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MEDICAL ILLUSTRATION

RIGHT SIDED CYSTIC BREAST MASS

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Background: *Cystic breast mass, characterized by fluid-filled sac within breast tissue, is a frequent occurrence in clinical practice. This case report delves into the radiological diagnosis ofa cystic breast mass emphasizing the necessity for a thorough radiological evaluation. Cystic breast lesions are identified using the following imaging modalities like mammography, ultrasonography, and magnetic resonance (MR) imaging.It is important to note thatboth benign simple cyst, complex cystic and solid masses needs to be biopsied. Breast Imaging Reporting and Data System (BI-RADS)[1] is used in the characterization of breast lesions. This case report explores the clinical presentation radiological features, and diagnostic considerations, underscoring the crucial role of accurate imaging techniques in managing cystic breast masses. The findings in this case report contribute to a better understanding of breast pathology and highlights the importance of precise diagnostic approaches in clinical decision-making.This will go a long way in early detection of breast lesions and better management and outcome of patients.*

Methods: *A 25-year-old female with complaints of right breast pain and discomfort with palpable mass underwent a thorough clinical examination. Radiological investigations, including mammography,ultrasound of the breast and MRI (magnetic resonance imaging) were conducted to visualize and characterize the cystic masses. The imaging studies aimed to assess the size, location, and internal characteristics of the cystic mass, guiding subsequent diagnostic and management steps.*

Results: *Ultrasound of the breast revealed an anechoic mass with thick wall located in the right upper outer quadrant middle ring of the right breast measuring 51.2mm x 24.3mm in its dimensions, the lesion is wider than taller with no associated architectural distortion of the breast and no axillary lymphadenopathy. The mass displayed well-defined borders with no signs of micro calcifications. Ultrasound imaging also provided additional insights, confirming the cystic nature of the mass with posterior acoustic enhancement and excluding solid components, Doppler interrogation also revealed absence of blood flow showing that it is a non-vascular lesion.Mammography revealed a well-defined homogenous opacity in the right breast while MRI findings revealed that the lesion is of high signal intensity on T2weighted images and low signal intensity on fat suppressed T1 weighted images. The absence of vascularity on contrast enhanced T1 weighted images further supported the benign nature of the cystic mass. Histological findings after the excision of the cyst revealed benign features. A final (BI-RADS) assessment (BI-RADS) 2 was made.*
Conclusion: *The radiological evaluation of the cystic mass with histology highlighted the significance of accurate imaging and histology in distinguishing benign breast lesions from malignant lesions Clinical correlation and follow-up imaging is essential in ensuring appropriate management of the patient.*

Keywords: *Breast cyst, mammography, Doppler imaging, radiological assessment, breast pathology*

Introduction:

Breasts develop according to Tanner et al., in girls between 8.9 and 18.9 years of age with a mean age of 15.33 years [2]. Hormones govern breast development with oestrogens supporting duct growth and progesterones being involved in the development of the terminal lobules[3,4].

Breast cystic masses represent a common diagnostic challenge encountered in the realm of breast imaging. While cystic lesions are often benign, the identification of large cystic mass on the breast warrants a thorough investigation to ascertain their nature and guide appropriate clinical management. This case report delves into the presentation of a 25-year-old female presenting with pain and discomfort with palpable mass in the right breast. Our focus is on elucidating the clinical and radiological aspects of these large cystic mass, emphasizing the importance of accurate imaging techniques in discerning between benign and malignant breast pathologies.

Brenner et al. in their report in the adult population of women, showed that more than half of the cysts disappear within 1 year and only 12% of cysts are still present after 5 years [5], despite this all Cystic masses in the breast necessitate a meticulous evaluation to establish its origin, characteristics, and potential implications for the patient. Given the prevalence of benign breast cysts, it is imperative to employ advanced imaging modalities for a comprehensive understanding of the lesion's features. This case report details the methodology involving mammography, ultrasound of the breast and MRI to provide a detailed analysis of the size, location, and internal characteristics of a cystic mass.

The significance of this case lies not only in its contribution to the understanding of a breast cystic mass but also in its broader implications for clinical practice. By unraveling the complexities of the diagnostic process, we aim to underscore the pivotal role of radiological assessments in guiding appropriate clinical interventions and ensuring optimal patient outcomes. As we explore the specific details of this case, we seek to enhance the existing body of knowledge surrounding breast pathology and reinforce the collaborative efforts between clinicians and radiologists in delivering high-quality patient care.

