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## Consultant's Corner: Recurrent Plugged Ducts

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Scenario:

Elizabeth, a lactation consultant in private practice, is frustrated when a client returns with persistent plugged ducts. She often sees mothers around three to six weeks and again around four months postpartum, with a combination of symptoms including white blebs at the tip of the nipple and abundant milk supplies. Often she works with them to clear up the plugged ducts, only to find them back under times of stress, when other children are sick or during the holidays, on the brink of mastitis. Elizabeth would like better indicators to help identify the risk factors for recurrent plugged ducts and suggestions for ways to work with mothers in their treatment to avoid other complications. She has heard about the use of alternative therapies, possibly even ultrasound, but is unsure of the scientific efficacy of these treatments.

Invited Response by Suzanne Hetzel Campbell Ph.D., APRN-C, IBCLC:

Recurrent or persistent plugged ducts are a significant problem for a large percentage of lactating women. Without effective treatment, plugged ducts can lead to infective mastitis,<sup>1</sup> breast abscess and ultimately breastfeeding cessation. There is a lack of scientific research examining the incidence, risk factors, causes, and treatment for recurrent plugged ducts. Although incidence has not been studied or documented, anecdotally and experientially it appears that approximately two-thirds of women experience plugged ducts at some point in their breastfeeding experience. Fetherston found the most significant predictor of mastitis in both experienced and first-time breastfeeding women was the presence of blocked ducts. Predictors in first-time breastfeeding women included: engorgement, hurried feeds, and using a nipple shield,

while predictors in experienced breastfeeders were: restriction (e.g. tight bra), milk described by mothers as “thicker”, misshapen nipple after the feed, and a past history of mastitis.<sup>2</sup> Often circumstantial situations that interfere with infant led nursing combined with physical risk factors such as poor latch, ineffective breast emptying and pumping or restriction of the breast, cause persistent plugged ducts and the sequela that may follow.

Some of the physical symptoms that individuals with plugged ducts may describe include: a tender lump in the breast, an area of blush color to the skin over the tender area, and the breast itself may feel hot. Others will have a white bleb at the end of the nipple on the breast with a plugged duct and some complain of pain in the nipple or brief and shooting pains in the breast. The tender lump indicates an area where milk flow has been impeded and is not moving freely. If left unattended, the area may become warm and send shooting pains. The white bleb represents an actual blocked duct, similar to the tip of white glue that has solidified with exposure to air. As the mother works on removing the plugged duct, the bleb should also work its way out. In addition to physical symptoms, the lactation consultant can be aware of risk factors for plugged ducts from the client’s lactation history.

In taking the lactation history of an individual there are some indicators that should alert the lactation consultant to the possibility of this person developing recurrent plugged ducts. These indicators may include: early and/or extreme post-partum engorgement, high milk supply, milk leaking in between feedings and/or one breast spraying when the other lets down. In addition, some clients report having used an ointment for sore nipples<sup>3</sup>, such as lanolin, or nipple shields<sup>2</sup>. The use of lanolin or nipple shields does not indicate a woman will develop plugged ducts, nor is the ointment

or shield necessarily “causing” the problem. However, the presence of these factors should alert the lactation consultant. A mother who has returned to work or school and is pumping while separated from her infant is also at increased risk<sup>3</sup>. Although breast pumps have become more efficient, they cannot match the infant’s ability to empty the breast. Finally, clients may report a past history of recurrent plugged ducts and/or mastitis with other children<sup>3</sup>. Physical symptoms in combination with the lactation history should alert the lactation consultant to the client’s risk for recurrent plugged ducts.

Factors that can lead to plugged ducts include: insufficiently emptied breasts related to following arbitrary cultural rules about restricting or timing feeds, or side-switching (neither determined by infant cue); infant behavior and positioning at the breast; or environmental factors. Problems can occur in early postpartum if the mother experiences engorgement and the infant is pre-term, near-term, or sleepy from jaundice. Anything that interferes with latch and the adequate transfer of milk can lead to plugged ducts. If the mother experiences cracked or bleeding nipples, or pain with nursing, it is probable that the infant is not effectively emptying the breast. The lactation consultant may notice that the nipple is misshapen, “lipstick shape” or compressed flat after a nursing. Misshapen or sore nipples may be indicators of a shallow latch, insufficient breast emptying, and increased risk for plugged ducts.

