Maternal complications and breast masses in breastfeeding

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Disclosures

• No disclosures
Objectives

• Describe diagnosis and treatment of challenging complications in breastfeeding women
• Recognize other masses that may present in breastfeeding women
• Identify which imaging studies and workup for a breast mass should be ordered in breastfeeding women
Common complications

- Plugging
- Galactocele
- Mastitis
- Abscess
- Nipple bleb
- Nipple pain/breast pain
  - Trauma, infections, dermatitis, vasospasm
- Infected Montgomery gland
- Dependent edema
Engorgement

Plugged ducts

Noninfectious mastitis

Infectious mastitis

Abscess
Plugged duct

- Localized area of milk stasis with distension of ductal tissue
- Symptoms
  - Tender, full area or lump
  - Pain radiates to/from that area during nursing
  - No redness, fever, or systemic signs
  - Breast may not empty fully

WHO Mastitis, 2000
Plugged duct risk factors

- Inadequate emptying
  - Pumping
  - Nipple shields
  - Skipped feedings
    - Baby sleeping longer stretches
    - Mom return to work

- Oversupply

- Anatomic
  - Lactiferous sinus stasis with pooling of milk
  - Lower quadrants of pendulous breasts
Plugged duct treatment

- Sunflower lecithin 5000mg-10g/day
- Determine acute plugging versus more chronic
  - Acute (more common early post-partum), treat with lecithin +/- acute mastitis antibiotic regimen
  - Subacute mastitis (bacterial dysbiosis)
    - Sticky bacterial DNA = sticky milk = plugging
    - More subtle, often months to years post-partum
    - May present only with nipple pain and/or scabbing
    - Requires longer course abx (up to six weeks)

Berens et al ABM Protocol #26, Eglash, Newman, breastfeedinginc.ca
Persistent plugged ducts

- Midstream breastmilk culture
  - Prep NAC
  - Use sterile gloves
  - Hand express into sterile container
  - Send as “breastmilk culture not abscess fluid”

- If it doesn’t resolve, IMAGE
  - Persistent plug usually has become galactocele
  - Also need to r/o something more sinister
Plugged duct treatment: lifestyle interventions

- Frequent nursing and emptying
  - Avoid pump if possible
- Alternate nursing positions
  - Side lying position more likely to be a/w plugging
- Ensure bra fit is appropriate
- Therapeutic massage

Witt et al J Human Lact 2015
Galactocele

- Milk retention cyst (i.e. persistent plug)
  - Initially milk filled, but gradually becomes extremely thick, semi-solid material
- Caused by unrelieved plugged ducts
- Well-defined lesion on ultrasound with thin walls but can mimic other benign lesions if chronic

Cuoto et al Breast J 2016
Galactocele treatment

• US general surgery boards: repeated aspiration with 18 gauge needle
• However, stagnant milk is very sticky and can be difficult to remove via 18 gauge needle
• Can start with aspiration → if not completely empty or requires repeated aspirations without resolution …
  – 11 blade stab incision in clinic if superficial
  – 8 French interventional radiology (IR) drain for deeper galactocele in large breasts

Ghosh et al Breast J 2004
Mastitis signs and symptoms

• Sudden onset breast pain and erythema
• Usually unilateral and may be localized to a specific quadrant of the breast
• Systemic symptoms
  – Lactating breast most metabolically active organ in body
  – Myalgias, flu-like symptoms, headache, fatigue, fever, tachycardia

Amir, ABM protocol #4, Hamosh and Goldman Human Lactation 2
Mastitis risk factors

- Mastitis with prior baby
- < 3 months post partum
- Cracked nipples
- Use of anti-fungal nipple ointment
- Manual breast pump
- Engorgement, plugs
- Change in feeding frequency

Foxman et al Am J Epi 2002
Mastitis treatment

- Address predisposing factors
  - Latch, incomplete emptying, pump issue, nipple shields
- Frequent nursing and emptying
- Rest, decrease stress
- Heat prior to nursing
  - Activates immune system
- Probiotic with *lactobacillus salivarius* and *lactobacillus fermentum*
- Antibiotics
  - Some clinicians will wait 24 hours prior to starting antibiotics
Mastitis: important points

