THE MILK VESICLE

ANCA-RALUCA BĂBAN*, CĂTĂLINA MUNTEANU**, ROXANA DIACONU**, DIANA SINIGUR**, DIANA DÎRZU**, ANDREEA-LORENA TUCALIUC**, CĂTĂLINA COJOCARU**, ALINA ELENA SPÎNU**, ALEXANDRA STĂRICA**, ELENA PORUMB- ANDRESE**, MIHAELA PAULA TOADER**, DACIANA ELENA BRĂNIȘTEANU**

Summary

The milk blister/vesicle represents a frequent pathology occurring in the process of lactation, because of diagnostic and treatment issues and also because of the aggravating factors. The milk blister can lead to mastitis and can be easily identified by a trained eye. In the management of recurrences, the multidisciplinary team is imperious, in which a certified lactation consultant should take part [1].

Key words: *Milk vesicle, milk pearl, milk blister, milk bleb.*

Received: 17.11.2022 *Accepted: 12.12.2022*

Introduction

The milk blister belongs to the acute pathology of the lactating breasts, along with rhagades and other traumatic/friction lesions, mammary engorgement, mastitis, candidiasis and other infections of the areolar complex, and contact dermatitis [1].

The clinical exam

The milk blister is a vesicle with hyperkeratotic, devitalized suprajacent epithelium, under which can be observed a subepidermal suffusion of a white-yellowish milk secretion, on a normal colored or erythematous skin in the background (especially in the case of traumatic manipulation of the nipple). In the beginning, the vesicle is accompanied by intense, acute, fixed pain, followed by ductal pain and pain in the entire area served by the inflamed duct [2].

Ethipathogeny [1,2]

Local micro traumatisms caused by the incorrect latch and sucking pressure, the prolonged misuse of breast pumps can lead to reactive hyperkeratosis of the mammilla, preventing the normal evacuation of the milk flux through the blocked lactiferous pore, causing retrograde milk stasis in the ampule and linked ramifications. The epithelial cells of the lactiferous pore has the potential to propagate retrogradely to the duct cells, following the inflammation and tightening of the duct's lumen, leading to bacterial/suppurative mastitis [2].

Risk factors [1,2]

The major risk factors consist in mother-newborn separation, shallow latch onto the breast, oral cavity anomalies of the infant, both chronic (i.e. ankyloglossia) and acute (intra-oral infections altering the suckling reflex or

* Clinical Hospital for Infectious Diseases "Sfânta Parascheva", Iași, Romania.
** Dermatovenerology Clinic, C.F. Clinical Hospital, Iași, Romania.

Figure 1. Clinical appearance at admission (personal collection of Dr. Anca-Raluca Băban)

Figure 2. Clinical appearance at admission (personal collection of Dr. Anca-Raluca Băban)

generating breast refusal), silicone protections, breastfeeding on schedule, skipping one/more feedings, wrongfully pumping the breasts (inadequate diameter/length of the pump flange, excessive vacuum, unequally stimulating one side in spite of the other), hypergalactia (primary or secondary), acute breast diseases (candidiasis, infected nipple rhagades, mammary eczema), mother's stress, chronic sleep deprivation, tight/synthetic underwear, personal history of mastitis [2].

In 2022, the updated Breastfeeding Academy Protocol [2] examines the constellation of factors that influence the human milk microbiota, protecting from or favoring mastitis. Local inflammation depends on the host's genetics: polymorphism, auto-immunities, HLA, HMO and Lewis profile, the presence of cytokines, chemokines, cethelicidines, growth factors, immunoglobulins and inflammatory cells in the host's milk, normal skin and milk microbiota (with their competition, synergism, antagonism, bacterial metabolism, virulence factors, biofilms, immune evasion using superantigens, molecular mimetics, anti-IgA proteases, antibiotics resistance). The infants oral microbiota, the lifestyle of the breastfeeding dyad, iatrogenic interventions, mainly antibiotherapy, are external factors that can disrupt the mill microbiota and cause inflammation.

Natural evolution

The milk vesicle may regress spontaneously, with/ without correction of the risk factors, or it can complicate with obstructed lactiferous duct, galactocele, inflammatory mastitis, bacterial mastitis, and further to mammary gland abscess.

