

## Alterations in the development of the Breast newborn: Giant Mastauxe (Exaggerated form of Neonatal Mastauxe)

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### Abstract

Neonatal breast enlargement is common (seen in approximately 65 – 90 % of neonates) and is independent of the sex of the baby. We present the case of a 24-day-old male with bilateral breast enlargement more than 3 cm: Giant Mastauxe (Exaggerated form of neonatal mastauxe). He was feeding well and showed no signs of discomfort or irritability. The parents noted that the breasts were slightly swollen at birth and continued to grow larger during the subsequent weeks. The sonographic appearance shows a well-defined oval mass in the breast tissue, with tiny anechoic cystic images and thin septa separating the cysts.

### Keywords

breast newborn; giant mastauxe; gynecomastia newborn; neonatal breast enlargement

### Introduction

The prevalence of gynecomastia was reported to be between 32-65%, due to use of different methods of assessment and the analysis of males of different ages and with different lifestyles, while autopsy data suggest a prevalence of 40% [1, 2]. Generally, a trimodal age distribution is observed [3]. The first peak occurs in infancy or the neonatal period: Neonatal breast enlargement is common (seen in approximately 65 – 90 % of neonates) and is independent of the sex of the baby [4]. The second peak occurs during puberty and has a prevalence of 4-69%. The final peak occurs in older males (particularly in those aged 50-80-years-old), with a prevalence of 24-65%.

Many newborn infants of both sexes show breast development at birth or in the first weeks of life. Also sometimes is observed secretion of the breasts, popularly known as "witch's milk". The enlarged breast may discharge liquid; this usually resolves without treatment over a period of a few weeks. High circulating concentrations of prolactin are needed for the initiation of milk secretion [5].

### Case Presentation

We present the case of a 24-day-old male with bilateral breast enlargement more than 3 cm (Figures 1 and 2). He was born at term; birth weight was 4250 grams, the 1-minute and 5-minute Apgar scores were 7 and 9, respectively. He was feeding well and showed no signs of discomfort or irritability. The examination of the chest reveals enlarged breast tissue with a very low discharge of milk (drops with

the expression of the breast). The parents noted that the breasts were slightly swollen at birth and continued to grow larger during the subsequent weeks. The sonographic appearance show a well-defined oval mass in the breast tissue, with tiny anechoic cystic images and thin septa separating the cysts (Figures 3 and 4).

## Discussion

In infants the breast enlargement usually progresses during the first 2 months of life is caused by the passage of maternal hormones through the placenta during pregnancy. The mystery as to why some neonatal breasts show exaggerated response to hormones is unclear. It is probably attributable to hypersensitivity of breast tissue to estrogen and/ or prolactin. When babies are born, these hormones persist for a short time. This leads to the breast enlargement that measures 1 to 2 cm in the first few weeks of life [6]. This is seen in male and female infants. It is a normal response to falling levels of maternal estrogen at the end of pregnancy, which trigger the release of prolactin from the newborn's pituitary. The relationship that McKiernan and Hull [7] have found between the degree of breast engorgement in the newborn and the level of prolactin in plasma is further evidence that the immediate postnatal surge of activity in the newborn breast is mediated via the infant's secretion of prolactin and is not a passive effect of maternal hormones as is often suggested. The prolactin levels in newborn infants decline in the first weeks of life and reach normal childhood values by age 3 months [8, 9].

Imprecise terminology, lack of accurate definition and absence of diagnostic criteria have left much confusion in the literatura: terms such as 'mastitis', 'galactorrhea', 'gynecomastia', 'galactocele', 'breast hypertrophy' and 'breast enlargement' have been used have been used incorrectly to refer to breast enlargement newborn.

Raveenthiran [10] proposes the term "Mastaxe" to describe uncomplicated physiological breast enlargement of newborn under hormonal influence. Mastaxe is is a combination of two Greek words mastos (Breast) and auxein (increase in size) [11, 12]. Semantically, it appears to be the right word to describe uncomplicated physiological breast enlargement of newborn under hormonal influence.

