

DISEASE AND PROBLEM OF BREASTFEEDING

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NIPPLE AND BREAST PAIN —

Etiology — Causes of nipple and breast pain include

- Nipple injury from **improper suck**, latch or trauma from breast
- Nipple **vasoconstriction**
- Engorgement
- Plugged ducts
- Nipple and breast infections
- Excessive milk supply
- Nipple dermatitis/psoriasis

Evaluation — Evaluation of breast pain begins with a thorough history, examination of the infant and mother's breasts, and observation of feeding.

History — The following are key elements in the history:

The onset of breast pain, as breast pain in the first days of breastfeeding is most often caused by poor latch, whereas infectious causes of breast pain occur later.

- Description of the pain including the clinical setting. For example, pain that occurs in a mother who feels fullness of her breasts may be due to excessive milk supply. Whereas pain that occurs only with pumping may be due to trauma from the pump

- - Feeding history that includes the frequency and duration of feedings, when the milk "came in," and how well the infant latches onto the breast.
 - Previous breastfeeding experience.
 - History of yeast infections.
 - Maternal breast surgeries including breast reduction, piercings and implants, or the presence of inverted nipples.
 - History of nipple pain or extreme sensitivity during pregnancy.
 - History of Raynaud syndrome or autoimmune disease

Physical examination

Infant — Physical examination of the infant should focus on the **head and neck**:

- Torticollis commonly causes a unilateral sore nipple.
- A tight lingual or less commonly labial frenulum often causes sore, traumatized nipples.
- Cleft lip and/or palate, retrognathia, large adenoids with mouth-breathing, and oral defensiveness are other reasons for **difficulty achieving a nontraumatic wide latch with good vacuum**.
- **Mucocutaneous candidiasis that involves the oral cavity** (eg, thrush) or diaper area may be associated with breast pain.

Maternal breast examination — The mother's nipples should first be inspected for swelling, rash, vasospasm, impetiginized nipple pores, blocked pores, abrasions, ulcers, and open cracks. A thorough breast examination should also be done to identify engorgement, masses, abscesses, tenderness, or areas of erythema indicating mastitis.

Observed feeding — It is essential that an episode of breastfeeding be observed because most causes of breast pain in the lactating mother are due to **incorrect breastfeeding technique**. The latch and feeding technique should be directly assessed. For example, a poor latch may result in injury to the nipple and may interfere with the infant's ability to empty the breast, which may result in engorgement, plugged ducts, mastitis, and breast abscess.

Nipple pain — Sore nipples are one of the most common complaints by mothers in the immediate postpartum period. Pain due to nipple injury needs to be distinguished from **nipple sensitivity**, which normally increases during pregnancy and peaks approximately on the **fourth postpartum day**. Normal nipple sensitivity can be differentiated from the **pain due to nipple trauma**, the most common cause of nipple pain, by differences in their timing and course.

Normal nipple sensitivity — As noted above, most mothers experience nipple discomfort with breastfeeding initiation. This nipple sensitivity is usually limited to the first few suckles of the feed and is thought to be related to the negative pressure on the ductules that have not yet filled with milk. This "latch-on pain" should not persist throughout the whole feeding and should resolve completely after the first week or two.

If needed, the mother can use acetaminophen before the feeding.

Nipple injury —. Severe pain or pain that extends **beyond the first postpartum** week is more likely due to nipple injury.

Nipple injury usually is due to **incorrect breastfeeding technique, particularly poor position or latch-on.**

Nipple abrasion, bruising, cracking, and/or blistering may result when an infant

fails to achieve a proper latch-on. Mothers with **infants with mouth abnormalities** (eg, ankyloglossia or palatal anomalies) are at risk for nipple pain due to trauma.

General management — Management includes prevention of nipple injury and healing of traumatized nipples

- Prevention:

- The most effective techniques for preventing nipple trauma are proper positioning and latch of the infant.

- Anticipatory guidance should be given prior to hospital discharge, regarding prevention of engorgement..

