baby, especially if used for prolonged periods or in high dose. Table 1 contains a list of information resources on medication use in breastfeeding. Alternatively, contact the National Medicines Information Centre (NMIC, 2021)[10] or your hospital's medicines information/pharmacy department.

1. Drugs in Lactation Database (LactMed): Comprehensive US monographs on the safety of medicines in breastfeeding. Freely accessible from https://www.ncbi.nlm.nih.gov/books/NBK501922/
2. Hale's Medications & Mothers' Milk (2023), A Manual of Lactational Pharmacology, (20th Ed) Thomas W.Hale, Kaytlin Krutsch, Springer Publishing Company, Inc.
3. E-Lactancia: Spanish website with an English language version. Wide coverage of medicines with short summaries. Freely accessible from http://www.e-lactancia.org/
4. The Breastfeeding Network: Evidence-based and practical information for mothers who breastfeed. Freely accessible from https://www.breastfeedingnetwork.org.uk/drugs-factsheets/
5. HSE Clinical Programme in Obstetrics & Gynaecology (2017): Medication Guidelines for Obstetrics and Gynaecology. First Edition. 2017. (https://www.hse.ie/eng/services/publications/clinical-strategy-and-programmes/antimicrobial-safety-in-pregnancy-and-lactation.pdf
6. Summary of Medicinal Product Characteristics (SmPC). Regulatory documentation from manufacturer. Section 4.6 of the SmPC has prescribing information on lactation Accessed via Health Products Regulatory Authority (HPRA.ie). Manufacturer advice it is generally regarded as being conservative in terms of its advice on medication in breastfeeding.

Note: Sources of information on medications and breastfeeding Modified from @ National Medicines Information Centre. Vol 27. No. 4. 2021.

Acknowledgement: Summary adopted from Wexford Hospital

4.4 Breast milk culture

Breast milk culture and sensitivity is not routinely performed, but may be indicated if:

- there is no response to antibiotics within 48 hours
- the mastitis recurs
- it is hospital-acquired mastitis
- the patient is allergic to usual therapeutic antibiotics
- in severe or unusual cases
- if there is a suspicion of breast abscess, which may require surgical intervention, routine culture of the aspirate from the abscess is indicated[13.]

5.0 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. It can appear as a very reddened or dusky area in a fair skinned breast. In darker skin, redness may not be easily detected or may not be visible at all. The area feels hard to the touch and this lump is usually very tender.

A breast abscess can be a complication of mastitis and is usually the result of delayed or inadequate treatment. The incidence is 3% or lower among breastfeeding mothers with a history of mastitis[10,11,12].The mother may not present with pyrexia.

5.1 Abscess management

Breast abscesses are commonly treated with antibiotics, ultrasound-guided needle aspiration or incision and drainage, but there is still no consensus on the optimal treatment. Abscesses generally require aspiration/drainage in conjunction with antibiotics. Antimicrobial recommendations for either non-severe mastitis or severe mastitis should be followed after clinical evaluation of symptoms at the time of aspiration/drainage.

Aspiration should be tried first as it is very successful if performed correctly; after incision and drainage 70% of women will be not satisfied with cosmetic outcome[13]. Evidence also supports ultrasound-guided aspiration over incision and drainage even for abscesses larger than 5cm [14].Surgical drainage may be necessary for large or multiple abscesses present or if the skin overlying the abscess is compromised and is thin and ischemic or necrotic [15]. A sample of the aspirate should be sent for culture and sensitivity. Repeated aspirations of the abscess may be necessary.

After the abscess drainage the mother should be prescribed antimicrobials. For severe infections, the woman should be commenced on IV antimicrobial treatment in line with local guidance. Consideration should be given to using antimicrobials to cover MRSA if there is a history of MRSA, repeated hospitalisation or sensitivity results confirm the presence of MRSA.

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5.2 Breastfeeding during treatment for abscess

- The mother's goals and preferences around breastfeeding should be discussed and supported throughout the breastfeeding journey:
    - Advise the mother that it is safe to continue breastfeeding and it will not interfere with the healing process[16]
    - It is safe for a healthy baby to continue feeding from the affected breast[8].
    - Advise mothers not to abruptly stop breastfeeding/expressing
    - If the mother chooses to stop, it is important to gradually suppress milk supply safely
    - Medicines for suppression of lactation are not routinely recommended [17]
- Seek individual skilled breastfeeding support to help manage milk supply and/or latching to a, potentially, very painful breast particularly if peri-areolar oozing milk/ purulent discharge or stopping breastfeeding.
- If breastfeeding is too painful, advise the mother try hand expressing milk or use a breast pump. Carefully choose an appropriate flange size, particularly if the abscess/inflammation encroaches into the area where the flange covers.
- Good general and hand hygiene, should be encouraged along with encouraging attention to maternal diet, fluids and rest.

