

### The maternal hyperlactation syndrome

*When there's too much breast milk, a spectrum of complications may arise. If you recognize the signs, the solutions are often simple.*

**Verity Livingstone**

#### ***This article will help you to:***

- detect the signs of the maternal hyperlactation syndrome
- use simple procedures to treat blocked ducts and strip congested breast segments
- treat breast abscesses surgically
- know which antibiotics to use to allow breastfeeding to continue

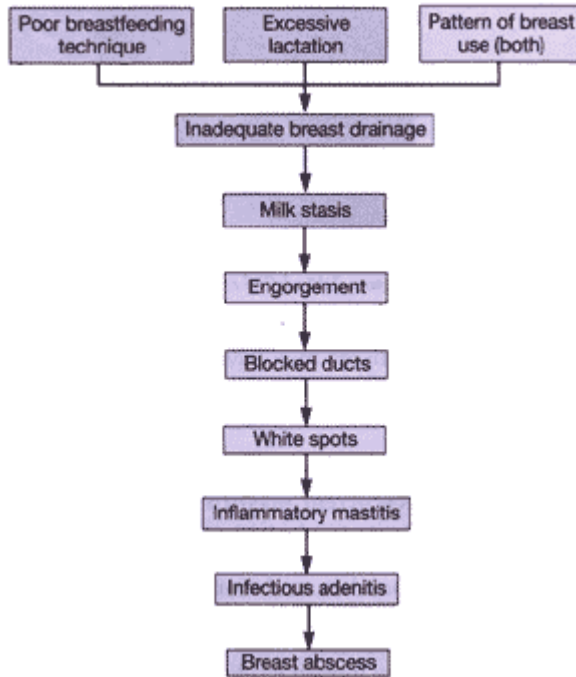
#### ***Practice Point***

- Incomplete drainage may be aggravated by poor positioning and latching or impaired infant suckling.
- Seepage of milk into the interstitial tissue causes it to become inflamed and erythematous, signifying an inflammatory mastitis.
- A high fluctuating fever associated with a firm, demarcated, tender mass, usually with erythema of the skin, indicates abscess formation.
- Use gentle abrasion or a sterile needle to remove epithelial skin and open a blocked nipple pore.

A rapid synthesis of breast milk combined with milk retention leads to the clinical spectrum of the maternal hyperlactation syndrome. The symptoms and possible consequences include:

- milk stasis and blocked ducts
- lactiferous duct colic
- inflammatory mastitis
- acute infectious mastitis
- chronic infectious mastitis
- breast abscess.

Many breastfeeding mothers experience one or more of the above problems. They often have large, thriving infants and may have started to wean. The pathophysiology is as follows: milk retention results from incomplete breast drainage and may then lead to lower or upper lactiferous duct disease, including lactiferous sinus and duct distention, spasms and colic. Secondary complications include ascending lactiferous tract infections such as lactiferous sinusitis, adenitis, and breast abscess (Figure 1).



**Figure 1** The maternal hyperlactation syndrome. (Source: Livingstone VH. *Too Much of a Good Thing: Maternal and infant hyperlactation syndromes. Canadian Family Physician* 1996;42:89-99).

## Milk stasis and blocked ducts

Milk stasis occurs when a mother with a high milk output switches her infant from one breast to the other before the first side has been adequately drained. A strong milk ejection reflex causes a rapid letdown of a large volume of pooled milk and the infant quickly becomes satiated before all the lactiferous ducts are drained. Incomplete drainage may be aggravated by poor positioning and latching or impaired infant suckling. If this occurs repeatedly, some of the ducts and lobules remain constantly full. A firm, tender, wedge-shaped segment becomes palpable and a small white spot may become visible on the nipple which represents edematous epithelium blocking the nipple pore and milk flow. In some cases, a lactiferous duct obstruction is due to a small calculus of caseinous milk precipitate.

### *Lactiferous duct colic*

If the lactiferous duct outlet become blocked, increased retrograde pressure may result. The ductal colic that results is caused by myoepithelium smooth muscle contractions. Mothers may complain of sharp, “knife-like” cramps or shooting pains deep in the breast, often between feeds. Relieving the obstruction resolves the pain.

