Mastitis — Symptoms and Treatment

Mastitis is the inflammation of the mammary gland tissue, which can be lactational or non-lactational. It is most common in women within childbearing age. Routes of transmitted infection can be from the skin, lymph nodes or primarily in the mammary glands. Organisms isolated include staphylococcus aureus, staph epidermis or Streptococci. Swelling and rupture of mammary ducts will result in an abscess which will mimic breast mass or carcinoma.

Lactational Mastitis

Lactational mastitis occurs in up to 10% of breastfeeding mothers. It is most common in the first six weeks of lactation and is usually due to milk stasis or breast engorgement.
Lactational Mastitis Pathology

**Breast engorgement** is the main cause of lactational breast inflammation. This could result from **infrequent breastfeeding, maternal or child illness, rapid weaning, or blocked milk ducts.**

*Milk stagnation,* with **nipple crackles** or **excoriation,** will predispose the patient to microorganism infection and inflammation. The resolution of inflammation depends primarily on the resolution of milk stagnation and frequent emptying of the breast.

The gross picture of the breast will show **signs of inflammation:** redness, swelling, and tenderness. An **abscess** will appear as an **edematous cavitary mass** filled with **pus.** Microscopically, the breast will show **inflammatory cellular infiltration** with **microorganisms.** These will be visible when the slides are treated with special stains.

**Clinical Picture of Lactational Mastitis**

A patient with lactational mastitis will present with general constitutional symptoms of high fever, chills, fatigue, malaise, and myalgia. Locally, the breast will be swollen, tender, and firm, and the overlying skin will be **erythematous.** Regional **lymph nodes** may be enlarged and tender.

**Diagnosis and Differential Diagnosis of Lactational Mastitis**

It is important to initiate treatment early based on the clinical presentation to prevent **breast abscess** formation. Tests such as **gram stain** and **milk cultures** are usually unnecessary unless the infection is severe or recurrent. In these cases, the tests will give conclusive results about the causative organisms. **Ultrasound** is used mainly to rule out the formation of an abscess that requires **aspiration.**
Differential diagnosis: inflammatory breast cancer

Inflammatory breast cancer should be suspected in any case of mastitis that does not respond to proper treatment. It has the same signs of inflammation – breast tenderness and enlargement – but with malignant features, such as skin thickening, peau d’orange, and axillary lymphadenopathy.

Inflammatory breast cancer is an aggressive tumor with lymph node involvement and sometimes distant metastases at the time of presentation. The invasion of lymphatic vessels is responsible for the clinical picture that resembles inflammation. A biopsy will confirm the diagnosis.

Differential diagnosis: breast abscess

The pus collection in the breast tissue follows mastitis or cellulitis. The incidence of breast abscess is 3% among women with antibiotic-treated mastitis. It is more common in non-lactational mastitis.

Risk factors include older maternal age, firstborn child, prolonged gestational age (more than 41 weeks), and smoking. Breast abscesses are sometimes secondary to another disease, such as diabetes, steroids, trauma, and rheumatoid arthritis. It has the same clinical picture of mastitis but with a tender, localized fluctuant mass. Ultrasound is the diagnostic modality of choice.

Managing a breast abscess includes drainage with antibiotic coverage. Ultrasound-assisted needle aspiration or surgical evacuation can be used.

Breast abscess complications include recurrence, milk fistula, and antibioma, which results from repeated antibiotic treatment for an abscess, leading to hard mass with sterile pus.

Differential diagnosis: breast engorgement

It is usually bilateral. While the patient may experience pain, there are no signs of inflammation or systemic symptoms.

Differential diagnosis: galactocele

This is due to the obstruction of a mammary duct with a cystic mass. There is no pain or tenderness. Diagnosis is made by aspiration of milky fluid from the cyst.

Continuation of breastfeeding with the emptying of the breast either with pumping or hand expression is mandatory for symptom relief and rapid cure. Anti-inflammatory medications should be initiated to help with the pain and constitutional symptoms.

Antibiotic treatment, according to culture and sensitivity results, should cover staphylococci. Blood cultures can be withdrawn for patients with hemodynamic instability or severe infection. Failure to respond to medical treatment within 48 hours of therapy necessitates abscess exclusion with ultrasound.

Patients with recurrent infection, or infection that does not respond to medical treatment,
should be evaluated for inflammatory breast carcinoma, which should be ruled out with biopsy.

**Antibiotic regimens** should include cephalaxin and dicloxacillin in the case of methicillin-sensitive staphylococci. In the case of methicillin-resistant staphylococci (MRSA), clindamycin or trimethoprim-sulphamethoxazole should be used after the newborn period to avoid kernicterus.

In severe infection or hemodynamically unstable patients, vancomycin should be initiated empirically according to culture results. Therapy should last for 10-14 days.

**Oral lactobacillus salivarius PS2**, which is a lactobacillus probiotic, can be given to pregnant women with a previous history of lactational mastitis in late pregnancy to reduce the risk of infection after delivery.

**Complications of lactational mastitis**

The most common complication of lactational mastitis is breast abscess. Continued breastfeeding and early management can prevent complications. Another complication is the cessation of breastfeeding.

### Non-lactational Mastitis

Non-lactational mastitis is the inflammation of the breast tissue that is not related to lactation. It includes idiopathic granulomatous mastitis and periductal mastitis.

**Periductal mastitis**

Periductal mastitis is idiopathic inflammation of subareolar breast ducts. This condition has been associated with smoking; thus, it can be found both in men and women. Cotinine, which is a nicotine derivative, has been implicated in the pathogenesis, with necrosis and inflammation of the breast ducts. The most common organisms isolated are staphylococci, enterococci, bacteroides, and anaerobic streptococci.

The clinical picture is similar to lactational mastitis with inflammation and infection that may progress to abscess formation and sometimes a fistula draining to the skin surface. Zuska’s disease is a subareolar abscess due to obstructed mammary ducts with epithelial metaplasia. It has the same clinical picture with signs of inflammation and can mimic malignancy, especially in non-lactating women. A characteristic symptom is an areolar sinus with milk drainage.

**Differential diagnosis** includes duct ectasia, which can lead to duct distension with creamy nipple discharge. It is more common in older women. It is benign and age-related with no inflammation or infection.

**Smoking cessation** is the first step in management. Periductal mastitis can be managed with antibiotics according to culture and sensitivity results. Amoxicillin-clavulanate is commonly used or clindamycin as an alternative.

Abscesses or fistulas should be treated surgically with drainage and duct excision to avoid recurrence. Draining the abscess without excising the necrotic duct is associated with a high rate of abscess recurrence and fistula formation.
Idiopathic granulomatous mastitis

Peripheral multicentric inflammation of the breast of unknown etiology is characterized by small peripheral abscesses, peau d'orange of the overlying skin, sinus formation, and axillary lymphadenopathy. It can resemble malignancy, especially when mammography and ultrasound show a solid mass. Core biopsy is necessary for the diagnosis. A biopsy of the mass will show granulomatous inflammation but negative for acid-fast bacilli, fungi, and sarcoidosis. The inflammation is self-limiting and can last up to 12 months. Antibiotics are indicated in case of abscess formation, while steroids and surgical excision are not recommended.

References

Dabbs, David J. Breast pathology

Lactational mastitis via uptodate.com

Nonlactational mastitis via uptodate.com

Primary breast abscess via uptodate.com


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