

Risk Factors, Symptoms, and Treatment of Lactational Mastitis

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Lactational mastitis affects approximately 2% to 20% of people who are breastfeeding¹ and is defined by inflammation of the mammary gland. Symptoms and findings include pain, erythema, induration, and swelling. Improved understanding of the physiology of lactation has led to recent changes in the guidelines for management of lactational mastitis² that emphasize conservative methods to improve symptoms and reduce unnecessary antibiotic use. This clinical insight summarizes current evidence regarding diagnosis and management of lactational mastitis. Breastfeeding is associated with improved health outcomes for parents and their children.³ Physicians can play a central role in appropriately managing complications such as lactational mastitis and supporting patients in continuation of breastfeeding.

Anatomy and Physiology of the Human Mammary Gland

The mammary gland is a hormonally responsive exocrine gland with a distinct milk microbiome and functional, structural, and molecular changes that evolve over a person's lifetime.^{3,4} Structurally, the breast consists of glandular tissue surrounded by a network of blood vessels and lymphatic channels suspended in stroma of fat, elastin, and collagen. Glandular tissue consists of progressively smaller branching ducts terminating in alveoli, which function as the site of milk secretion. During pregnancy and lactation, the glandular portion of the breast proliferates and epithelial cells undergo transformation into a secretory phenotype. With nipple stimulation, oxytocin and prolactin levels rise; oxytocin causes milk ejection for immediate feeding and prolactin stimulates milk secretion for maintenance of lactation. Paracrine control of milk production is mediated by several substances produced locally by epithelial cells, such as alpha-lactalbumin.⁵ Local feedback inhibition of milk secretion decreases milk production when alveolar cells are distended and the mammary gland involutes when milk production ceases.

Symptoms, Risk Factors, and Treatment

Lactational mastitis may be infectious or noninfectious, and clinical presentation includes unilateral breast pain, warmth, and erythema. These symptoms may be localized or may involve the entire breast. As mastitis progresses, skin induration may occur. Approximately 3% to 11% of people with mastitis develop an abscess.² The most common systemic symptoms of lactational mastitis are malaise (87%), fever (82%), and chills (78%).^{2,6} Differential diagnoses of these findings include breast engorgement, "plugged ducts" (focal ductal narrowing and stromal edema), galactocele (consisting of obstructed milk in a cyst-like cavity), malignancy, and, less commonly, idiopathic granulomatous mastitis or periductal mastitis. Additionally, extended periods of breast fullness may produce transient erythema and edema from distension of alveolar cells; this physiologic response should not be considered an acute onset of mastitis.

Risk factors, pathophysiology, and optimal treatment of mastitis remain unclear. Infection, inflammation, and alterations in

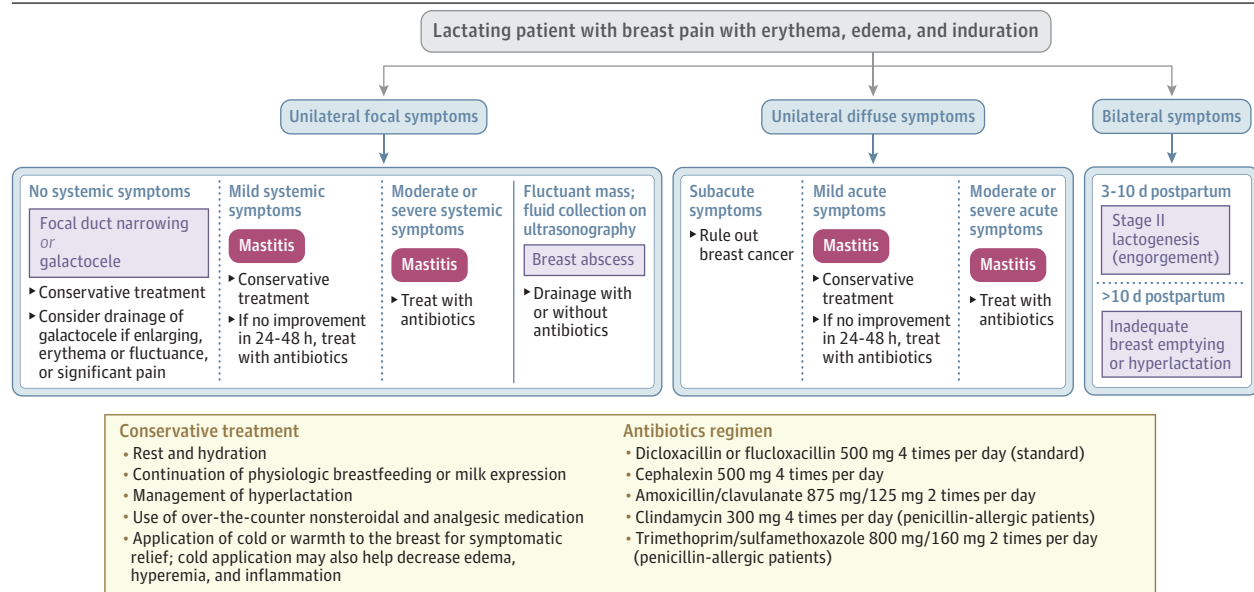
intrinsic bacterial microbiome have been implicated as etiologic factors.^{2,4} Characteristics associated with the development of lactational mastitis include nipple injury, breastfeeding difficulties, hyperlactation, breast pump use, and history of mastitis.^{1,2}

