ABSTRACT

This article identifies problems and conditions that contribute to nipple pain during lactation and that may lead to early cessation or noninitiation of breastfeeding. Signs and symptoms of poor latch-on and positioning, oral anomalies, and suckling disorders are reviewed. Diagnosis and treatment of infectious agents that may cause nipple pain are presented. Comfort measures for sore nipples and current treatment recommendations for nipple wound healing are discussed. Suggestions are made for incorporating in-depth breastfeeding content into midwifery education programs.

NIPPLE PAIN IN BREASTFEEDING WOMEN: CAUSES, TREATMENT, AND PREVENTION STRATEGIES

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It has been well established that breastfeeding promotes and maintains optimal infant health and prevents a myriad of subsequent childhood illnesses (1). Conversely, formula feeding poses numerous health risks to the infant, including a higher incidence of allergies, otitis media, respiratory infections, H influenza, and ingestion of heavy metals, iodine, and other contaminants (2,3). It is essential for primary health care providers to be cognizant of factors that can contribute to the avoidance or premature termination of breastfeeding and to develop prevention strategies prenatally as well as therapeutic interventions postpartally.

Nipple pain is the second most common reason for early weaning, surpassed only by the mother’s perception of insufficient milk supply (4). Most lactation experts agree that nipple soreness in the first week postpartum is “normal,” usually peaking between days three and six and then subsiding (5). In a study of 100 breastfeeding mothers, up to 96% of women experienced sore nipples during the first week of breastfeeding their infants, with the majority of those mothers reaching pain ratings of moderate to intense (6). Nipple pain beyond the first week usually signifies a problem that requires skilled assessment and intervention (5,7).

Even if the mother does not wean early, the psychological stress of chronic pain associated with nursing can lead to a disruption in the mother/infant relationship (7,8). A recent controlled study that compared 48 women presenting with nipple pain past the second week postpartum to 65 women without nipple pain found that those with persistent nipple pain experienced a significantly higher amount of depression, tension, and mood disturbances (8).

Pain is a common response given by women prenatally as a reason for not wanting to breastfeed. Comments such as “I’ve heard breastfeeding hurts” are frequently expressed in prenatal clinics when women are asked about how they made the decision to bottle-feed their babies. Providing anticipatory guidance to expectant mothers about the etiology, prevention, and treatment of nipple pain may increase the likelihood of initiating and maintaining breastfeeding. This article will review current literature on the origins and remedies for nipple pain in the lactating woman and discuss strategies for preventing complications in mothers and newborns.

ANATOMIC FACTORS

Poor positioning of the infant and/or poor latch-on is believed by many to be the most common cause of persistent sore nipples (5–10). If the baby is poorly latched on and suckles vigorously, the whole nipple can be sore (9). Latch-on is inhibited by poor positioning of the infant at the breast. The infant’s body should face the mother during feeding, with his ears, shoulders, and hips in alignment. His mouth should be in the same plane with the mother’s nipple as he begins to grasp it (5). The infant is properly latched on to the breast if he grasps an adequate amount of tissue into his mouth, has his tongue down, lips flanged, cheeks rounded outward, and demonstrates audible swallowing during rhythmic sucking (11). When soreness or bruising occurs on the upper portion of the nipple, the infant may be repeatedly applying pressure with his gums or pinching the nipple. Lifting the head up so that the baby is facing the breast directly may alleviate the problem (7,9). Pinched nipples due to poor positioning have been reported to cause white, blanched, painful nipples, vasospasm, and even deep breast pain (12). The nursing couple should be observed during a feeding in order to accurately assess and correct poor positioning.

Sucking and tongue problems can also cause nipples to be painful and may also put the infant at risk for insufficient milk intake (5,7,9,10). Nipple confusion brought on by the use of rubber nipples and/or pacifiers
may cause the infant to suck on the breast as if it were a latex nipple. These sucking actions use different tongue movements (10). While suckling the breast, the correct sucking motion starts at the tip of the tongue and rolls backward in a wave-like motion to remove the milk. The infant’s tongue forms a groove from the anterior to the posterior portion. This groove channels the milk backward (5). The nipple should not move in and out. If it does, this will cause friction and injure the nipple (13). During bottle feeding, the tongue is thrust forward against the end of the latex nipple to control the flow of milk. Some infants may need retraining if they are unable to suckle at the breast using the correct techniques. Referral to a lactation consultant or an occupational or physical therapist trained in suckling disorders may be appropriate for correcting the problem.

A short, tight frenulum (ankyloglossia) or a tongue that is too short may cause sore nipples (5,7). During normal suckling, the baby must place his tongue over the lower gum and curve the sides of the tongue around the breast tissue (5,13). If the baby is “tongue-tied,” he cannot accomplish this. A pediatrician can clip the frenulum if necessary to free the tongue for correct placement. In some cases, the frenulum may stretch with continued use, and clipping is not necessary (5).