Differential diagnosis

The milk blister shouldn't be confused with friction vesicle of the mamilla (2-6 mm vesicle with bloody content), obstructed lactiferous duct by the white-yellowish debris of the devitalized luminal epithelium, lipids, bacteria and leukocytes that are blocking the exit of the lactiferous pore, healing grade II-IV rhagades, contact dermatitis of the nipple, mamillary papillomas [5].

Management

The current protocols highlight the psychological part of breastfeeding and of the mother-infant relationship, guiding the medical team that evaluates and manages problems appeared in the dyad to recognize the parents' efforts, to soothe and empower them, without blaming or judging them, with gentle correcting the incorrect technics and explaining the benefits of specialist referral [3].

Identifying every risk factor in order to avoid it or manage it is the key. In case the mother

wishes to maintain certain practices or cannot quit lifestyle, for the benefit of both mother and infant/s, a long term sustainable corrected habits should be considered and encourajed.

Treatment

The medical treatment of the milk vesicle:
- moderate potency glucocorticoids should be applied, in order to reduce local inflammation: 0.025-0.1% triamcinolone, 0.025% fluocinolone, 0.005% fluticasone; their usage is safe in breastfeeding, and, because of the heavy taste, the excess can be easily removed with a cotton fabric [2];
- emollient cream may be used for easily detaching the devitalized epiderma during breastfeeds;
- under aseptic and antiseptic measures, the unroofing/uncovering may be performed in selected cases, avoiding exacerbating local trauma;
- non-traumatic, manual, efficient drainage of the stagnated milk is advantageous when the pore and duct are/become permeable;
- risk factors correction;
- systemic medication: paracetamol (500 mg - 3000 mg daily), ibuprofen (caution: it could hide the inflammatory response if milk infection appears in the mammary gland), sunflower/soy lecithin (dosage 5-10 g/per day);
- repeat patient evaluation in the next 24-48 hours [4];
- the presence of inflammation signs on the adjacent skin on the nipple or on the breast – reevaluate the case: blood tests for inflammation, milk secretion cultures (sampling under aseptic and antiseptic techniques);
- presence of mastitis – consider systemic administration of anti-staphylococcus antibiotics; the presence/absence of intranasal *Staphylococcus aureus* can guide the therapy – Methicillin sensible/resistant *Staphylococcus aureus*;
- avoidance of hypergalactia, by avoidance of excessive pumping and a global oversupply in the entire mammary gland, with teaching better manual expressing and massage techniques, by directing attention only in the areas of the breast with milk stasis.
- for reducing the risk of infection or further local trauma, a clinician must explain to the patients that they should avoid empiric methods as: cotton cloth frictions, punction of the milk blister with varia sharp instruments/unsterile needles, or aggressive massage of the breast [4].

Bibliography

1. Amir LH; Academy of Breastfeeding Medicine Protocol Committee. ABM clinical protocol #4: Mastitis, revised March 2014. *Breastfeed Med*. 2014 Jun; 9(5):239-43. doi: 10.1089/bfm.2014.9984. PMID: 24911394; PMCID: PMC4048576.
2. Mitchell KB, Johnson HM, Rodríguez JM, Eglash A, Scherzinger C, Zakarija-Grkovic I, Cash KW, Berens P, Miller B; Academy of Breastfeeding Medicine. Academy of Breastfeeding Medicine Clinical Protocol #36: *The Mastitis Spectrum*, Revised 2022. *Breastfeed Med*. 2022 May;17(5):360-376.
3. https://iblce.org/about-iblce/current-statistics-on-worldwide-ibclcs/.
4. Case Report of the Management of Milk Blebs Sarah Obermeyer, Shima Shiehzadegan Published:November 08, 2021DOI:https://doi.org/10.1016/j.jogn.2021.10.003.
5. Obermeyer S, Shiehzadegan S. Case Report of the Management of Milk Blebs. *J Obstet Gynecol Neonatal Nurs*. 2022 Jan; 51(1):83-88. doi: 10.1016/j.jogn.2021.10.003. Epub 2021 Nov 9. PMID: 34762834.

Conflict of interest
NONE DECLARED

Correspondance address: Andreea-Lorena Tucaliuc
Dermatovenerology Clinic, C.F. Clinical Hospital, Iași, Romania
andreea.tucaliuc@yahoo.com