Current Mastitis Management

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Disclosures

- I have nothing to disclose.

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Objectives

- Identify mastitis as a spectrum of disease
- Learn mastitis prevention strategies
- Consider pharmacologic vs. non-pharmacologic management strategies for mastitis

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The Academy of Breastfeeding Medicine (ABM) Clinical Protocol #36

- "The Mastitis Spectrum"
  - It's more than "infected" or "not infected"
  - Mastitis means "inflammation of the breast/mammary gland"
  - This clinical protocol now encompasses mastitis and engorgement, reflecting this change
  - Includes subjects such as ductal narrowing with stromal edema all the way through mammary abscess

Mitchell KB, Johnson HM, Rodríguez JM, Eglash A, Scherzinger C, Zakarija-Grkovic I, Cash KW, Berens P, Miller B; Academy of Breastfeeding Medicine. Academy of Breastfeeding Medicine Clinical Protocol #36: The Mastitis Spectrum, Revised 2022. Breastfeed Med. 2022 May;17(5):360-376. doi: 10.1089/bfm.2022.29207.kbm. Erratum in: Breastfeed Med. 2022 Nov;17(11):977-978. doi: 10.1089/bfm.2022.29207.kbm.correx. PMID: 35576513.

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Why did we need to redefine mastitis?

- Were we doing a good job preventing it or treating it?
  - Mastitis is a common cause of lactation discontinuation
- Are there potential harms associated with antibiotic use during milk production?
- Were our previous interventions causing harm?
- Antibiotic resistance/overuse?
- Quality of evidence, new evidence

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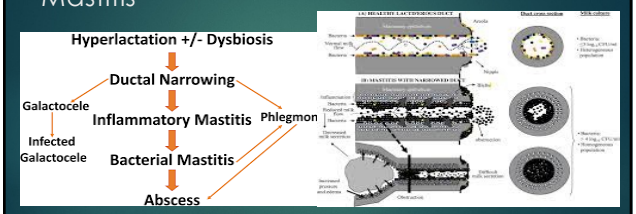
A Proposed Pathophysiology of Mastitis



Ductal inflammation leads to narrow lumens, surrounding edema, dysbiosis with homogenous bacteria, blebs and blockages, and infection.

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Dysbiosis?

- Disruption of the microbiome
- ABM Clinical Guideline suggests microbiome of ducts should be diverse
- Complex, lots of (potential) influences
  - Genetics
  - Medical conditions/medications
  - Antibiotics
  - Pumping
  - Mode of Delivery (Huh?)

Jiménez E, Arroyo R, Cárdenas N, Marín M, Serrano P, Fernández L, Rodríguez JM. Mammary candidiasis: A medical condition without scientific evidence? PLoS One. 2017 Jul 13;12(7):e0181071. doi: 10.1371/journal.pone.0181071. PMID: 28704470; PMCID: PMC5509296.

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How do we determine ductal dysbiosis?

- No established normal ductal microbiome or "eubiosis"
- Ductal microbiome is likely a highly dynamic environment
- ABM Clinical protocol bases dysbiosis theory on 2 studies that were done prior to modern microbiome research
- No research correlating bacterial cultures to specific symptoms such as engorgement, erythema and pain
- **Dysbiosis is difficult to establish and connection to mastitis is theoretical. The presence of certain bacterial and white blood cells may be a correlation and less causation.**

Douglas P. Does the Academy of Breastfeeding Medicine's Clinical Protocol #36 'The Mastitis Spectrum' promote overtreatment and risk worsened outcomes for breastfeeding families? Commentary. Int Breastfeed J. 2023 Sep 5;18(1):51. doi: 10.1186/s13006-023-00588-8. PMID: 37670315; PMCID: PMC10481477.

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Hyperlactation?

- Too much of a good thing..
- "Empty the breast" was a common refrain
- No evidence exists for "milk stasis" as a cause for mastitis
- Removing the milk too frequently decreases the feedback inhibitor of lactation(FIL) that naturally decreases production
- Can cause a loop of overproduction
- May be caused by patients attempting to "remove" a plug (although macroscopic plugs are an unlikely cause of mastitis) by pumping too frequently

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Pumping

- May contribute to hyperlactation/engorgement by promoting overstimulation
- Nipple or skin damage
- Tissue damage and swelling-pulling edema into nipple area
- Inappropriate flange fit

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Cesarean Delivery

- Is associated with delayed lactogenesis 2 (up to 11-13 days)
- The delay can lead to increased stimulation, pumping
- This can lead to edema, mismatch with milk production
- Unclear how ABM authors link mode of delivery to dysbiosis theory in the Clinical Protocol #36

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Overtreatment of early postpartum engorgement