Blisters on the nipple can be a source of pain for the lactating mother and may be caused by several factors. Herpes simplex virus (HSV) must be ruled out initially, since neonatal HSV is potentially fatal (7,9,10). Another cause of blisters may be excessive negative pressure to the nipple. During normal suckling, negative pressure is created in the oral cavity as the infant swallows. Unrelied negative pressure can be created by prolonged non-nutritive suckling as well as by pumping the breasts incorrectly (7). Mothers who use a breast pump should be counseled to use the lowest setting possible, which is efficient enough to remove milk and to limit non-nutritive suckling until the blisters heal (5,7,9).

“Milk” blisters develop infrequently but can be very painful. They appear as a white or clear blister on the nipple and are caused by a plugged nipple pore which is covered over by the epidermis (5,7,9). Treatment consists of application of warm compresses followed by putting the baby to breast immediately to break open the blisters (9). If the blisters do not open using this method, sterile needle aspiration may be necessary (5). Once the blisters are open, ice packs, analgesics as needed, breast shields, and antibiotic ointment will decrease the pain and facilitate healing (5,9).

**INFECTIOUS FACTORS**

A common cause of pain in the nipple and breast during lactation is the fungus *Candida albicans* (14,15). Transmission occurs from the infant’s mouth (thrust) to the nipple during feeding. Symptoms of a yeast infection usually occur suddenly after the mother has been nursing comfortably for some time (14–16). The mother may complain of red, sore nipples, itching, burning, or shooting pain in the breast during and after feeds, or cracked nipples that are painful and do not heal. The areola may appear red, shiny, or peeling (15–17). Occasionally, there will be no apparent signs on the breast but the mother experiences significant pain (17).

Preventive measures for yeast infections are well known by midwives and should be discussed intermittently during the prenatal course. Vaginal yeast infections during pregnancy, including asymptomatic yeast on Papanicolau smear, should be treated to decrease risk of passing the infection to the infant during birth. Mothers treated with intravenous antibiotics during labor or for postpartum conditions, (eg, mastitis, endometritis) should be counseled about susceptibility to yeast and its effect on breastfeeding and advised to be vigilant about family hygiene, diet, and recognition of early symptoms in herself and her baby. Intake of large amounts of dairy products, heavily sweetened foods, and artificial sweeteners may predispose a woman to Candida infection and should be avoided (9).

Thrush in the infant is usually characterized by white patchy areas in the mouth, with reddened tissue throughout the oral cavity; however, the baby could still be infected even if these symptoms are not present. He may be gassy, unusually cranky, have diaper rash, refuse to nurse or nurse more frequently, or pull off the breast repeatedly while still appearing to be hungry (5,17). The sound of a click from the baby while nursing may indicate a sore mouth caused by thrush that is preventing an optimal latch (14).

Treatment may consist of topical antifungal cream (nystatin, clotrimazole, ketoconazole, miconazole nitrate, ciclopirox, or naftifine hydrochloride) gently massaged into the mother’s nipple after each nursing or every 3 hours for 14 days and 1 mL of nystatin suspension to the baby’s mouth using the same regimen (10,16). Some dermatologists consider nystatin cream to be less effective than the above-named antifungal creams (16). Further, dermatitis caused by a reaction to the preservatives used in some mycostatin formulations has been reported. In some cases, several weeks of treatment are required to resolve the pain. Good results have been reported using

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oral medication for the mother (mycostatin capsules 500,000 U or fluconazole 200 mg/day for 2–4 weeks) when pain persists after the initial course of treatment (18,19).

Prevention of cross-contamination in the family is essential to eradication of yeast. If pacifiers or rubber nipples are used, they should be boiled. Bedding, towels, bras, and diapers should be washed separately in hot water with one cup of distilled vinegar added to the rinse. A disinfectant solution should be wiped on the infant’s changing and bathing equipment (14). Mothers and fathers may need extra support during this time in order to cope with adjusting to a new baby and being constantly aware of eradicating this fungus (17).

A number of other organisms have been found to be associated with nipple pain during lactation. In a study of 52 Australian women with nipple pain, *Staphylococcus aureus* was found in the nipple or the breast milk of 42% of women with pain compared with only 5% of breastfeeding women who had no pain (15). These authors also found a significant association between the presence of a nipple fissure and the growth of *S aureus* (62% vs 19%). Fissures on the nipple are not only painful but also are portals for the introduction of infection into the breast, such as mastitis and breast abscess (8). Nipples with cracks, fissures, or ulcerations with or without a crusty, yellow exudate should be cultured for *S aureus*. A recent study of 84 women with *S aureus*-infected nipples found that systemic penicillinase-resistant antibiotic therapy for 10 days was more effective than topical antibiotic ointments in eradicating the infection and preventing recurrence (20). Good handwashing and rinsing the nipple with clean water before feeding may prevent the spread of this organism (16).

