Original Article

Mastitis and Breast Abscess in Newborns and Infants

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Abstract

Introduction: Mastitis and abscess of the newborn breast are serious infections. The objective of our study was to describe the epidemiological and therapeutic aspects of these infections in our context. **Materials and Methods:** This was a retrospective study from January 2017 to December 2019. We included all children aged ≤2 months admitted for mastitis or breast abscess. The variables studied were epidemiological and therapeutic. **Results:** We collected 34 files, i.e., 11.3 cases/year. The sex ratio was 0.5. The mean age was 16.3 ± 6.6 days. The mean time to the consultation was 3.7 ± 2.4 days. The parents had undertaken a massage in 79.4% of cases. It was mastitis in 12 cases and abscess in 21 cases. Treatment was surgical in 26 cases. **Conclusion:** This affection is frequent with a female predominance. Its management must be early. The proscription of breast massage would reduce its frequency.

Keywords: Abscess, breast, massage, newborn, *Staphylococcus aureus*

Introduction

Physiological hypertrophy of the newborn breast is an enlargement of the breast due to maternal oestrogen in 70% of cases and maternal prolactin.[1,2] It occurs in healthy, full-term newborns[3] during the first 2 weeks of life and resolves spontaneously at 6 months of life. This pathogenesis explains the sometimes 'witch's milk' production in the newborn. This hypertrophy may regress spontaneously or give rise to infectious complications such as mastitis and breast abscess. Neonatal mastitis is defined as inflammation of the breast and abscess as a collection of pus in the breast occurring before 2 months of age,[2,4,5] and may be responsible for long-term sequelae such as destruction of the mammary bud or breast asymmetry.[6] Breast abscesses and mastitis are well known and described in breastfeeding women.[7] However, they are rarely described in newborns and are therefore not well known.[8] The aim of our study was to describe the epidemiological, clinical and therapeutic aspects of these infections in the paediatric surgical unit of the University Hospital of Bouaké.

Materials and Methods

This was an observational study with retrospective data collection over a period of 3 years from January 2017 to December 2019. We included all newborns and infants aged ≤2 months admitted for an infectious complication of physiological breast enlargement. We excluded incomplete records. The diagnosis was made on clinical examination in the presence of a breast swelling presenting at least three of the following characteristics: Pain, heat, fluctuation, shiny skin and fever. They were classified into three stages: Mastitis, collected abscess and fistulised abscess.

The variables studied were age, sex, time to consultation, side affected, history, clinical manifestations, treatment, causative germ and course. Pus puncture for bacteriological examination was performed in all cases of the abscess. The surgical incision was made with a number 11 scalpel blade and approximately 1 cm outside the nipple. Management was done on an outpatient basis except in cases of fever.

Results

We collected 34 cases of newborns and infants with 36 infectious complications of physiological breast enlargement, i.e., 11.3 cases/year.

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Figure 1: Bilateral collected abscess with left breast fistulisation



Figure 2: Collected abscess of the left breast with diffusion to the thorax

Table 1: Distribution by type of treatment

Type of treatment	Frequency	Percentage (%)
Abscess incision	24	66.6
Aspiration of pus	04	11.1
Medical treatment*	08	22.2
Total	36	100

Table 2: Distribution of germs according to their frequency

Germs	Fréquency	Pourcentage (%)
S. aureus	11	61.1
Streptococcus	06	33.3
E .coli	01	5.6
Total	18	100