### *Inflammatory mastitis*

A firm, lumpy, slightly tender quadrant in the breast may be palpable due to milk stasis. If this area is not drained, milk will eventually seep into the interstitial tissue, causing it to become inflamed and erythematous. This signifies an inflammatory mastitis, and may occur within 12 to 24 hours of milk blockage. Under normal conditions, the milk leukocyte count is less than 10.6 cells per mL of milk and the bacterial count is less than 10.3 cells per mL of milk. Within 48 hours of breast symptoms, the leukocyte count increases to more than 10.6 cells per mL, but the bacterial count remains low. This is considered noninfectious inflammation of the breast; improved milk drainage will quickly resolve the situation.

### *Acute infectious mastitis*

A high rate of milk synthesis combined with continuous, poor drainage of a segment of the breast may result in the stagnant milk becoming secondarily infected with common skin pathogens via an ascending lactiferous duct infection. Infectious mastitis is defined as having a leukocyte count and bacterial

count of more than 10.6 mL/milk. Occasionally, a blood-borne infection can lead to infectious mastitis. Puerperal mastitis affects 1.4% to 8.9% of nursing mothers presenting with general malaise, chills or sweats, and fever. However, half of the affected patients may have localized symptoms and signs of inflammation without fever or systemic symptoms.

### *Recurrent mastitis*

Recurrent mastitis may be due to an acute reinfection or a chronic relapsed infection because of inadequately treated mastitis and continuing poor milk drainage. There may be a persistent nidus of infection or there may be a stricture formed inside the lactiferous duct as a result of a previous infection.

### *Breast abscess*

A high fluctuating fever with chills and general malaise, associated with a firm, well-demarcated, tender, fluctuating mass, usually with erythema of the skin, indicates the formation of an abscess. In a few rare cases, there may be no systemic symptoms. Ultrasonography of the breast and needle aspiration under local anesthesia are useful diagnostic techniques to identify collections of fluid or pus and to distinguish mastitis from a galactocele.

## **How to manage the hyperlactation syndrome**

### *Decrease the rate of milk production*

- Reduce breast stimulation by decreasing the frequency and duration of breastfeeding. This results in reduced prolactin surges. Milk production remains blocked via central prolactin inhibitor factors.
- Decrease the frequency of breast drainage. This results in milk retention in the lactiferous ducts. Inhibitor peptides collect and block milk production via a local negative feedback mechanism.

In practical terms, the infant should remain at one breast per feed, until he or she is full and spontaneously releases the breast. In this way, the volume of milk ingested is less, but the fat content and caloric value increases as the feed progresses. A higher fat intake often satiates the infant for a longer period and decreases the hunger drive. The interval between feeds is lengthened and milk production declines, while the second breast remains full for a longer period and local inhibition further reduces milk synthesis in that breast.

### *Prevent milk retention*

- Improve milk removal and breast drainage by regular effective breast-feeding with or without pumping.

The infant is usually efficient at draining each segment of the breast when positioned and latched correctly. The modified cradle position allows the mother to cup the breast with her hand and apply firm pressure over the outer quadrant and compress retained milk towards the nipple while the infant suckles (Figure 2). If the milk is flowing rapidly, the mother should stop compressing the breast. Switching breast-feeding positions and using the under- the-arm hold allows thorough drainage of all segments and prevents milk stasis.



**Figure 2** Modified cradle position

Breastfeeding should start on the fullest breast and the infant should remain on this breast until all areas feel soft. As the pressure in the duct is relieved, breast pain and discomfort lessens.

### *Relieving obstruction*

**Blocked pores:** A small white dot over a nipple pore means that an outlet is obstructed. Gentle abrasion or a sterile needle can be used to remove epithelium skin for opening the pore. When the breast is firmly compressed, a small calculus or granule may suddenly pop out, relieving the blockage. A thick stream of milk gushing out indicates patency. If breastfeeding by itself doesn't effectively remove the thickened inspissated milk, then manual expression of the milk, or the use of an efficient breast pump after feeds will be needed. The mother should be shown how to firmly compress her breast with a cupped hand, squeezing gently towards the nipple while pumping, in order to dislodge the calculus or thickened milk.

**Manual stripping** may be used if expressing the milk doesn't unblock the segment. Manual stripping involves cupping the breast between the finger and thumb and applying firm, steady pressure over the tender section, starting from the periphery over the rib cage and drawing the fingers and thumb slowly together toward the nipple, stripping out thickened milk or pus. This procedure should be repeated several times. The skin must be well lubricated before attempting to do this and analgesia may be necessary, but even with mastitis, the discomfort lessens as the procedure continues. The intraductal pressure is relieved as milk or pus is slowly extruded. Mothers must be taught this technique, and instructed to repeat the procedure every few hours, standing in the shower, using soapy fingers, until the breast feels softer and milk is flowing freely.