Eczema of the nipple and breast can be very painful for the nursing mother. The condition is characterized by erythema, papules, vesicles, crusts, erosion, oozing, lichenification, and excoriation (21). Consultation with a dermatologist should be considered when eczema is suspected. Treatment with a small amount of steroid ointment applied 4 times a day after feeds has been reported with resolution of symptoms within 10–17 days (16,21). Small amounts of ointment (rather than cream) applied after feedings is considered safe for the infant (22).

**PREVENTION, TREATMENT, AND HEALING STRATEGIES**

Although much has been written on the causes of nipple pain in the breastfeeding mother, there is less research on prevention, comfort measures, and approaches to healing. Discovering and correcting the underlying cause is certainly a primary goal of treatment; however, research-based advice to the mother on preventing pain, managing the pain from feed to feed, and expediting healing should also be a priority to help her continue breastfeeding.

**Prevention**

It has been suggested that normal neonatal suckling can induce skin damage and inflammation to the nipple; thus, nipple pain may be unavoidable (7). Other lactation experts believe that with proper positioning of the infant, nipple pain can be prevented in most cases (8). Discussing latch-on techniques and signs of improper positioning with women during the prenatal period and again after birth may assist them in recognizing the problem before damage occurs. This maternal knowledge may be especially important when the postpartum/nursery nursing staff is not skilled in nor committed to supporting early breastfeeding. Preparation measures, such as prenatal rubbing of the nipple with a terry cloth towel, may remove oils that keep the nipple supple and have not been found to decrease nipple soreness during lactation (5). Accurate and thorough prenatal history taking may reveal personal and family histories of herpes, yeast, allergies, or dermatological disorders that could potentially be problematic during lactation.

**Treatment**

A number of remedies for nipple pain have been examined in an effort to provide a scientific basis for common interventions. In a randomized trial of 65 breastfeeding primiparas who presented with nipple pain, application of warm water compresses, application of wet tea bag compresses, and no treatment were compared to evaluate the effectiveness of water versus tea bag compresses in treating sore nipples (23). This study found that water and tea bag compresses were equally effective in alleviating nipple soreness. Another study compared the effectiveness of applying warm compresses, dried breast milk, and lanolin in relieving nipple pain. Women in this study who used warm compresses reported the least amount of pain after treatment (24). An earlier study by the same group of authors compared application of tea bags, warm water compresses, and breast milk to sore nipples, and instruction on technique only. That study found that the group who used warm water compresses had significantly less pain than the other three groups (25). Warm water compresses have the advantage of being convenient, inexpensive, and nonpharmacologic.

When sore nipples are not attended to quickly, tissue breakdown can progress rapidly and, in some cases, nipple injury can be extensive (11). Currently, many lactation consultants and clinicians subscribe to the principles of moist wound healing as the most effective treatment of decreasing devitalized tissue, increasing the rate of epithelization, and decreasing the traumatizing...
effects of drying (26). The use of hydrogel dressings has been reported to be very effective in managing pain and facilitating healing of nipple wounds by providing a moist environment that facilitates healing (26). The small, moist dressing is placed on the nipple, removed only for feeding, and replaced every 1 to 3 days. A breast pad can be used to keep the dressing in place.

DISCUSSION

Nipple pain is a common reason for the avoidance or termination of breastfeeding. Midwives should have a working knowledge of a wide range of causes and treatments for nipple pain to support the continuation of breastfeeding in their clients. The origins of nipple pain may be relatively straightforward, as in positioning problems; however, they may be complex enough to warrant consultation with other health care professionals, such as a lactation consultant, occupational or physical therapist, dermatologist, or pediatrician.

Time during the prenatal period should be devoted to the discussion of prevention and management of potential problems with breastfeeding. Women who have risk factors for nipple or breast infections should be particularly targeted for anticipatory guidance. Then, if nipple pain does occur, the woman may be better able to cope with the problem until it is resolved. Also, those who have had little or no exposure to breastfeeding and plan to bottle feed may have fears dispelled when accurate information about pain and breastfeeding are offered. Postpartum rounds should include observation of the infant during nursing, if at all possible, at least once before discharge in order to assess latch-on and positioning.

CONCLUSION

Many midwives in the United States begin their midwifery education with little or no prior clinical experience with breastfeeding. Thus, every midwifery education program should incorporate into the curriculum specific content related to diagnosis, treatment, and referral of breastfeeding problems, as well as breastfeeding promotion and counseling strategies. In addition, breastfeeding assessment and interventions should be an integral part of antepartum and postpartum clinical experiences. Participation in continuing education programs related to lactation can help practitioners to increase and maintain skills that will improve clinical practice and patient care outcomes.

REFERENCES