- Avoidance of excessive moisture of the nipples and irritating cleansers. The nipples should be allowed to air dry gently after breastfeeding.

- Nipple abnormalities detected in the prenatal period should be evaluated by a lactation consultant. (See "Initiation of breastfeeding", section on 'Inverted nipples'.)

- Abnormalities of the infant's oral cavity (eg, ankyloglossia) should be evaluated during the birth hospitalization

- Care of the traumatized nipple consists of the following:

Assessment of infant positioning and. She should nurse first on the unaffected side.. latch-on and correction of improper technique



Traumatized nipples should be treated with moist wound-healing principles. If the nipple is cracked or abraded, an antibiotic ointment such as bacitracin or mupirocin is applied and a nonstick pad is used to cover the affected area..



If the nipples appear to be infected, a culture of the nipples should be obtained to check for bacterial infection (eg, staphylococcal aureus). If candidal infection is expected based on significant erythema and scaling, empiric treatment for yeast can be considered.

Cool or warm compresses, the application of expressed breast milk to the nipple, and mild analgesics such as acetaminophen or ibuprofen may be helpful.

There is probably no benefit to applying lanolin or other substances to the nipple. A systematic review evaluated the effectiveness of glycerine gel dressings, breast shells with lanolin, lanolin alone, or the all-purpose nipple ointment containing mupirocin, miconazole, and hydrocortisone. The review concluded that none of these interventions were clearly effective in alleviating nipple pain in lactating women, and that nipple pain decreased significantly by 7 to 10 days postpartum regardless of the intervention.

Despite this, lanolin is frequently recommended by health care professionals. Highly purified lanolin (**Lansinoh**) is purported to have enhanced safety and reduced allergic potential compared with other lanolins because residual pesticides and detergent residues are removed and the natural free alcohols are reduced

. Nonsterile honey may contain botulism spores and so should be avoided on the nipple. Medical grade honey should not have the risk of botulism in the infant but its efficacy has not been researched.

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- Highly concentrated vitamin E oil should **not** be applied to the nipples, because it is readily absorbed by the infant and may be toxic at high levels

Biting — Some infants cause pain to their nursing mothers by biting. Biting that occurs in the first few weeks postpartum is typically due to a tonic bite reflex that often occurs due to infant oral defensiveness, retrognathia, and tight lingual frenulum.

Biting may also occur due to teething after the normal teeth eruption at 3 to 12 months and may cause nipple pain and trauma. Infants usually bite more at the end of the feeding since their tongues cover the teeth during active feeding. Biting is often avoided by keeping the baby close to the breast while feeding with the mouth wide open, which prevents the baby's latch from becoming shallow onto the nipple.. Mothers should avoid expressing too much emotion over the event to discourage the infant from repeating it .Most infants learn quickly not to bite. They should be offered teething rings as more suitable objects for teething.

Areolar dermatitis — Eczema and psoriasis of the nipple/areolar complex can present as a red, scaly rash. Women describe sore, itchy, and painful burning of the areola and nipples, and it is more common in women with a previous episode(s) of either of these two skin conditions. Other contributing factors include irritant dermatitis due to soaps or fragrances, solid foods in the infant's diet, or allergic reaction to topical agents such as lanolin, antifungals, or antibiotics. Management begins with avoidance of potential irritants and allergens. Medium potency topical steroids are generally effective and should be applied after feeding. Ointments are more easily absorbed, but can expose the infant to mineral paraffins, which may be of concern next feeding. Expressed breast milk applied before the feeding is often effective in their removal.