Infant behavior at the breast such as tugging, pulling, or twisting at the nipple may be related to milk flow issues. These behaviors may reflect either the impatient infant waiting for the flow to begin, or the infant struggling to control an abundant milk supply and fast flowing milk.<sup>4</sup> Elizabeth complained of the increased occurrence of plugged ducts in older infants, for example at four months. Older infants’ developmental changes,

including increased mobility and greater interest in their environment, lead to sudden pulling at the nipple and less than optimal positioning. Infants with older siblings may be exposed to more distractions, causing them to quit feeding early and/or to nurse less often. In addition, at this age infants may start sleeping longer during the night, resulting in decreased breast emptying.

Outside environmental factors that cause sustained pressure on the breast, such as: infant carriers (especially front-holding), heavy purses or diaper bags, and restrictive clothing (e.g. tight, under-wire, or sport bras, bathing suit), may also interrupt the milk flow, resulting in plugged ducts.<sup>5,6</sup> Other factors that may affect the mother's physical and emotional health are fatigue and maternal stress. Busy, active, hectic days can lead to the mother breastfeeding hurriedly and/or leaving the breast unemptied for longer periods of time. Major holidays and/or family celebrations, family crises or illness, also increase maternal stress and can result in infrequent feeds. Clients experiencing persistent plugged ducts report a return to commitments outside the home (e.g. work or school), partners who travel or work long hours, a lack of support systems, stress and fatigue.<sup>7</sup>

#### Interventions:

In general, lactation consultants can educate mothers experiencing persistent plugged ducts about the importance of baby-led breastfeeding and avoiding arbitrary rules about breastfeeding. Baby-led breastfeeding refers to the mother understanding the infant's cues and behaviors (rooting, hands to mouth) and watching the infant rather than the clock for timing, frequency, and duration of feeds. The lactation consultant's role in educating the mother to recognize when her infant is hungry, to determine whether the

latch is comfortable, and to recognize comfort and effective emptying in her own breasts is crucial. In addition, demonstrating various positions for more effective emptying (e.g. directing the infant's chin toward the plugged duct)<sup>5</sup> and teaching breast massage can be helpful as well. For easily distracted infants, suggesting that the mother nurse in a quiet room or waiting until the infant is sleepy to nurse most effectively may be helpful.

Once plugged ducts have formed, traditional treatments such as hot compresses to the site (wet or dry) work well. Hot showers and baths, with or without some form of massage, are often used. Many lactation consultants recommend analgesics and massage, using firm pressure behind the lump of milk, pressing the mass of milk towards the plug in an effort to move the blockage towards the nipple. Frequent attention to the site and eliminating plugged ducts is of the utmost importance, to avoid the other more severe complications of mastitis and breast abscess. Some mothers experience relief from pain and discomfort with ibuprofen, an analgesic and anti-inflammatory. To accomplish the traditional treatments' goals, mothers need relief from day-to-day duties of household management and the care of other children. Finding support from family members, friends, and/or doula's can save the breastfeeding relationship and avoid future complications and problems at this critical point in time. Emphasis on baby-led feeding, effective latch and positioning, and early recognition and management of plugged ducts is the foremost goal for the lactation consultant working with all clients with persistent plugged ducts.

In another venue, physicians and physiotherapists have recommended trying therapeutic ultrasound for the treatment of plugged ducts. Newman states that if blocked ducts are not resolved in 48 hours "therapeutic ultrasound *often* works". He goes on to

suggest that ultrasound also appears to prevent recurrent plugged ducts that occur in the same part of the breast.<sup>8,9</sup> The only known blind randomized clinical trial using ultrasound showed that overall the treatment (i.e. ultrasound and heat or massage therapy) was successful for early postpartum engorgement, but the ultrasound portion *alone* did not make a significant difference.<sup>10</sup> In a Cochrane review of treatments for breast engorgement, the placebo effect, ultrasound treatment without the ultra-wave emitting crystal, was equally effective to that with the ultra-wave emitting crystal. This raises the possibility that the effect on breast engorgement was due to the radiant heat or massage therapy provided as part of the ultrasound treatment, not the ultrasound therapy itself.<sup>11</sup> Although efficacy of ultrasound therapy has not been shown to be effective as a sole intervention for postpartum engorgement, many popular breastfeeding guides include it as a viable option for the treatment of plugged ducts.<sup>9,12</sup>