CASE REPORT:

In this case involving a 25-year-old female, the clinical presentation included localized discomfort and pain with a palpable mass in the right breast, particularly in the upper outer quadrant. A thorough physical examination prompted further investigation to unravel the characteristics and potential clinical implications of this palpable mass. Radiological assessment, employing MRI,mammography, ultrasound with orthogonal views, revealed fibro glandular patterns in both breasts. Notably, the right breast showed an anechoic mass with thick wall in the upper outer quadrant middle ring, measuring *51.2mm x 24.3mm* with associated posterior acoustic enhancement and sonographic probe tenderness. Importantly, the right breast displayed no architectural distortion, the lesion was wider than taller and did not contain any calcifications nor intramammary lymph node.The left breast appeared sonographically normal. MRI Images revealed high signal intensity on T2 weighted images and low signal intensity on fat suppressed T1 weighted images. The absence of vascularity on contrast enhanced T1 weighted images further supported the benign nature of the cystic mass. The radiological findings are suggestive of a cystic mass which were further supported by anechoic interiors, thick walls, and posterior acoustic enhancement on ultrasound. The absence of architectural distortion indicated that the lesion is likely of benign etiology.

Ongoing clinical correlation and follow-up were deemed essential to monitor potential changes in this cystic mass, with further management decisions guided by the patient's symptoms and response to conservative measures. This case underscores the critical role of radiological imaging, including MRI, Mammography and ultrasound of the breast, in accurately diagnosing and characterizing the cystic breast mass. Collaboration between clinicians, pathologists and radiologists is paramount for comprehensive patient care and timely intervention.

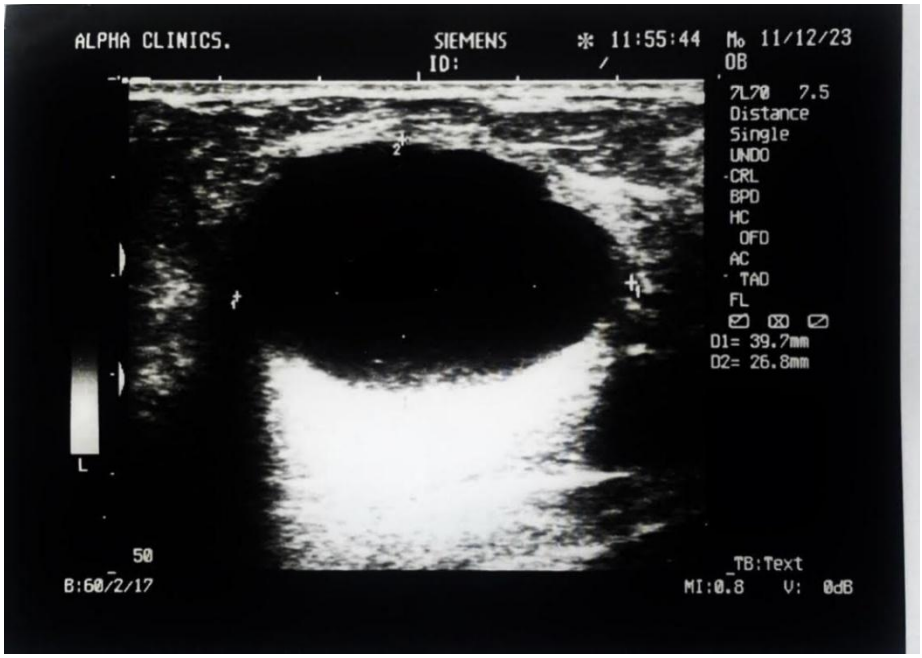

FIGURE 1: ULTRASOUND IMAGE OF THE CYSTIC BREAST MASS
From Alpha Clinics and Diagnostic Centre,
Umuahia Abia state, Nigeria

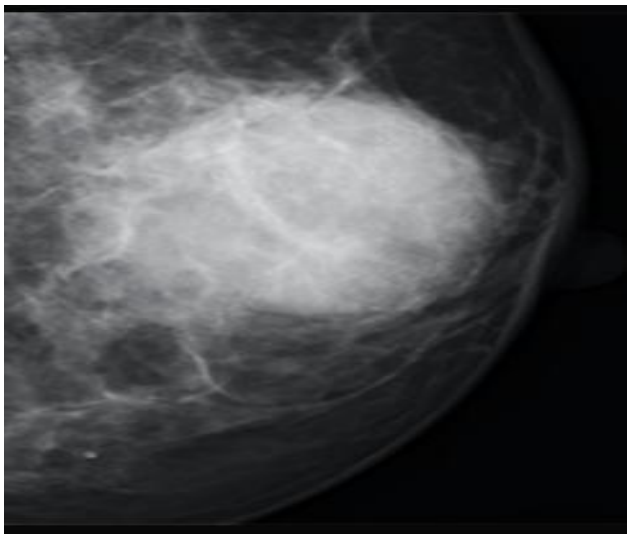

FIG 2.MAMMOGRAM OF THE RIGHT BREAST CYST
Mediolateral oblique view (MLO)
From Alpha Clinics and Diagnostic Centre,