Herpes simplex and herpes zoster – Women with herpes simplex and herpes zoster breast lesions **should not breastfeed** from the affected breast until the lesions resolve, because direct contact with the lesions may transmit the herpes viruses to her infant. Mothers should use careful hand hygiene and cover any lesions with which the infant might come into contact. **Mothers can pump and the expressed milk that does not come into direct contact with open herpetic lesions can be given to the infant.** Herpes simplex is diagnosed by viral culture, serology, or skin scrapings. Herpes zoster is usually diagnosed based on clinical examination, although laboratory confirmation may be needed if the presentation is atypical

Nipple vasoconstriction — Cutaneous vasospasm of the nipple due to arteriolar vasoconstriction can occur in mothers who have Raynaud phenomenon, unusual cold sensitivity, or nipple trauma

Clinical manifestations – Mothers with nipple vasoconstriction typically experience pain, burning, and paresthesias with cold exposure, nursing, or nipple trauma; the pain may radiate into the breast as a sharp or deep aching sensation. The vasoconstriction can be reproduced with exposure of the nipple to cold air or compresses. Between episodes, the mother is asymptomatic, and the nipples are normal in appearance. In patients with Raynaud phenomenon or cold sensitivity, vasoconstriction is responsible for the classic tricolor change of pallor, followed by cyanosis, and then erythema as the circulation returns

Management – In mothers with cold sensitivity, warming the entire body appears to be helpful in reducing nipple vasoconstriction, so affected mothers should breastfeed in warm conditions (if possible) and wear warm clothing or use a heating source applied over the bra. Other interventions include avoidance of vasoconstricting medications (eg, nicotine and caffeine) and warming the nipple at the onset of symptoms. Case reports suggest that the administration of nifedipine, a potent vasodilating calcium channel blocker, relieved symptoms of nipple vasoconstriction. Low levels of nifedipine are found in breast milk, but no adverse effects have been observed in nursing infants whose mothers have been treated with nifedipin.

Engorgement — Engorgement occurs either from interstitial edema with the onset of lactation after birth, or at other times during lactation **with accumulation of excess milk**

Clinical manifestations – Engorgement results in breast fullness and firmness, which is accompanied by pain and tenderness.

Among mothers, the affected area varies with primarily areolar involvement in some mothers, more peripheral involvement in others, and in some mothers **both peripheral and areolar involvement**. If the areola is engorged it can impair the baby's ability to latch and worsen the engorgement

Nevertheless, the following interventions are often used for pain relief associated with either primary or secondary engorgement

- Applying warm compresses or a warm shower enhances let-down and may facilitate milk removal either by hand expression or with suckling
- After or between feedings, cold compresses may decrease the swelling and discomfort
- Analgesics such as ibuprofen and acetaminophen may decrease the discomfort
- Cool green cabbage leave

Plugged ducts — Plugged milk ducts are localized areas of milk stasis within the milk ducts that cause distention of mammary tissue

Clinical manifestations – The presentation of a plugged duct involves a **tender and often painful palpable lump due to obstruction of a mammary duct without systemic findings**

.In addition to a plugged mammary duct, obstruction of the nipple pore ducts may also occur and present as a **white dot or bleb at the end of the nipple**, commonly referred to as a milk blister

Diagnosis – The diagnosis is made clinically on typical presentation and response to management. **Plugged milk ducts are distinguished by the absence of localized redness and no systemic findings from other conditions** (mastitis and breast abscess) that present with a tender area of breast inflammation. These other disorders are usually accompanied by systemic findings (eg, fever $>38.3^{\circ}\text{C}$, myalgia, chills, malaise, and flu-like symptoms).

- **Management** – Management is focused on **opening up the blocked milk duct and draining the area behind the blockage**. The following approach is based on clinical experience and expert opinion

Galactocele — Galactoceles are milk retention cysts that result from a blocked milk duct. They present as cystic, sometimes very large masses during pregnancy, lactation, and after weaning. Unless they are infected, they are usually painless. Initially, they contain milky fluid, but over time, contents become thicker, more creamy, or oily as the fluid is reabsorb

Ultrasound is the primary diagnostic imaging modality to distinguish galactoceles from other breast masses including adenomas, fibroadenomas, papillomas, lipomas, abscesses, and fibrocystic disease. In addition, although uncommon, breast malignancies can present as breast masses during lactation

Lactational mastitis — Mastitis is a localized inflammation of the breast that is associated with **fever, myalgias, breast pain, and redness..**

Although mastitis can occur any time during lactation, it is most common during the **first six weeks postpartum.**

infrequent feedings, oversupply of milk, nipple trauma, and pressure on the breast.