**Breast abscess:** If an abscess has formed, incision and drainage is performed under local or general anesthesia. Repeat needle aspiration may not be enough. The incision should be radial, not circumferential, to minimize the severance of ducts. Insert a large drain and irrigate daily until the cavity closes. Apply the dressing so that the infant can continue to breastfeed or the mother can use an efficient breast pump. Regular drainage prevents further milk stasis and maintains lactation.

### *Eradicate infection*

Breast pain and erythema associated with flu-like systemic symptoms and a fever strongly suggest infectious mastitis. This needs antibiotic therapy. Common bacterial pathogens include *Staphylococcus aureus*, *Escherichia coli*, Group A *beta-haemolytic Streptococcus* with occasional *Streptococcus faecalis*, and *Klebsiella pneumoniae*. In contrast, nonpuerperal breast infections are mixed infections with a major anaerobic component. Antibiotics of choice include penicillinase-resistant penicillins such as dicloxacillin or erythromycin, cephalosporins, sulphonamides, and clindamycin. A ten to fourteen day course is required. Breast milk excretion of these antibiotics is minimal and it is considered safe to continue to breastfeed. Clinical improvement is usually seen within 24 to 48 hours, the erythema subsides, the fever decreases, and breast pain improves. A persistent mass which becomes fluctuant may indicate abscess formation.

## How to prevent recurrences

Excessive milk retention can be prevented by correct breastfeeding techniques, such as ensuring a proper latch and thorough drainage of the breasts.

**Avoid missing feeds:** Sleeping through the night, returning to work, introducing breast milk substitutes such as bottles of formula, starting solid foods, and weaning are all typical periods when breast-feeds may be missed. The resultant “breast confusion” can lead to inadequate drainage and milk retention.

**Breast palpation:** Mothers with a high milk output should remove their bra before feeding, if practical, and become skilled at palpating their breasts for lumps. Areas of breast lumpiness or caking that persist after breastfeeding may indicate milk stasis or a blocked duct. Thorough expression of this residual milk should relieve the situation and prevent secondary complications.

**Avoid weaning suddenly:** Gradual baby-led weaning is optimum as abrupt weaning may predispose a mother with a high milk production to the maternal hyperlactation syndrome. If a mother chooses to wean the baby suddenly or if weaning is clinically indicated, a lactation suppressant such as bromocriptine (2.5 mg b.i.d. for 14 days) may be used with caution, though side effects including nausea, headache, postural hypotension and stroke, occur in rare circumstances.

## Supportive measures

Parenting is a tiring time for mothers, and your suggestions may help to make this time enjoyable and rewarding rather than exhausting and frustrating.

- Additional help at home is mandatory and bed rest is often advisable.
- Analgesia such as acetaminophen plain or combined with codeine may be necessary.
- Hot compresses applied to the breast, before breastfeeding or milk expression, encourages blood flow and smooth muscle relaxation, which in turn helps milk transfer.
- Cold compresses after feeds may decrease inflammation and edema.

## *Further reading*

Lawrence R A. *Breastfeeding: A Guide for the Medical Profession*. 4th ed. Mosby 1994.

Livingstone VH. Too much of a good thing: The Maternal Hyperlactation Syndrome. *Can Fam Physician* 1996;42:89-99.

The Art of Successful Breastfeeding. An Educational Video Guide for Health Professionals. Vancouver Breastfeeding Centre, 690 West 11th Ave. Vancouver. V5Z 1M7 Fax 604- 875-50 17

## *Proprietary Drugs*

### Acetaminophen

Abenol

Atasol

Atasol Forte

Panadol

Tempra

222 AF

Tylenol

**Bromocriptine mesylate**

Parlodel

**Clindamycin**

Dalacin C

**Erythromycin**

Many proprietary names

*Verity Livingstone MB BS FCFP IBCLC is Medical Director of the Vancouver Breastfeeding Centre and an Associate Professor in the Department of Family Practice at the University of British Columbia. She received her medical degree in London, England in 1974 and did postgraduate training in pediatrics. She is a family physician and an International Board Certified Lactation Consultant and is a member of the Breastfeeding Committee for Canada. She was the first recipient of the Family Physician Practice of Excellence award for her work in breastfeeding promotion and has recently produced a video titled The Art of Successful Breastfeeding — A Guide to Health Professionals.*