- ENCOURAGE CONTINUATION OF BREASTFEEDING, especially on affected side!
  - Abrupt weaning will worsen inflammation
  - Supply will diminish but rebound with resolution
- No need to pump and dump
  - Pumping will worsen mastitis, as it does not empty as well as baby latch
- Most antibiotics are safe in breastfeeding
  - Exception flagyl, some fluoroquinolones
  - Doxycycline, tetracycline safe for short courses
Recurrent mastitis

- Incompletely treated acute mastitis
  - Incorrect antibiotic, incorrect dosage and/or course length
- Persistent nipple trauma
- Persistent oversupply or plugging
- Persistent issue with lack of emptying
  - Pumping, mom at work, baby sleeping stretches
- Treatment
  - Midstream breastmilk culture
  - Change antibiotics
    - Know your community; varied MRSA patterns
  - Extended abx course 2-3 weeks
  - ? Probiotics
  - IMAGE
Breastfeeding Mastitis Algorithm for ER and Urgent Care

Breastfeeding Mastitis
If concerned for abscess, order diagnostic ultrasound

Ultrasound Without Abscess
- Dicloxacillin 500mg QID
- If history of MRSA: Clindamycin 300mg QID or TMP/Sulfa DS BID
- Alternate: Erythromycin 500mg QID
- Note: Keflex has poor penetration in lactating breast tissue
- OTC probiotics may also help
- Follow up with breast surgery

Abscess < 5cm
- Aspirate with 18 gauge needle; milk may be sticky and needle may need to be cleared with saline
- Culture
- Antibiotics as above; OTC probiotics
- If loculated/not well drained, send to IR
- Follow up with breast surgery

Abscess > 5cm
- STAT IR consult for aspiration, pigtail catheter drainage, and culture
- Antibiotics as above; OTC probiotics
- Follow up with breast surgery

Additional Information
- Aspiration or IR drainage of abscesses is the standard of care for lactating women
- Encourage women to continue breastfeeding; abrupt weaning worsens inflammation
- Encourage women to continue feeding from the affected side; there is no harm to mother or baby
- If the infant has no allergies, there is no need to pump and dump while taking antibiotics

Questions?
Call Dr. Katrina Mitchell
Cell: (646) 709-6048
Engorgement

Plugged ducts

Noninfectious mastitis

Infectious mastitis

Abscess
Abscess

- Localized collection of pus and stagnant breastmilk
  - Often retroareolar due to convergence of ducts, stasis
- Risk Factors: delayed or inadequate treatment of mastitis, SLEEPY BABY
- Symptoms: fever, myalgia, pain + fluctuant mass
  - May have absence of systemic findings
- Evaluation
  - Physical exam
  - +/- ultrasound

Abscess treatment:
Surgeons have come a long way ...
Abscess treatment

• **Continue to feed from affected breast**

• **Drainage, antibiotics, culture**
  – Multiple reports successful management with antibiotics and repeated aspirations (82-97% resolution)
    • Generally < 3-5 cm successful
  – Larger abscesses
    • IR catheter
      – Average length 2-6 days
    • 11 blade stab incision/penrose placement in clinic

Abscess treatment: IR drain
Milk fistula

- Communication between duct and skin
- Spontaneous versus complication of biopsy or drainage
- Management
  - Conservative: continue feeding
    - Lactating breast very vascular, heals very well
  - Extremely rarely persistent
    - Surgical excision of fistulous tract after breastfeeding complete

Milk fistula

• May not even be persistent in the setting of an untreated abscess and mastitis ...
Nipple bleb ("milk blister")

- Inflammatory lesion on surface of nipple
  - Causes painful latch and often associated with deeper breast pain, occult or overt plugging

- Treatment
  - Traditional: olive oil, moist heat
    - May be appropriate for true "blister" from latch trauma but can worsen obstruction in true bleb

O’Hara Breastfeed Med 2012
Nipple bleb continued...