. **Systemic complaints may be present and include myalgia, chills, malaise, and flu-like symptoms.** In the early stages of breast infection, the presentation can be subtle with few clinical signs, while patients with advanced infection may present with **a large area of breast swelling with overlying skin changes (eg, erythema).**

Antibiotics are added for persistent symptoms of infective lactational mastitis.

Breast abscess — Breast abscess is a localized collection of pus within the breast tissue that is often preceded by mastitis. It is an uncommon problem in breastfeeding with a reported incidence of 0.1 percent that increases to 3 percent of women with antibiotic treated mastitis .The presentation of breast abscess is often similar to mastitis, with breast pain and systemic symptoms, but in addition there is a fluctuant, tender, palpable mass. Breast abscesses may also occur without fever or breast redness

Candidal infection — Many women are diagnosed with a "candidal" infection when they complain of sore nipples, especially when associated with deep sharp shooting and/or burning pains in the breasts, particularly when these symptoms occur in association with infant thrush

Diagnosis — Diagnosis of a candidal infection of the breast is challenging .In general, mammary candidiasis is diagnosed clinically based on the following:

- Breast pain out of proportion to physical findings
- History of infant oral or diaper candidal infection or maternal vaginal candidal infection
- Physical finding of shiny or flaky skin of the affected nipple
- If available, a positive skin scraping of nipple or areolar region demonstrating candida, or positive breast milk culture for candida

Maternal topical care – Topical miconazole or clotrimazole is initially used to treat the lactating woman. These agents are preferred rather than topical nystatin since there is less resistance of Candida species. Topical ketoconazole should be avoided due to potential hepatotoxicity for the infant. Combination topical antifungal and antiinflammatory agent (Mycolog) may also be effective.. However, prior to each feeding, visible residual medication should be removed using o the nipples. After feeding, the antifungal agent should be reapplied. If fissures are present, a topical antibiotic such as mupirocin or bacitracin is often added. These agents are also removed prior to and reapplied after each feeding

One percent gentian violet – In our experience, 1 percent gentian violet in water is often effective and is inexpensive, although also messy. It may be used if the mother's sore nipples are not responding to the ointments mentioned above, or may be used as an initial agent if the pain is intense. The medication is applied to the infant's mouth before a feeding, using a cotton swab. After the feeding, any areas of the nipple/areola that are not purple are painted with the medication. This is repeated once daily for three to four days (International breastfeeding center: using gentian violet). Risks of gentian violet include mouth sores in the infant, and nipple/areolar irritant dermatiti

Maternal systemic therapy – If the mother's symptoms **fail to respond to topical treatment**, or if she is not a good candidate for gentian violet due to problems with dermatitis or concerns about staining, **oral fluconazole is an alternative**. In our practice, we also use oral fluconazole as initial therapy if there is clinical evidence of candidal infection, ie, other **causes of nipple pain are ruled out, and if the infant has definite thrush**. If practical, **a breast milk culture also should be done** at the time of treatment to document whether candida is present in the breast milk. Other experts in the field only use fluconazole after confirmation of candidal infection, based on a positive breast milk culture or a potassium hydroxide **Dosing for lactating mothers is 400 mg the first day followed by 200 mg per day for 14 days**. this level in the milk is insufficient to treat yeast in the infant. The dose used to treat vaginal candidiasis (a single dose of 150 mg) is too low to be effective for candidiasis of the breast or nipple

BLOODY NIPPLE DISCHARGE — Some women have bloody nipple discharge during the first days of lactation, sometimes called "rusty pipe syndrome". This is more common with the first pregnancy, and it is thought to be caused by the **increased vascularization of the alveoli and ducts with the onset of milk production**. The color of the milk varies from pink to red or brown and generally resolves within a few days. This should be differentiated from *Serratia marcescens* **colonization of breast milk**, which can cause a bright pink discoloration, usually not in the early postpartum period