The traditional approach to management of mastitis consists of antibiotic treatment and frequent breast emptying to prevent "milk stasis," defined as accumulation of milk in the breast. However, accumulating evidence suggests that immediate initiation of antibiotics may not be necessary for some people with mastitis. Patients eligible for a trial of conservative treatment are those with mild systemic symptoms, focal breast findings, and signs of improvement without antibiotic therapy within 24 to 48 hours.^{2,7} Conservative treatment consists of rest, continuing physiologic breastfeeding/milk expression, over-the-counter nonsteroidal and analgesic medications, and monitoring for symptom progression. Physiologic breastfeeding consists of feeding infants on cue or expressing the volume of milk that the child needs. In contrast, attempts to keep the breast continually drained may lead to hyperlactation, pain, and further complications such as recurrent mastitis and abscess. In addition, excessive use of a breast pump can lead to nipple trauma. Warmth or cold application to the breast may both provide symptomatic relief, but cold application may provide additional benefits of decreasing associated edema, hyperemia, and inflammation.²

Breast massage is a commonly recommended supplement to mastitis treatment; however, the efficacy and generalizability of this method are limited by quality of evidence and by heterogeneity of massage techniques, study designs, and geographic settings of studies.⁸ Gentle breast handling should be exercised to avoid tissue trauma, edema, and inflammation that may be associated with deep massage; examples include therapeutic breast massage in lactation and lymphatic breast drainage. Therapeutic breast massage in lactation is a combination of gentle massage from the areola toward the axillae alternated with hand expression of milk. Lymphatic drainage involves a light brushing motion to lift the skin off underlying lymphatics and promote decongestion of fluid.

Patients with worsening symptoms, with severe local or systemic symptoms at onset, and those not improving with 24 to 48 hours of conservative measures should be treated with antibiotics.² The common bacterial pathogens that cause lactational mastitis and guide treatment are *Staphylococcus*, in particular *S aureus* and *Streptococcus*. Treatment with a standard antibiotic regimen, such as dicloxacillin or cephalexin, is typically prescribed for 10 to 14 days (Figure). Breastfeeding and/or milk expression is safe during treatment. There are no high-quality clinical trials that have assessed best timing, choice, and duration of antibiotic therapy for lactational mastitis.⁷ Patients with hyperlactation and/or recurrent episodes of mastitis should be referred to a breastfeeding medicine specialist. Inflammatory breast cancer should be considered as a potential diagnosis in patients with persistent mastitis because diagnosis may be delayed during lactation.

Figure. Algorithm for Management of Lactational Mastitis



Abscesses

Transient breast masses can occur during lactation. Patients with fluctuant masses in the setting of lactational mastitis and patients with persistent masses should undergo ultrasonography evaluation. Percutaneous drainage is indicated for patients who develop abscesses. Aspiration with an 18-gauge needle is recommended,⁹ although multiple procedures may be necessary because breastmilk septates and can preclude effective drainage at the index procedure.^{2,10} Operative incision and drainage is rarely needed and should be avoided because of the concerns for persistent wounds, fistulae, and need for separation of the maternal-child dyad. Physicians may discuss with their patients the option to undergo drain placement at presentation, particularly if the abscess is larger than 3 cm. Drain placement involves a

slightly larger skin defect (1-2 mm) than an aspiration and can offer more definitive source control. Patients should be counseled that when drains are removed, they may notice a transient milk fistula that will close over several days to 1 week with appropriate continued lactation.¹⁰

Conclusions

Improved understanding of lactation physiology has led to updated recommendations regarding the treatment of lactational mastitis. Attention to risk factors such as hyperlactation, support of continued breastfeeding, and a trial of conservative treatment (24-48 hours) consisting of rest, hydration, and use of over-the-counter nonsteroidal and analgesic medications can reduce antibiotic overuse and improve outcomes for breastfeeding individuals and their children.³

ARTICLE INFORMATION

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