- Treatment cont’d
  - Acutely obstructing: unroof horizontally with 18 gauge
    - DO NOT PROBE with lacrimal probe!
  - Triamcinolone 0.1% topical
  - Lecithin
  - Resolve predisposing factors
    - Antibiotics if question of subacute mastitis

O’Hara Breastfeed Med 2012
Nipple bleb ("milk blister")
BLEBS ARE NOT YEAST
YEAST
Nipple pain/breast pain: Issues for breast surgeon

• Trauma
  – Pump
  – Baby biting, pulling off nipple
• Infection
  – Subacute mastitis and plugging, Herpes, shingles, Candida
• Dermatitis
  – Contact dermatitis, eczema, psoriasis
• Vasospasm
Pumping ...
Pump trauma
Pump trauma treatment

• Address positioning, latch, and pump issues
  – Flange size
    • Breasts may change over course of post-partum months and flange size change may be needed as well

• Lubricated, moist healing environment
  – Think general surgery burns, wound care

• Treat any secondary infection

Berens et al ABM Protocol #26
Subacute mastitis (bacterial dysbiosis)

- May occur later post-partum
- Chronic intracellular infection of lactocytes
- Deep, shooting breast pain; patients will describe “glass shards” or burning
- **Misdiagnosed as yeast**
- Recurrent plugged ducts
  - Bacterial overgrowth = sticky milk
- Nipples/latch can be very tender and have scabbing, blebs

Eglash et al J Human Lact 2006, Milk Mob 2015
MOST BREAST PAIN IS NOT YEAST
RESEARCH ARTICLE

Mammary candidiasis: A medical condition without scientific evidence?

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Many physicians, midwives and lactation consultants still believe that yeasts (particularly Candida spp.) play an important role as an agent of nipple and breast pain despite the absolute absence of scientific proofs to establish such association. In this context, the objective

lected from the participating women. Results showed that the role played by yeasts in breast and nipple pain is, if any, marginal. In contrast, our results strongly support that coagulase-negative staphylococci and streptococci (mainly from the mitis and salivarius groups) are the agents responsible for such cases. As a consequence, and following the recommendations of the US Library of Medicine for the nomenclature of infectious diseases, the term “mammary candidiasis” or “nipple thrush” should be avoided when referring to such condition and replaced by “subacute mastitis”.

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Subacute mastitis treatment

• Breastmilk culture
  – Often grows rare strep or staph
    • *Staph aureas* more likely associated with fissures

• Empiric treatment
  – May need prolonged treatment of 4-6 weeks
    – Erythromycin 500 mg BID
    – Azithromycin 500 mg QD/fluconazole 200 mg QD

• Reduce oversupply
• Probiotic

Eglash et al J Human Lact 2006, Milk Mob 2015
Contact dermatitis

- Often history of eczema, allergic tendency
- Symptoms
  - Itchy and/or painful nipple, areola
  - Cracks, scabs
  - Erythematous
  - May have oozing of open areas
- Assess for allergic reaction
  - Baby medication or food
  - Laundry detergent
  - Breast pad material
  - Pump parts
  - Nipple crème, topical abx

Berens et al ABM Protocol # 26, Top photo: Berens
Contact dermatitis treatment

• Remember ... ask what baby has touched
• Triamcinolone 0.1% TID
• Rule out yeast, bacterial infection
  – Consider *staph aureas*
    • Consider rx with mupirocin if concerned
• Persistent, unresponsive
  – Punch biopsy
Focal nipple dermatitis

- 35F followed for nipple blebs, plugging
- Persistent left nipple flaking 3 months after cessation breastfeeding; asymmetric c/w right nipple
Focal nipple dermatitis

- Imaging negative
- Punch biopsy: dermatitis
Atopic dermatitis
Montgomery glands

- Naturally enlarged during pregnancy and lactation
  - Lubricate areola and nipple
  - Secretory compounds help baby localize to breast
- Can become obstructed like any other sebaceous gland
  - Symptoms may have started during pregnancy
  - Treatment
    - Salicylic acid
    - Warm compress
    - Gentle expression
    - 11 blade stab for true abscesses
Dependent edema