For patients with **bloody nipple discharge for more than one week**, other causes of bloody milk should also be considered, including **cracked nipples or subacute mastitis**. These disorders should be evaluated with a thorough breast examination and **breast milk culture**. If no explanation is found and the discharge persists, the possibility of an **intraductal papilloma** (tumor derived from the lining of the breast duct) should be entertained. **Evaluation for this can include mammography, breast ultrasound, and magnetic resonance imaging (MRI), usually with surgical consultation.**

MILK OVERSUPPLY —.

In some cases, the rush of the milk with the mother's ejection reflex may be too forceful, and the infant may have trouble feeding. Infants may choke and cough and become irritable with feeding, and may bite to clamp the nipple. Infants may either have an increased weight gain, or paradoxically, poor weight because of inadequate intake as they cannot handle the flow of milk, or because the infant is not receiving hind milk with its higher caloric content. Overproduction of milk typically resolves over the first few weeks of lactation.

Mothers with milk oversupply should be evaluated for drugs that increase milk production (eg, psychiatric medications that may be dopamine antagonists or herbs like fenugreek). If the problem persists, the mother should also be evaluated for hypo- or hyperthyroidism

Management — The management of milk oversupply and/or an overactive milk ejection reflex is based on clinical experience and consists of the following

Nursing position – Mothers should nurse with the infant in a more upright position and the mother leaning back or in the side lying position; this allows the infant to better control the flow of milk.

- Manual reduction of flow – Using a scissors-hold on the areola or pressing on the breast with the heel of the hand may restrict flow

Feeding strategies –. In these, the mother uses only one breast for a planned interval (**usually three hours**). The resulting milk stasis in the other breast should **decrease milk production**. For the subsequent three hours, the other breast is used.

Pumping – **Avoid pumping to prevent continued stimulation of milk overproduction**. However, some mothers may find it necessary to hand express some milk at the beginning of a feeding.

- Discomfort – **Cold compresses** can be helpful.

Medications – **Any galactagogues, including herbal forms such as fenugreek, should be stopped**. The use of pharmacologic intervention is not well studied.

Low-dose oral contraceptives or pseudoephedrine may be helpful.

NEONATAL JAUNDICE — Breastfeeding is associated with hyperbilirubinemia as two distinct entities, **breastfeeding failure jaundice** and **breast milk jaundice**, which are discussed separately

WEANING — The timing of weaning is a personal decision made by the mother in the context of her social setting. This decision is influenced by factors including subsequent pregnancies, career choices, and maternal health. **Exclusive breastfeeding is recommended by the American Academy of Pediatrics (AAP) for the first six months of life..** The AAP recommends breastfeeding be **continued for at least one year and longer as desired by the mother or child.**

Abrupt weaning — **Abrupt weaning is not recommended.** When abrupt weaning occurs because of unanticipated maternal-child separation or severe maternal illness, **engorgement** is likely and steps should be taken to diminish it. **The mother may experience "milk fever" (a condition of a flu-like illness with fever chills and malaise).** Rapid weaning results in a rapid decrease in prolactin, and this may cause an increase in depressive symptoms.

Routine weaning — Routine weaning of the infant after six months of age is most easily accomplished following the child's lead. **After the child starts solid foods, the child will diminish breastfeeding, and gradually the weaning process begins.** If the weaning is gradual, **engorgement is not likely to occur.** Strategies for weaning include dropping a breastfeeding session every two to five days, **shortening each breastfeeding session, and increasing the time between breastfeeding sessions.** Midday feedings are often ideal to eliminate first since the child is often active at this time and so may not become fussy. Persons other than the mother may have more **success offering other feedings** .During the weaning process, it is important that the mother continue to maintain closeness. It may be challenging for exclusively breastfed infants to **accommodate to bottle feeding.** Older infants may be directly weaned to a cup.

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ATTENTION**