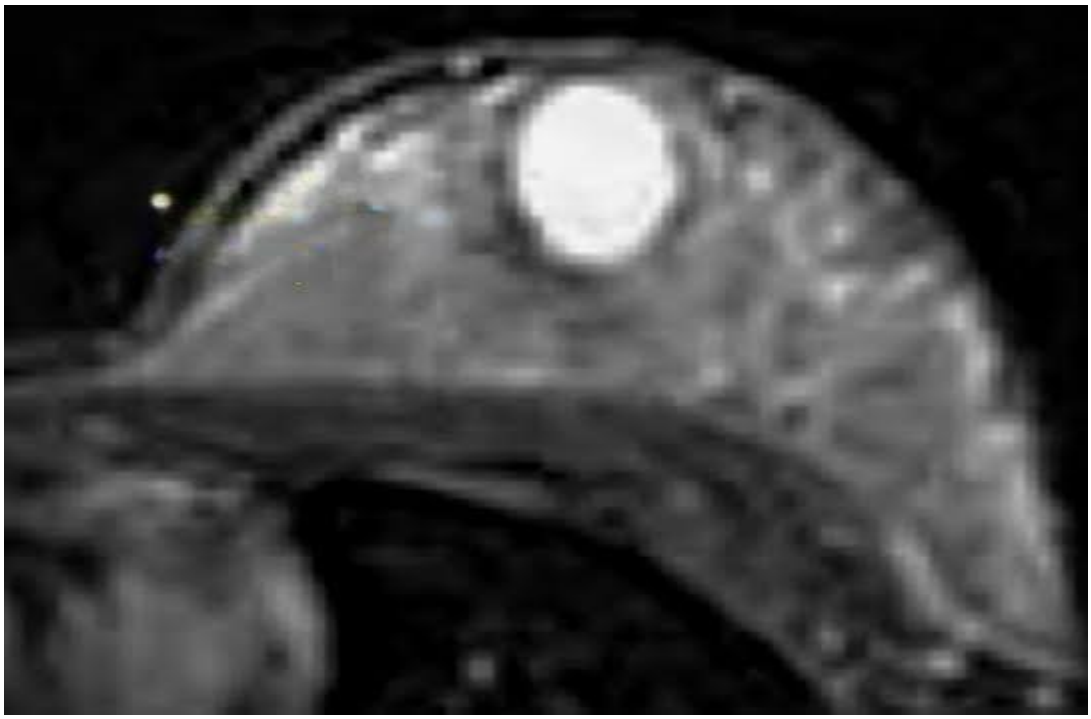

FIG 3. T2 WEIGHTED IMAGE OF THE RIGHT SIDED BREAST CYST

https://www.slideshare.net/slideshow/mri-breast-2/248747085#21

Discussion:

Breast cyst, particularly when substantial in size, present a diagnostic challenge that demands a thorough investigation. In this case, radiological findings revealed sizable anechoic mass with thick wall in the right upper outer quadrant middle ring, characteristics commonly associated with benign cystic lesions. The absence of architectural distortion further strengthens the hypothesis of a benign etiology. In perimenopausal women, Berg et al. have shown that breast cysts are more common in those receiving oestrogene-based hormonal replacement treatment.[6,7]

Masses arising from cystic breast lesions are routinely identified through mammography, ultrasonography, and magnetic resonance (MR) imaging. It is important to note that Benign simple cysts as well as complex cystic and solid masses needs to be biopsied. The Breast Imaging Reporting and Data System (BI-RADS)[1] is instrumental in categorizing these lesions, providing a standardized approach to reporting findings from mammography, ultrasonography, and MRI. This systematic classification aids in the differentiation of benign and potentially malignant masses, guiding subsequent clinical decisions.

The integration of these imaging modalities in our case study contributes to a comprehensive understanding of the role of imaging in the diagnosis of breast lesions. This emphasizes also the pivotal role of accurate and detailed radiological evaluation in steering clinical decision-making, ensuring an appropriate and timely management approach tailored to the specific characteristics of the identified lesions. While the overall radiological features suggest a benign nature, the dimensions and characteristics of the cystic masses raise considerations for potential intervention. The differential diagnosis encompasses various possibilities, including complex cyst, intramammary lymph nodeor other benign cystic lesions. Clinical correlation and ongoing imaging follow-up are essential to monitor any changes in the cystic masses over time [8].

The comparison with the sonographically normal left breast serves as a vital internal control, augmenting the reliability of the findings. The presence of fibroglandular patterns in both breasts, combined with the distinctive features of the right-sided mass, underscores the importance of utilizing orthogonal views for a comprehensive assessment of breast pathology[9].Ultrasound scans of patients presenting with a palpable cysts might show further impalpable cysts in the ipsilateral as well as contralateral breast.[10]

Understanding the radiological features of cystic breast mass not only contributes to accurate diagnosis but also informs appropriate clinical management. Although generally non-threatening, benign lesions may cause discomfort and impact the patient's quality of life. Consequently, decisions regarding further interventions, such as aspiration or biopsy, must be carefully weighed against the potential risks and benefits[9].

This case's significance extends beyond radiological diagnosis, emphasizing the collaborative approach essential in breast healthcare. Multidisciplinary coordination among clinicians, radiologists, and pathologists is crucial for optimal patient care. Additionally, the findings underscore the importance of patient education and communication in alleviating concerns and facilitating informed decisions regarding management options.

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