In the United States, physical therapists may provide ultrasound treatments for plugged ducts. In a pilot study<sup>7</sup> utilizing clients from Breastfeeding Resources, a specialty medical practice in the northeast United States, Dr Christina Smillie and I looked at women referred for ultrasound for the management of their plugged ducts and compared them to those managed without ultrasound. No significant difference in outcome was noted between these groups.

The use of ultrasound, while perceived as effective by the mothers, was viewed nevertheless as stressful and not empowering. As a result of their study, the clinical staff at Breastfeeding Resources decreased their referrals for ultrasound. An unexpected result was their altered approach to plugged duct massage. Based on techniques learned from the physical therapists, the clinicians stopped recommending massage from behind the

plug, but instead suggested massaging in front of the lump of milk towards the nipple, as if "trying to clear a pathway."<sup>13</sup> The mother begins her kneading close to the nipple, pushing towards it. She then changes the starting point, so that she begins her kneading a little further back, starting her massage movements successively closer to the lump of milk, but always pushing towards the nipple. Dr. Smillie notes this is "less painful and more effective than using the lump of milk as a battering ram against a long stringy dried plug." Ramsay's ultrasound investigations of breast anatomy<sup>14</sup> indicate that the milk ducts are convoluted and mothers may come to recognize the areas in their breasts where they are more likely to experience persistent plugged ducts. These mothers may be predisposed to tender, inadequately emptied areas in their breast/s and can be educated about the benefits of massage while breastfeeding, and the positive effects of altering positioning to best empty areas where they most likely experience plugged ducts repeatedly. Encouraging the infant to nurse before and after heat therapy and massage increases the likelihood of eliminating plugged ducts. If a breast feels uncomfortably full, removing milk by hand expression or with a pump "to comfort" can avoid the development of plugged ducts. In addition, encouraging clients to trust the infant's cues related to feeding, allowing them to "empty the breast" and switch sides when they are ready, will help to avoid plugged ducts.

#### Conclusions:

Persistent and recurrent plugged ducts can be a frustrating and overwhelming condition that puts a mother at risk for other complications and early cessation of breastfeeding. Traditional treatment in the early stages, including recognition of risk factors – physical, emotional, and lifestyle factors – can lead to early treatment and relief.



The use of hot compresses, including water therapy (hot showers or baths), and directed massage are key, as well as finding ways to minimize stress and allow for adequate opportunities for breastfeeding that allow sufficient removal of milk so the breast/s are usually comfortable. The mother of young children needs support, encouragement, and realistic goal setting when a new infant is added to the family. Recognizing triggers for plugged ducts with individual clients may help them to prevent the recurrence of plugged ducts. Information about how to differentiate plugged ducts, mastitis, and other infections and when to contact their primary care provider is critically important as well. Referral for ultrasound therapy specifically for plugged ducts needs more scientific study. Until randomized clinical trials have been completed, we cannot be sure of the efficacy of these treatments. A lactation consultant who takes the time to consider all the aspects of her client's life to provide holistic care and who helps her client trust her baby's cues and her own instincts will do much for the prevention and treatment of recurrent or persistent plugged ducts.

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**Suzanne Hetzel Campbell** is an assistant professor of nursing at Fairfield University School of Nursing. She has been a La Leche League leader since 1991, working with

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low-income and employed women, and is on the Board of Directors of the Connecticut Breastfeeding Coalition. She studied plugged ducts as part of an ILCA grant with co-investigator Christina Smillie, MD, FAAP, IBCLC while employed as a lactation consultant/nurse practitioner at Breastfeeding Resources in Stratford, CT. She would like to acknowledge Sue Iwinski and Dr. Smillie for their helpful suggestions in the writing of this response. Address correspondence to Suzanne Campbell, Fairfield University School of Nursing, 1073 North Benson Road, Fairfield CT, 06824, USA; email: [scampbell@mail.fairfield.edu](mailto:scampbell@mail.fairfield.edu).