

ABM Protocols

ABM Clinical Protocol #4: Mastitis

Revision, May 2008

The Academy of Breastfeeding Medicine Protocol Committee

A central goal of The Academy of Breastfeeding Medicine is the development of clinical protocols for managing common medical problems that may impact breastfeeding success. These protocols serve only as guidelines for the care of breastfeeding mothers and infants and do not delineate an exclusive course of treatment or serve as standards of medical care. Variations in treatment may be appropriate according to the needs of an individual patient.

Introduction

Mastitis is a common condition in lactating women; estimates from prospective studies range from 3% to 20% depending on the definition and length of postpartum follow-up.¹⁻³ The majority of cases occur in the first 6 weeks, but mastitis can occur at any time during lactation. There have been few research trials in this area.

Definition and Diagnosis

The usual clinical definition of mastitis is a tender, hot, swollen, wedge-shaped area of breast associated with a temperature of 38.5°C or greater, chills, flu-like aching, and systemic illness.⁴ However, mastitis literally means, and is defined herein, as an inflammation of the breast; this may or may not involve a bacterial infection.^{5,6} Redness, pain, and heat may all be present when an area of the breast is engorged or “blocked”/“plugged,” but an infection is not necessarily present. There appears to be a continuum from engorgement, non-infective mastitis, infective mastitis, to breast abscess.⁶

Predisposing factors

The following factors may predispose a lactating woman to the development of mastitis.^{6,7} Other than their being factors that result in milk stasis, the evidence for these associations is inconclusive:

- Damaged nipple, especially if colonized with *Staphylococcus aureus*
- Infrequent feedings or scheduled frequency or duration of feedings
- Missing feedings
- Poor attachment or weak or uncoordinated suckling leading to inefficient removal of milk

- Illness in mother or baby
- Oversupply of milk
- Rapid weaning
- Pressure on the breast (e.g., tight bra, car seatbelt)
- White spot on nipple or blocked nipple pore or duct: milk blister, granular material, *Candida*
- Maternal stress and fatigue
- Maternal malnutrition (evidence of specific dietary risk factors in humans does not exist)

Investigations

Laboratory investigations and other diagnostic procedures are not routinely needed or performed for mastitis. The World Health Organization publication on mastitis suggests that breastmilk culture and sensitivity testing “should be undertaken if there is no response to antibiotics within two days, if the mastitis recurs, if it is hospital-acquired mastitis, when the patient is allergic to usual therapeutic antibiotics or in severe or unusual cases.”⁶ Breastmilk culture may be obtained by collection of a hand-expressed 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 false-positive culture results. Greater symptomatology has been associated with higher bacterial counts and/or pathogenic bacteria.⁸

Management

Effective milk removal

Because milk stasis is often the initiating factor in mastitis, the most important management step is frequent and ef-

fective milk removal. Mothers should be encouraged to breastfeed more frequently, starting on the affected breast. If pain prohibits letdown, feeding may begin on the unaffected breast, switching to the affected breast as soon as letdown is achieved. Positioning the infant at the breast with the chin or nose pointing to the blockage will help drain the area. Massaging the breast during the feeding with an edible oil or nontoxic lubricant on the fingers may also be helpful. Massage should be directed from the blocked area moving toward the nipple. After the feeding, expressing milk by hand or pump may augment milk drainage and hasten resolution of the problem.⁹ There is no evidence of risk to the healthy, term infant of continuing breastfeeding.⁶ Women who are unable to continue breastfeeding should express the milk from breast by hand or pump, as sudden cessation of breastfeeding leads to a greater risk of abscess development than continuing to feed.⁹

Supportive measures

Rest, adequate fluids, and nutrition are essential measures. Practical help at home may be necessary for the mother to obtain adequate rest. Application of heat—for example, a shower or a hot pack—to the breast prior to feeding may help the milk flow. After feeding or expressing milk from the breasts, cold packs can be applied to the breast in order to reduce pain and edema.

Hospital admission should be considered in cases in which the woman is extremely ill and does not have supportive care at home. Rooming-in of the infant with the mother is mandatory so that breastfeeding can continue. In some hospitals, rooming-in may require hospital admission of the infant.

Pharmacologic management

Although lactating women are often reluctant to take medications, women with mastitis should be encouraged to take appropriate medications as indicated.

Analgesia. Analgesia may help with the milk ejection reflex and should be encouraged. An anti-inflammatory agent such as ibuprofen may be more effective in reducing the symptoms relating to inflammation than a simple analgesic like paracetamol/acetaminophen. Ibuprofen is not detected in breastmilk following doses up to 1.6 g/day and is regarded as compatible with breastfeeding.¹⁰

Antibiotics. If symptoms of mastitis are mild and have been present for less than 24 hours, conservative management (effective milk removal and supportive measures) may be sufficient. If symptoms are not improving within 12–24 hours or if the woman is acutely ill, antibiotics should be started.⁶ The most common pathogen in infective mastitis is penicillin-resistant *S. aureus*.^{9,11} Less commonly the organism is a *Streptococcus* or *Escherichia coli*.⁹ The preferred antibiotics are usually penicillinase-resistant penicillins,⁴ such as dicloxacillin or flucloxacillin, 500 mg four times a day.¹² First-generation cephalosporins are also generally acceptable as first-line treatment, but may be less preferred because of their broader spectrum of coverage.

Cephalexin is usually safe in women with suspected penicillin allergy, but clindamycin is suggested for cases of se-

vere penicillin hypersensitivity.¹² Dicloxacillin appears to have a lower rate of adverse hepatic events than flucloxacillin.¹³ It tends to cause phlebitis if given intravenously, however, and so is preferable for oral treatment unless intravenous treatment is necessary.