• If symmetric, bilateral
  – Reassurance
  – Supportive bra
  – PT
  – Massage

• Asymmetrical, not resolving
  – Punch biopsy
Masses that may present during breastfeeding
Lactating adenoma

- Painless benign breast mass in later pregnancy and lactation
  - Palpable, mobile, well-circumscribed
  - Likely result of hormonal stimulation
- Dense collection of acini and ducts with little intervening stroma
  - Most common axillary tail and UOQ
- Treatment
  - Usually regress spontaneously with weaning, decreased supply
  - Close f/u w/ imaging and exam
  - CNB if concern

Pathology image: Nebreda et al J Hum Lact 2016
Axillary breast tissue

- Treatment per mastitis protocol if symptomatic
- Will ultimately regress if not stimulated or emptied
Sebaceous cyst

- Can become obstructed like any other sebaceous gland
  - Symptoms may have started during pregnancy
- Treatment
  - Salicylic acid
  - Warm compress
  - Gentle expression
  - 11 blade stab for true abscesses
  - Definitive surgical excision

Doucet et al PLOS One 2009
Sebaceous cyst
Sebaceous cyst

• Most often midline/IMF in breast
• Abx, drainage if infected/abscess
  – Penrose for severe cases
• Excise 1-2 months later to ensure infection/inflammation clear
Nipple piercing complications
Nipple piercing orifice recanalization
Simple cysts
Fibroepithelial lesions

• Fibroadenoma
  – Observation
  – Excise if growing, painful (infarction), > 2-3 cm
• Phyllodes
  – Excise to r/o malignant phyllodes
  – Counsel on recurrence risk
Phyllodes can become VERY LARGE
Idiopathic granulomatous mastitis

• Rare, benign inflammatory breast disease often presenting with mass, overlying skin changes, abscess and fistula formation

  – Young women within five years of pregnancy or currently lactating
  – Greater prevalence in African, Hispanic, and Asian populations

Freeman et al Am J Surg 2017
Idiopathic granulomatous mastitis

- Image, biopsy, and culture
  - Rule out TB, sarcoid

- Treatment
  - Antibiotics
  - Steroid taper
  - Aspiration
  - Won’t heal surgical incision well

- Rheumatology consult
  - Often self-limited 9-12 months
  - May start methotrexate
Nipple adenoma

• Benign proliferative process of lactiferous ducts
  – AKA nipple papillomatosis, papillary adenoma of nipple
• Presents with nipple nodule, nipple erosion, nipple discharge
• Mixed data re: cancer risk
  – If detected at time of excision, usually two independent lesions

Lee and Boughey Breast J 2016
Fat necrosis after mastopexy

Can feel firm, irregular like a cancer

Reassurance; CNB; excision can propagate
Intramammary lymph nodes

- Uncommon to palpate
- Reassurance if no worrisome exam or radiographic findings
- Core needle biopsy if concern

Rivera et al Cur Surg 2006
Other breastfeeding questions ...
Nipple reduction
Skin tags: may grow in pregnancy

• Can present issue with latch
• Excise sharply
  – One interrupted 6.0 prolene closure
  – Remove suture at 3-5 days
• Counsel for keloid, ductal orifice obstruction
A quick note about nipple “inversions”

Postpartum
(often “inversion” is connective tissue that releases once baby latches)

Pregnant
True pathologic inversion
Inflammatory breast cancer

• History
  – Redness, swelling, shrinkage
  – Rapid progression not responsive to antibiotics

• Exam
  – Edema, erythema, peau d’orange
  – + Lymph nodes
  – Nipple and breast retraction
  – Skin ulceration

Photo: Anthony Lucci, MD
Inflammatory breast cancer

• Diagnosis
  – Imaging
  – Core needle biopsy of underlying mass
  – Punch biopsy of skin

• Systemic staging

• Treatment
  – Neoadjuvant chemotherapy
  – Modified radical mastectomy
  – Post-mastectomy radiation

Stearns et al, Ann Surg Onc 2002; Images: Anthony Lucci, MD
Paget’s disease

• Scaly, oozing, itchy eczematous lesion of the nipple-areolar complex (NAC) almost always a/w underlying malignancy
• 1% of all breast malignancies
• Treatment
  – Traditional: mastectomy + sentinel lymph node biopsy (SLNB)
  – Some cases may be amenable to removal of NAC, central segmentectomy, SLNB f/b radiation