Raveenthiran [10] suggests the terminologies to neonatal breast swelling: Neonatal Mastaxe (Physiological breast enlargement of neonatal breast – breast bud diameter  $\leq 3$  cm - ), Giant Mastaxe (Exaggerated form of neonatal mastaxe – breast bud diameter  $> 3$  cm - ), Neonatal Galactocele (Macroscopic – cystic – accumulation of milk  $> 0,5$  ml within the lactiferous channels of neonatal breast), Neonatal Galactorrhea (Excessive -  $>1,5$  ml/day – and/or prolonged -  $>12$  weeks –milk secretion in neonatal breast), Neonatal Lactation (Scanty amount of milky secretion from neonatal breast), Gynecomastia (Male breast development beyond neonatal period involving mammary fat and glands), Premature Thelarche (Female breast development beyond neonatal period involving mammary fat and glands), Neonatal mastitis (Inflammation of neonatal breast due to superadded infection) and Neonatal breast abscess (Neonatal mastitis with macroscopic accumulation of pus within or adjacent to the breast).

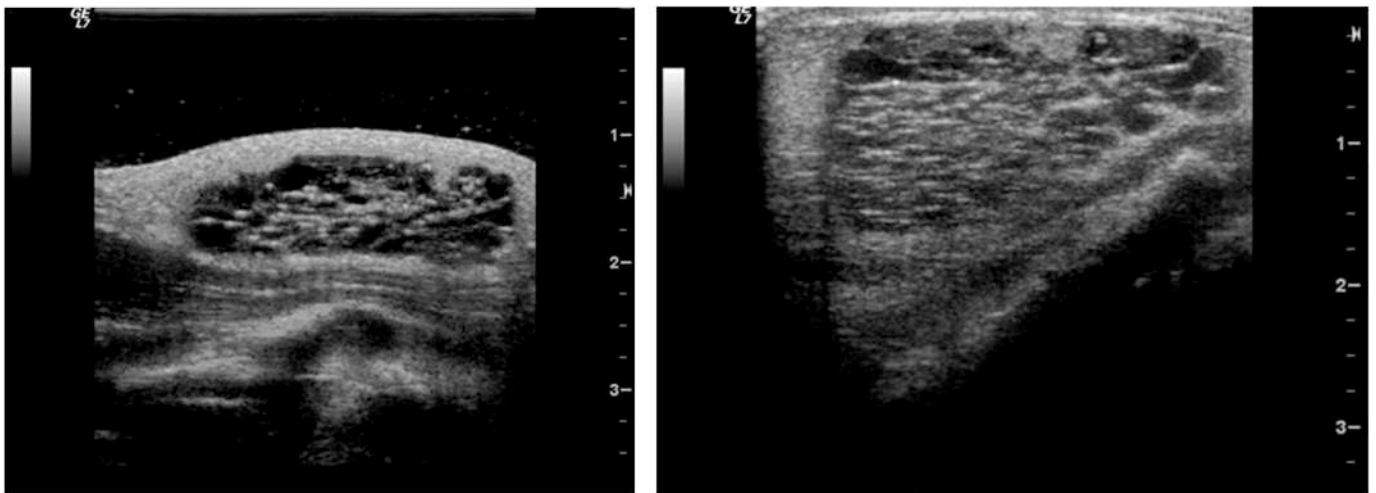
Neonatal breast enlargement is common and requires simple observation and parental reassurance. Physical examination is key to appropriate patient management. For differential diagnosis with mastitis, ultrasound is the imaging modality of choice [13].

Borders et al. [14] studied sonographic appearance of mastitis and breast abscess in newborns. Sonographic is useful in distinguishing mastitis from breast abscess and guiding treatment options. Mastitis had prominent breast buds on the affected side with poorly defined margins, slightly more echogenic focally or diffusely compared to normal with hyperemia on color flow Doppler US. The surrounding subcutaneous tissue was thick and echogenic. The abscesses presented as avascular areas without color flow on Doppler US, subtly increased through-transmission and surrounding hiperemia [16-18].

## Figures



**Figure 1 & 2:** 24-day-old male with bilateral breast enlargement more than 3 cm



**Figure 3 & 4:** Longitudinal grey-scale ultrasound plane. Axial grey-scale ultrasound plane. Both images show a well-defined oval mass in the breast tissue, with tiny anechoic cystic images and thin septa separating the cysts.

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**Manuscript Information:** Received: August 28, 2016; Accepted: December 13, 2016; Published: December 15, 2016

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**Citation:** Cameselle-Teijeiro JF, Mallo R, Otero M, Cameselle L, Ares S, Cortizo ME, et al. Alterations in the development of the breast newborn: Giant Mastaxue (Exaggerated form of Neonatal Mastaxue). *Open J Clin Med Case Rep*. 2016; 1197

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