Many authorities recommend a 10–14-day course of antibiotics^{14,15}; however, this has not been subject to controlled trials.

Resistance of *S. aureus* to penicillinase-resistant penicillins (methicillin-resistant *S. aureus* [MRSA], also referred to as oxacillin-resistant *S. aureus* [ORSA]) has been increasingly isolated in cases of mastitis and breast abscesses.^{16,17} Clinicians should be aware of the likelihood of this occurring in their community and should order a breastmilk culture and antibiotic sensitivities when women with mastitis are unresponsive to first-line treatment. Local resistance patterns for MRSA should be considered when choosing an antibiotic for such unresponsive cases while culture results are pending. Most strains of methicillin-resistant staphylococci are susceptible to vancomycin or co-trimoxazole and may be susceptible to rifampin. Of note, MRSA should be presumed to be resistant to treatment with macrolides and quinolones, regardless of susceptibility testing results. Furthermore, an MRSA isolate reported to be susceptible to clindamycin but resistant to erythromycin should undergo “D-testing,” to confirm that it is in fact susceptible to the former.¹⁸

As with other uses of antibiotics, repeated courses place women at increased risk for candidal breast and vaginal infections.^{19,20}

Follow-Up

Clinical response to the above management is typically rapid and dramatic. If the symptoms of mastitis fail to resolve within several days of appropriate management, including antibiotics, differential diagnoses should be considered. Further investigations may be required to confirm resistant bacteria, abscess formation, an underlying mass, or inflammatory or ductal carcinoma. More than two or three recurrences in the same location also warrant evaluation to rule out an underlying mass.

Complications

Early cessation of breastfeeding

Mastitis may produce overwhelming acute symptoms that prompt women to consider cessation of breastfeeding. Effective milk removal, however, is the most essential part of treatment.⁶ Acute cessation of breastfeeding may exacerbate the mastitis and result in an increased risk of abscess formation; therefore, effective treatment and support from health providers and family are important at this time. Mothers may need reassurance that the antibiotics they are taking are safe to use during breastfeeding.

Abscess

If a well-defined area of the breast remains hard, red, and tender despite appropriate management, then an abscess should be suspected. This occurs in about 3% of women with mastitis.²¹ The initial systemic symptoms and fever may have resolved. A diagnostic breast ultrasound will identify a collection of fluid. The collection can often be drained by

needle aspiration, which itself can be diagnostic as well as therapeutic. Serial needle aspirations may be required.²²⁻²⁴ Ultrasound guidance for needle aspiration may be necessary in some cases. Milk should be sent for culture in the circumstance of an abscess. Consideration of resistant organisms should also be given depending on the incidence of resistant organisms in that particular environment. MRSA may be a community-acquired organism and has been reported to be a frequent pathogen in cases of breast abscess requiring hospitalization in some communities.²⁵ Surgical drainage may be necessary if the abscess is very large or if there are multiple abscesses. After surgical drainage, breastfeeding on the affected breast should continue, even if a drain is present with the proviso that the infant's mouth does not come into direct contact with purulent drainage or infected tissue. A course of antibiotics should follow drainage of the abscess.

Candida infection

Information on the etiology of burning nipple pain or radiating breast pain is evolving. Candidal infection has been associated with these symptoms.¹⁴ Diagnosis is difficult, as the nipples and breasts may look normal on examination, and milk culture may not be reliable. Careful evaluation for other etiologies for breast pain should be undertaken with particular attention to proper latch. When fissuring or trauma is present on the nipple, nipple swabs reveal that *S. aureus* may be present.²⁶⁻²⁸ A recent investigation of women with these typical symptoms using breastmilk cultures after cleansing the nipples found that none of the 35 cultures from the control group of women grew *Candida*, while only one of 29 in the symptomatic group grew the organism. There was also no significant difference in the measurement of a by-product of candidal growth [(1,3)-D-glucan] between groups.²⁹ Yet evidence is conflicting as another recent study on milk culture found 30% of symptomatic mothers were positive for *Candida*, while 7.7% of the asymptomatic group grew the organism,³⁰ and a trend has also been noted that women with burning nipple and breast pain are more likely to test positive for *Candida* on nipple swab by polymerase chain reaction.³¹ Further research in this arena is needed.

Prevention⁷

Effective management of breast fullness and engorgement

- Mothers should be helped to improve infants' attachment to the breast.
- Feeds should not be restricted.
- Mothers should be taught to hand-express if the breasts are too full for the infant to attach or the infant does not relieve breast fullness. A breast pump may also be used, if available, for these purposes, but all mothers should be knowledgeable in manual expression as the need for its use may arise unexpectedly.

Prompt attention to any signs of milk stasis

- Mothers should be taught to check their breasts for lumps, pain, or redness.
- If the mother notices any signs of milk stasis, she needs to rest, increase the frequency of breastfeeding, apply heat

to the breast prior to feedings, and massage any lumpy areas as described under "Effective milk removal."

- Mothers should seek help from their health care provider if they are not improving within 24 hours.

Prompt attention to other difficulties with breastfeeding

Skilled help is needed for mothers with damaged nipples or an unsettled infant or those who believe that they have an insufficient milk supply.

Rest

As fatigue is often a precursor to mastitis, health professionals should encourage breastfeeding mothers to obtain adequate rest. It may be helpful for health care providers to remind family members that breastfeeding mothers may need more help and encourage mothers to ask for help as necessary.

Good hygiene³²

Because *S. aureus* is a common commensal organism often present in hospitals and communities, the importance of good hand hygiene should not be overlooked.³⁰ It is important for hospital staff, new mothers, and their families to practice good hand hygiene. Pump equipment may also be a source of contamination and should be washed thoroughly with soap and hot water after use.

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