

Mastitis — Symptoms and Treatment

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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 is most common in the **first six weeks of lactation**. It is usually due to **milk stasis** or **breast engorgement** with an incidence of up to 10% of **breastfeeding** mothers.

Pathology of Lactational Mastitis

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

Milk stagnation with **nipple crackles** or **excoriation** will predispose to microorganism infection and inflammation. 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. When an **abscess** is formed, **edematous cavitory mass** filled with **pus** will be seen. Microscopically, the breast will show **inflammatory cellular infiltration** with the **microorganisms** in special stains.

Clinical Picture of Lactational Mastitis

General constitutional symptoms of high fever, chills, fatigue, malaise, and myalgia will be present. Locally, the breast will be swollen, tender and firm, while 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 the treatment early based on the clinical presentation to avoid the formation of **breast abscess**. **Gram stain** and **culture of the milk** will give conclusive results about the causative organisms which will be unnecessary in most cases unless the infection is severe or recurrent. **Ultrasound** is used mainly to **exclude abscess** formation requiring **aspiration**.



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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** – tenderness and enlarged breast – but **with malignant features**: skin thickening, peau d'orange and axillary lymphadenopathy.

A biopsy is diagnostic. It is an **aggressive tumor with lymph node involvement** and sometimes **distant metastases** at the time of presentation. Invasion of lymphatic vessels is responsible for the clinical picture that resembles inflammation.

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 abscess can sometimes be **secondary** to another disease e.g. [diabetes](#), steroids, trauma, and [rheumatoid arthritis](#). It has the same clinical picture of mastitis but with **tender localized fluctuant mass**. The US is the diagnostic modality of choice.

Management of breast abscess is always **drainage with antibiotic coverage**. The US assisted needle aspiration, or surgical evacuation can be used.

Complications of a breast abscess 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 and sometimes with pain, but no signs of inflammation or systemic symptoms.

Differential diagnosis: galactocele

This is due to **obstruction of a mammary duct** with the formation of 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 symptoms 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 the US.

Recurrent infection, or infection that does not respond to medical treatment, should raise the suspicion for **inflammatory breast carcinoma**, which should be excluded with biopsy.

Antibiotic regimens should include **cephalexin, 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 then according to culture results. The duration of 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 a 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** that have 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 draining **fistula** to the skin surface. **Zuska's disease** is a **subareolar abscess** due to **obstruction of mammary ducts** with **epithelial metaplasia**. It has the same clinical picture with signs of inflammation and can mimic malignancy, especially in non-lactating women. **Areolar sinus with milk drainage** is characteristic.

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.

Abscess formation or **fistula** should be treated **surgically** with **drainage and duct excision** to avoid recurrence. Drainage of the abscess only without excision of 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 US show a solid mass and **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 take 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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