Postpartum breast cancer[18]

Postpartum breast cancer has a higher risk of metastatic spread relative to other forms of breast cancer. Axillary and supraclavicular lymph node examination is required when lactating women present with a breast lump. A persistent lactation-related breast lump requires ultrasound imaging and further investigation as indicated, to exclude malignant inflammatory masses or benign non-lactation-related masses. The period of time a new lump in a lactating breast can be observed before investigation depends on clinical context but threshold for imaging should remain low.

6.0 Recurring ductal narrowing/mastitis

Mastitis can recur when the original cause is not corrected or due to treatment failure. In order to prevent future inflammations:

1. Be aware of changes in feeding patterns; try to avoid unusually long stretches between breastfeeds and caution against soother use as feeding cues can be missed
2. Aim for optimum feeding from the breasts in a laid-back position. Encourage gentle breast compressions while feeding to improve milk volume transfer (Fig 3)
3. Encourage to get as much rest as possible and maintain good general health and hygiene with nutrition and fluid intake

Acknowledgement: Summary adopted from Wexford Hospital

4. Encourage daily examination of breasts for signs of lumps or inflammation. Be careful to avoid pressure on one area of the breast from items such as an ill-fitting bra, baby carrier, heavy bag or breast shells.
5. If an area of tenderness develops, encourage mother to rest, use cold packs, very gentle upward stroking towards armpit. (Therapeutic breast massage/ breast gymnastics, Fig 2) and continue breastfeeding to reduce inflammation.

6.1 Other causes of mastitis

- Mammary dysbiosis, or disruption of the milk microbiome[19], due to an interplay of factors: maternal genetics and medical conditions, exposure to antibiotics, use of probiotics, regular use of breast pumps, and cesarean births
- Exclusive pumping
    - Pumps do not remove milk as efficiently as a baby feeding directly from the breast and this may lead to bacterial imbalances in the ductal system
    - Too high suction pressures, from breast pumps, can cause breast and nipple trauma
    - Too low pump suction pressures can lead to breast inflammation due to breast stimulation without effective milk removal
    - Incorrect flange size can also cause nipple-areolar complex damage and trauma
    - Can interrupt the communication between the baby's and the mother's microbiome – no feedback from baby's saliva to mother's nipple/mammary tissue[20].

Support mothers who are long-term pumping to:		**Scan QR codes to watch videos on:**	
I.	Select the correct flange size and regularly checking around the nipple and areola after pumping for skin damage		How to express using a breast pump https://vimeo.com/624860874
II.	Hand express for a few minutes after each pumping session as this is known to increase the overall milk fat yield		Hand expressing https://med.stanford.edu/newborns/professional-education/breastfeeding/
III.	Use hands-on pumping to help maintain milk volumes and to drain breasts		Boosting milk supply for your premature or ill baby https://vimeo.com/624857225

Acknowledgement: Summary adopted from Wexford Hospital

7.0 Treatments no longer recommended for ductal narrowing and mastitis[21]

- Excessive use of heat to the breast, or soaking in warm water
  NOTE: Although heat can cause vasodilation and may worsen symptoms, it also may provide comfort for some. If it is a woman's preference, use with caution, hence gentle warmth is recommended
- Vigorous, deep massage, or squeezing to try to get rid of a clog
- Dangling over baby for feeding to try to move a clog using gravity
- Using a comb or electric toothbrush on the breast to break up congealed milk
- Trying to "empty" the breast through extra pumping or non-cue based breastfeeding which results in increasing milk production
- Using antibiotics right at the beginning of symptoms
- Using saline soaks, warm compresses, olive oil, castor oil, coconut oils, or other oils on the skin of the breast or nipple to soften the skin. Therapeutic breast massage is practiced in many cultures using medicinal products and oils. Explore women's preferences and support accordingly[22].
- Removing the skin or "popping" a bleb, which may allow infection to develop[6]

8.0 Breastfeeding Supports

All mothers should be informed of breastfeeding supports available in their area. There are nationwide breastfeeding support groups now available provided by:

- HSE – maternity hospitals, public health nurses, infant feeding lactation midwives and nurses, practice nurses and GP's
- La Leche League of Ireland
- Cuidiú
- Friends of Breastfeeding
- Association of Lactation Consultants of Ireland (ALCI)

Visit mychild.ie for details of local HSE and HSE funded supports in your area.