Imaging during lactation

Image: Rebecca Saxe, MIT/Smithsonian
IMAGE AND BIOPSY

- Acute breastfeeding issues should resolve with proper intervention
- IMAGE and BIOPSY if acute symptoms fail to resolve
  - Subacute mastitis/recurrent plugging may also warrant imaging
- It is never wrong to image and/or biopsy
  - Older studies: delay > 6 months to diagnosis of cancer
  - More recent: diagnosis within 1-2 months

Limited radiation exposure

- B/l mammogram (MMG): 3mGy radiation
  - Uterus: 0.03mGy
- Max in pregnancy: 50mGy

What to order...

• **Bilateral mammogram** AND

• **Bilateral whole breast ultrasound**
  – Lactating breasts are extremely dense
  – U/S: 100% sensitivity and 100% NPV for detecting malignancy in lactating breasts

• MMG: 68-90% sensitivity

• Sensitivity of MMG inversely proportional to density of breast
• Increased density = increased chance cancer is obscured
Why not ultrasound alone then?

- MMG will detect suspicious calcifications that are not visualized on ultrasound
- Can help delineate extent of disease
Prior to imaging, breasts must be empty...

- Reduces parenchymal density resulting from retained milk
- Bring baby or pump to radiology suite
Biopsy

- Core needle biopsy
- Stereotactic biopsy
  - Generally for calcifications only seen on MMG
- MRI-guided biopsy
  - Other occult lesions
- FNA
  - Not for index lesion
  - Sample for additional nodal positivity
Screening in lactation?

• No uniform guidelines
• Many institutions recommend resuming screening 3 months after cessation of lactation unless high risk patient

Vashi et al, AJR 2013
Screening mammography

- Yearly screening mammogram beginning age 40
  - One in six breast cancers is in women age 40-49
  - Breast cancer age 40-44 is twice that for age 35-39
  - 40% of life years saved is due to screening in 40s

Hellquist et al, Tabar et al, ACR, SBI, ACS, ASBS
Tomosynthesis ("3D") Mammography

- Multiple images of breast acquired at different angles
- Clearer visualization of overlapping structures
  - 2D MMG: overlap can both hide pathology and mimic pathology
If you diagnose a malignancy ...

- Avoid abrupt cessation of breastfeeding
- Treat the cancer first
  - Surgery alone is often not the answer
    - Chemotherapy, anti-HER2 therapy, hormonal therapy, and radiation are changing survival rates in breast cancer
  - Contralateral prophylactic mastectomy always can be performed at a later date
    - In average woman, contralateral cancer risk 0.1-0.6% per year

ASBS 2016
Postpartum breast cancer

- Breast cancer diagnosed within five years postpartum shows 3-fold increased risk of distant recurrence and death c/w nulliparous patients
  - Poorer prognosis when controlled for stage and molecular subtype


Image: Adejolu et al AJR 2012

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Breastfeeding after breast cancer

• Egg preservation, chemo, partial mastectomy/lymph node biopsy, radiation -> IVF
  – Continue exams, imaging (U/S only during pregnancy) by oncology

• Expected RT limitation of physiologic function right breast

• Should produce normally contralateral breast
Thank you!
Stay in touch!

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I Saw You Nursing Today

Como todos los mamíferos
Caballo y camellos
Te vi amamantándo
Como osos y conejos

Childhood diseases are reduced, it’s true
Nursing helps a mom avoid high blood pressure too
Fur to fur, skin to skin
Scale to scale if you’re a pangolin
What a healthy happy way to be a baby human

Did you know it reduces cavities
And the risk of cellular disease
Drops the risk for moms and babies
And I saw you nursing today

Every 21 seconds a life is saved
Nursing is home-made first aid
Allergies, asthma hold less sway
’Cause I saw you nursing today

I saw you nursing like a seal, or an otter
Or an aardvark or an echidna
Today, I saw you nursing today