- Early postpartum engorgement typically occurs on day 3-5 during lactogenesis II (may be delayed with c-section)
- Is typically bilateral
- Is not part of the mastitis spectrum by itself
- Should be managed with ongoing feeding or pumping on demand, cool compress, lymphatic drainage, well-fitting bra
- Will resolve spontaneously

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Ductal Narrowing

- Likely due to surrounding ductal inflammation, induration, and erythema from lymphatic congestion and alveolar/mammary edema
- This can progress to an inflammatory mastitis with a focus of erythema and induration in the breast/chest and systemic symptoms such as fever, chills, and tachycardia that are transient and last less than 24 hours
- Continue supportive measures including physiologic feeding, cool compress, and supportive bra

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Bacterial Mastitis

- Progression of ductal narrowing and transient inflammation to bacterial infection of the breast, usually in a specific area
- Systemic symptoms such as fever, chills, and tachycardia should be persistent and lasting longer than a few hours, unresponsive to conservative management
- Local symptoms that are severe and unresponsive to normal care should also be considered as bacterial mastitis
- Is not contagious, should continue routine infant feeding
- Questionably associated with nipple trauma
- Caused by staph and strep (skin bacteria)

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What, pray tell, is a phlegmon?

- A very cool word from the greek for burn (phlego)
- A localized, acute tissue inflammation with fluid collection and recruitment of white blood cells sometimes associated with bacterial infection
- "pre-abscess"
- Can be potentiated by deep tissue massage causing tissue damage, worsening edema, and microvascular injury
- Should be suspected when there is a "history of mastitis and a firm mass-like area without fluctuance"

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Breast Abscess

- Progression from bacterial infection to fluctuant fluid collection in a pocket
- Requires drainage
- Occurs in 3-11% of people with mastitis
- May present as relapsing and remitting symptoms like fever or symptoms that do not resolve with antibiotic therapy alone
- Diagnosis is by clinical exam or ultrasound
- Needs to be drained surgically

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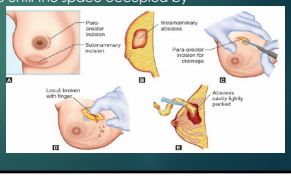
Abscess drainage

- Typically performed under anesthesia as it is difficult to perform an adequate local block with lidocaine
- Typically done by a breast or general surgeon
- Requires packing after incision is made until the space occupied by the abscess is healed closed



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Galactocele

- A cyst created by a blocked duct that is full of milk
- Often precipitated by nipple or retro-areolar damage
- Can be very large, firm, increasing in size over time
- Uncomfortable but not associated with signs of infection such as severe pain, warmth, redness
- Can become infected
- Appears as a simple or loculated cyst on ultrasound
- Many resolve spontaneously although drainage/drain placement and antibiotics can be used for persistent or severe symptoms

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Recurrent and Subacute Mastitis

- Symptoms that are recurrent after treatment
- No strict definition
- Likely predisposed to by hyperlactation, inadequate treatment of previous bacterial mastitis or nipple damage, and failure to treat underlying cause of previous mastitis
- May involve waxing and waning severity of symptoms

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General treatment recommendations

- Reassurance that conservative care can resolve some mastitis symptoms-physiologic (baby led) feeding, ice or cool compress, ibuprofen and acetaminophen, feeding on unaffected side first, nipple care with expressed breast milk or APNO
- Educate patients on normal postpartum changes and physiology of lactation-normal fullness and "lumpiness" esp in early days of lactogenesis II, normal sweating/hot flashes, temporary symptoms in case of delay in breast emptying

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General Treatment Recommendations

- Feed to baby's needs (baby led or cue based)-avoid attempting overproduction for storage, or trying to "fully drain the breast/chest" which causes increased production/hyperlactation
- Feed the baby at the breast/chest and avoid pumping if possible
- If unilateral breast/chest is so edematous that milk flow is very impeded, initiate cool compress, feed on the other side, and use lymphatic drainage. Resume when edema subsides.

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Dangle Feeding?

- What is this?
- Don't do it.

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General Treatment Recommendations

- Nipple shields aren't very helpful
- Support the breasts/chest with a well fitted comfortable bra to support lymphatic drainage and prevent pain
- Avoid deep massage of the lactating breast/chest
- Avoid salts, saline soaks, or castor oils
- Routine sterilization of pump parts more than daily or recommended is not necessary, just routine cleaning/rinsing
- Do not unroof nipple blebs

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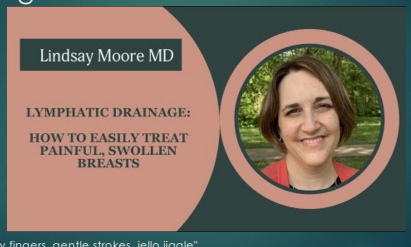
How do we encourage lymphatic drainage?