The HSE's online lactation support service is available 7 days a week. Mothers and health care professionals can submit questions to an IBCLC and receive a response with 24 hours. Live chat is available Mon- Fri from 10am -3pm.

Acknowledgement: Summary adopted from Wexford Hospital

9.0 References

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The working group that contributed to developing this guidance are:

Dr Sarah Brennan	GP and Lecturer, University of Galway
Dr Varzgalis Manvydas	Consultant Oncoplastic and Reconstructive Breast, Endocrine and General Surgeon, Letterkenny University Hospital
Fergal O'Shaughnessy	Senior Pharmacist, The Rotunda
Gobnait Murphy	Public Health Nurse, IBCLC, Clare
Kathryn Downey	Public Health Nurse, IBCLC, Dublin South East
Laura Mchugh	National breastfeeding Coordinator, National Health and Wellbeing
Mairead McCahill	Public Health Nurse, IBCLC, Cavan /Monaghan
Mairead O'Sullivan	CNM 11 Infant Feeding, Kerry University Hospital
Marina Cullen	CMS Lactation, The Rotunda
Meena Purushothaman	National Asst. Breastfeeding Coordinator, National Health and Wellbeing
Regina Keogh	CNM11 Infant Feeding/Lactation, Midlands University Hospital Mullingar
Siobhan Ward	La Leche league of Ireland
Sue Jameson	Cuidiú Breastfeeding Tutor, IBCLC
Stephanie Murray	Association of Lactation Consultants of Ireland, CMS Lactation, Wexford General Hospital

Other contributors include:

Aisling Clancy	HSE Community Antimicrobial Pharmacists Group
Dr Eimear Brannigan	HSE, Antimicrobial Resistance and Infection Control (AMRIC), Clinical Lead
Dr Melissa Canny	Consultant in Public Health Medicine, HSE West

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Appendix 1 Breastfeeding observation and Assessment Tool – available to order from https://www.healthpromotion.ie/

BREASTFEEDING OBSERVATION ASSESSMENT TOOL (BOAT)

(Please complete at the first visit. This resource may also be used at subsequent visits. Always use a colour version)

Publication date: August 2018
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Mother's Name:				Baby's Name:		**ASSESSMENT PERFORMED BY:**	
Address:				Date of Birth:			Assessment / Reassessment
Tel:				Baby's Age:		Name:	
Mother's Date of Birth:				Baby's Birth Weight:		Public Health Nurse / Registered Midwife (PHN / RM)	
Type of Birth:				Baby's Current Weight:			
Verbal Consent Given:	Yes		No	% Weight Loss[1]:		Date:	

How to use the BOAT	GREEN BOX - Effective Breastfeeding	AMBER BOX - Suggestive of a Breastfeeding Challenge
• An eLearning training programme is available on HSELanD at: www.hseland.ie, Module Name: Supporting Breastfeeding • The Guideline on the Observation of a Breastfeed & Use of the Breastfeeding Observation Assessment Tool (BOAT) Resource is available on the HSE website • Observe the baby breastfeeding (following mother's verbal consent) and ensure correct positioning and attachment of baby to the breast. • Complete the BOAT resource, at the first visit, by asking or observing all points in the white column on page 2. • Mark the findings in the white column at assessment/reassessment (page 2) • Effective breastfeeding is indicated if all boxes in the green column on page 2 are ticked. Please then go to Green Box (opposite). • If the amber column on page 2 has boxes ticked, it suggests a challenge with breastfeeding. Please then go to Amber Box (opposite).	• Continue breastfeeding with PHN / RM support. • Encourage attendance at local breastfeeding support groups. • Information on local breastfeeding supports, facilitated by the HSE and voluntary breastfeeding groups is available at mychild.ie mychild.ie	• If there is an underlying medical issue for mother or baby the PHN / RM refers to the GP. • If there is a breastfeeding challenge the PHN / RM develops a care plan, takes corrective action, and refers to breastfeeding support group. • The PHN / RM revisits, and repeats the BOAT based on clinical judgement. • The PHN / RM continues corrective action until the breastfeeding challenge resolves. • If the challenge is not resolved the PHN / RM consults with or refers to a specialist breastfeeding professional (IBCLC) & includes BOAT.