There were 22 girls and 12 boys. The mean age was 16.3 ± 6.6 days with extremes of 7–32 days. The average time to the consultation was 3.7 ± 2.4 days with extremes of 1–10 days. The parents had undertaken a shea butter massage in 27 cases (79.4%). Hospitalisation in neonatology for maternal-fetal infection was found in 7 cases (20.5%). The clinical signs found were breast swelling in all cases, pain in 32 cases (94.1%), local heat in 28 cases (82.3%), redness in 25 cases (73.5%), fluctuation in 21 cases (61.7%) and fever in 05 cases (14.7%). Skin dermatosis was found in 8 cases (23.5%) and pus discharge in 02 cases (5.8%) [Figure 1]. The left breast was involved in 14 cases (41.1%), the right in 18 cases (52.9%), and the involvement was bilateral in 2 cases (5.8%) [Figure 1]. The abscesses were collected in 21 cases (58.3%) and spread to the chest wall in 2 cases [Figure 2], mastitis in 12 cases with secondary abscesses in 3 cases and fistulised abscesses in 2 cases [Figure 1]. An incision and drainage was performed in 24 cases (66.6%) [Table 1], followed by parenteral antibiotic therapy in 05 cases with Ceftriaxone and gentamycin for 48 h, and then per os with Amoxicillin and clavulanic acid. Oral antibiotic therapy with amoxicillin and clavulanic acid was used in 29 cases (85.2%) for 7 days. Eighteen germs were isolated [Table 2]. 3 (16.6%) of the cases had methicillin-resistant *S. aureus*. 9 months after the operation, the results were excellent, with good healing in 30 cases and unsightly scarring in 2 cases.

Discussion

In most studies, the sex ratio is in favour of females.[6,8] This female predominance is explained by the long duration of breast enlargement in female newborns. The hospital frequency in our study is higher than that of Ana *et al*.[9] who found 21 cases in 12 years and close to that of Al Ruwaili and Scolnik.[2] who found 32 cases in 3 years. The contamination is from skin germs that colonise the breast through the milk ducts. The manipulation of the breasts to evacuate the 'witch's milk' would favour this contamination.[6] It has been observed that massage of the newborn's breasts is a potential risk factor for mastitis and abscess formation.[1,10] It usually occurs in the 2nd week of life.[11] If left untreated, it can progress to abscess formation, which can lead to sepsis and haematogenous spread to other organs.

Clinically, mastitis is manifested by a painful, warm swelling of the breast and the existence of fluctuation indicates the presence of a collection and therefore of abscess. If there is any doubt about the presence of a collection on clinical examination, an ultrasound should be ordered.[4] Fever is present in very few cases.[8,11,12] Most often, the disease is unilateral, but bilateral forms have been described.[10,13] The different evolutionary phases of breast infection are mastitis, breast abscess and fistulisation. In our study as well as in Masoodi's *et al*.,[1] abscess was the most frequent form in 58% and 60%, respectively. In our study, the abscess occurred in the 3rd week. For Rudoy and Nelson 84%[11] of the abscesses occurred in the 3rd week as well, whereas for Masoodi *et al*.[1] mastitis develops in the 2nd week and the abscess with a high rate in the 4th week. Two cases of fistulised abscesses were found in this study. The high frequency of abscessed forms and the presence of fistula could be explained by the delay in consultation and the lack of

knowledge of this condition by practitioners and parents who confuse it with physiological breast hypertrophy.

Staphylococcus aureus found in our series is the most common germ found in most series.[6,7,11,14] The resistance of *S. aureus* found in our study could be explained by the stay in neonatal intensive care of some newborns for maternal-fetal infection. If left untreated, mastitis can develop into an abscess, which can lead to septicaemia and haematogenous spread to other organs.[13] The evolution can be towards local complications such as extension to the thorax, fasciitis and general complications such as sepsis, osteomyelitis.[14,15] Ashok *et al*. even described a case of brain abscess secondary to a breast abscess.[16] Treatment consists of antibiotic therapy and surgical drainage in collected forms. This incision is performed under ketamine for some authors,[17] but in our context, it is performed after administration of analgesic and sedation with valium or midazolam. For most authors, hospitalisation is required[6,7,18] but in our context, in the absence of fever, sepsis and secondary localisation, management is carried out as an outpatient.

Conclusion

Neonatal breast mastitis and abscesses are relatively common infections in routine practice. They should not be confused with physiological breast enlargement which is involuntary and for which simple monitoring should be done. Awareness should be raised to avoid handling the breasts of hypertrophic and/or milk-secreting neonates.

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Conflicts of interest

There are no conflicts of interest.

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