"Tippy tappy fingers, gentle strokes, jello jiggle"
https://www.youtube.com/watch?v=tnq_sDSdUk4

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Antibiotics for Treating Infectious Mastitis

- For persistent systemic symptoms lasting longer than several hours
- Penicillins/1st gen cephalosporins are usually first line as they have a narrow theraputic spectrum and are good for skin bacteria (staph and strep)
- If MRSA is suspected (nonresponse after 48 hours, no abscess), Trimethoprim/Sulfamethoxazole should be used
- Antibiotics for 14 days are recommended
- Continue feeding human milk on demand, it is not contageous of transmissable to others including infants.
- More study is needed

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Antibiotic prophylaxis

- There is no role for antibiotic prophylaxis in mastitis prevention.

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Probiotics for Mastitis Prevention

- Probiotics may reduce the risk of mastitis more than placebo according to a Cochrane Review
- Unclear if they reduce breast pain or nipple damage
- Quality of evidence is low
- Results from one large trial are not currently available
- Probiotics are expensive and stored refrigerated
- Consider adding foods with live cultures to diet-yogurt, kombucha, buttermilk, kimchee, sauerkraut ("eat your vitamins")

Crepinsek MA, Taylor EA, Michener K, Stewart F. Interventions for preventing mastitis after childbirth. Cochrane Database of Systematic Reviews 2020, Issue 9. Art. No.: CD007239. DOI: 10.1002/14651858.CD007239.pub4. Accessed 04 April 2025.

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Does Candida Mastitis Exist?

- Poorly understood in humans
- May be underlying cause of deep, persistent, shooting, bilateral breast pain
- May be precipatated by antibiotic use
- Can cause nipple damage ("macerated with yellow adherent film")
- Treat with oral fluconazole for 2 weeks and treat infant with nystatin if feeding at the nipple
- Wash clothes in hot wash/hot dry/sun dry
- Sterilize pump parts daily

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Topical Agents for Damaged Nipples

- All Purpose Nipple Ointment (antifungal, antibiotic, steroid)
  - In a randomized trial, APNO did not perform better than lanolin for symptom management at 1 week for damaged nipples(1) in 151 patients
- Cochrane Review of 4 trials (2):
  - "insufficient evidence that glycerine gel dressings, breast shells with lanolin, lanolin alone, or the all-purpose nipple ointment significantly improved maternal perceptions of nipple pain.
  - ...applying nothing or just expressed breast milk may be equally or more beneficial in the short-term"

(1) Dennis CL, Schottle N, Hodnett E, McQueen K. An all-purpose nipple ointment versus lanolin in treating painful damaged nipples in breastfeeding women: a randomized controlled trial. Breastfeed Med. 2012 Dec;7(6):473-9. doi: 10.1089/bfm.2011.0121. Epub 2012 Mar 19. PMID: 22428572.
(2)Dennis CL, Jackson K, Watson J. Interventions for treating painful nipples among breastfeeding women. Cochrane Database Syst Rev. 2014 Dec 15;2014(12):CD007366. doi: 10.1002/14651858.CD007366.pub2. PMID: 25506813; PMCID: PMC10885851.

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Multiple recurrences in the same location

- Requires radiological evaluations for underlying abscess, mass, or other breast/chest abnormality
- Granulomatous mastitis (rare, chronic, inflammatory breast condition, multiple granulomas or sites)
- Inflammatory breast cancer (aggressive, erythema, orange peel skin appearance, retraction of the tissue). If concern, urgently refer to radiology, breast surgery/oncology.

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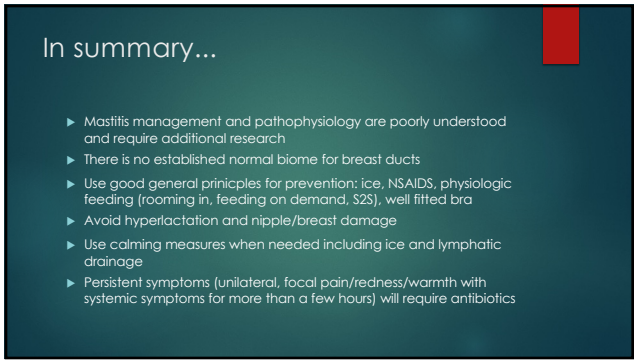
In summary...
Mastitis management and pathophysiology are poorly understood and require additional research
There is no established normal biome for breast ducts
Use good general prinicples for prevention: ice, NSAIDS, physiologic feeding (rooming in, feeding on demand, S2S), well fitted bra
Avoid hyperlactation and nipple/breast damage
Use calming measures when needed including ice and lymphatic drainage
Persistent symptoms (unilateral, focal pain/redness/warmth with systemic symptoms for more than a few hours) will require antibiotics

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