Day	Wet Nappies	Dirty Nappies (Mohrbacher and Kendall Tackett, 2010, p.92)
1	1 wet nappy + (over 24 hours)	1 stool (black)+
2	2 wet nappies +	2 stools (black)+
3	3 wet nappies +	3 stools (black or greenish)+
4	4 wet nappies +	3 - 4 stools (greenish or yellowish)+
5	5 wet nappies +	Stools should turn yellow
6 days - 6 weeks	6 wet nappies + (pale, yellow or clear urine)	3 - 8 stools + (yellow, seedy, runny to loose) daily
6 weeks - 6 months		3 - 5 stools + (daily but may skip days). (Yellow, soft may thicken over time because of milk compositional changes) (Wambach and Riordan, 2016, p.295)

(1) Percentage Weight Loss Calculation: Weight Loss ÷ Birth Weight x 100 = % Weight Loss • **Example:** Weight Loss = 226g. Birth Weight = 3500g. 226 ÷ 3500 x 100 = 6.45% Weight Loss

What to Observe / Ask About	Green Column - Answer Indicating Effective Breastfeeding	Assessment	Re-assessment	Amber Column - Answer Suggestive of a Breastfeeding Challenge	Assessment	Re-assessment
Mother's name:	Mother looks healthy.			Mother looks ill or unwell.		
Baby's name:	Mother is relaxed and comfortable.			Mother looks tense or uncomfortable.		
	There is good eye contact between mother and baby.			There is no eye contact between mother and baby.		
Baby's wet nappies	Refer to wet nappies section page 1.			Refer to wet nappies section page 1.		
Appearance and frequency of baby's stools	Refer to dirty nappies section page 1.			Refer to dirty nappies section page 1.		
Baby's colour, alertness and tone	Baby may have evidence of normal physiological jaundice; Baby is alert; Baby has good tone.			Baby's jaundice is worsening or not improving; Baby is lethargic; not waking to feed; Baby has poor tone.		
Weight of baby (following initial post birth loss)	Baby's weight loss is <10% of birth weight. (To record % weight loss see percentage weight loss calculation section page 1). It is expected that babies will regain their birth weight by day 14.			Baby's weight loss is >10% of birth weight. (To record % weight loss see percentage weight loss calculation section page 1). Birth weight is not regained by day 14.		
Number of breastfeeds in the last 24 hours	Baby breastfeeds on demand, or is fed responsively according to early feeding cues, with at least 8-12 feeds in a 24 hour period.			Baby had fewer than 8 breastfeeds in the last 24 hour period.		
Baby's behaviour during the breastfeed	Baby is generally relaxed and calm.			The baby is unsettled during the breastfeed, or refuses to breastfeed.		
Sucking pattern during the breastfeed	Initial rapid sucks changing to slower sucks with pauses and audible regular soft swallowing (may be less audible until milk comes in).			No change in sucking pattern, presence of noisy feeding (e.g. clicking).		
Type of breastfeed	Baby feeds actively from first breast until satisfied.			Baby is unsatisfied despite regular breastfeeds.		
Offer of second breast	Second breast offered as recommended when establishing milk supply. Baby feeds from second breast or not, according to appetite.			Mother restricts the baby to one breast per feed.		
End of the breastfeed	Baby lets go spontaneously, or does so when breast is gently lifted.			Baby does not release the breast spontaneously, Mother removes the baby.		
Baby's behaviour after a breastfeed	Baby is content after most feeds.			Baby is unsettled after breastfeeding.		
Shape of nipples at the end of the breastfeed	The nipples are rounded similar to when the breastfeed began or the nipples may be slightly elongated.			Nipples are misshapen or pinched at the end of the breastfeed.		
Mother's report on her nipples and breasts	Nipples and breasts are comfortable.			Nipples are sore or damaged, breasts are uncomfortable.		
Observation of the mother's nipples and breasts	Nipples are intact. Breasts are comfortable with no redness, lumps or areas of tenderness.			Nipples may be infected, have symptoms of thrush or vasospasm. Mother's breasts may be engorged or have signs of mastitis. Yes (state which).		
Use of dummy, nipple shields / formula?	None used.			Yes (state which) ask why:		

(Content adapted by the HSE Breastfeeding Implementation Group, from the Unicef UK Baby Friendly Initiative's Breastfeeding Assessment Tool and Dublin North Local Health Organisation's BOAT)

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