Cukurova Medical Journal

Araştırma Makalesi / Research Article

Pathological Panorama of Breast

Meme Kistlerinin Patolojik Panoraması

Smita Sankaye[1], Sushil Kachewar[1]

[1]Rural Medical College, PIMS(DU), Loni, Ta-Rahata, Ahmednagar Maharashtra, INDIA

CukurovaMedicalJournal 2014; 39 (3):458-463.

ABSTRACT

Purpose: Cystic breast lesions are a common finding in young as well as elderly females. Although, mostly benign; they can at times be malignant too. Timely diagnosis is possible with help of Fine needle aspiration cytology (FNAC). This study was carried out with the aim of studying the panorama of various cystic breast lesions on FNAC in our setup.

Materials and Methods: This was a four year prospective study carried out from May 2010 to January 2014. Cystic nature of breast mass was confirmed by palpation and by sonomammography. FNAC was then performed and the smears were stained with MGG and Papanicolaou stain.

Results: Out of the 72 cases that were diagnosed to be cystic breast lesions clinically or on sonomammography, 64 were found to be benign and 08 were found to be malignant on FNAC. Retrospective imaging correlation of the 08 cystic cases revealed that they were of complex cystic nature and had either thick septae(03), solid areas (04) or dense contents (01) within. This internal nature of cystic lesions that were found to be malignant on FNAC was not identifiable by clinical palpation alone. None of the lesions diagnosed as simple cystic lesion on sonomammography was found to be malignant on FNAC.

Conclusions: FNAC is a satisfactory technique for the primary categorization of palpable cystic breast lumps into benign and malignant categories. Cystic breast lesions are more commonly benign than malignant. Palpation alone cannot identify the simple or complex nature of any palpable cystic lesion and hence sonomammography and ultrasound guided FNAC are indicated in complex cystic lesions of breast.

Keywords: Breast; Cysts; FNAC; Palpation; Sonomammography; Pathology

ÖZET

Amaç: Kistik meme lezyonları yaşlı bayanlarda olduğu kadar gençlerde de yaygın bir bulgudur. Çoğunlukla benin olmalarına rağmen, zaman zaman malin de olabilirler. İnce İğne Aspirasyon Sitolojisi (İİAS) (FNAS) yardımıyla zamanında tanı mümkündür. Bu çalışma, kurumumuzda İİAS yöntemiyle çeşitli kistik meme lezyonlarınının panaromasının belirlenmesi amacıyla yapılmıştır.

Materyal ve Metot: Bu çalışma 2010 Mayıs'tan 2014 Haziran'a kadar yürütülmüş 4 yıllık prospektif bir çalışmadır. Meme kütlesinde ki doğal kist Palpasyon ve sonomamogrofi ile belirlendikten sonra İİAS ile alınan doku MGG ve Papanicolaou boyası ile boyandı.

Bulgular: Klinik olarak veya sonomamografi ile kistik meme lezyonu tanısı konmuş 72 vakanın İİAS yöntemi ile 64'ünde kistin benin, 8'inde ise malin olduğu bulunmuştur. Sekiz kistik lezyona ait görüntüler retrospektif olarak incelendiğinde, bunların yapı itibariyle kompleks kistik lezyonlar olduğu görülmüş olup, 3'ünde kalın septa, 4'ünde solid alanlar ve 1'inde ise yoğun içerik tespit edilmiştir. Bu kistik lezyonların malin tabiatı İİAS yöntemiyle tespit edilmiş olup bunların yalnızca palpasyon yaparak klinik muayene ile tanı alması mümkün değildir. Sonomamografi ile basit kistik lezyon olarak tanımlanan lezyonların hiç biri İİAS ile malign olarak değerlendirilmedi.

Sonuçlar: İİAS, hissedilebilir kistik meme yumrularının malin veya benin olarak kategorize edilmesinde iyi bir yöntemdir. Kistik meme lezyonları içinde benin olanlar malin olanlara nazaran daha yaygındır. Tek başına palpasyon, herhangi bir kistik meme lezyonunun basit veya kompleks olarak belirleyemez; bu yüzden sonomamografi ve ultrason eşliğinde yapılan İİAS memedeki kompleks kistik lezyonlardaki temel belirleyicidir.
Anahtar kelimeler: Meme; Kist; İİAS; Palpasyon; Sonomamografi; Patoloji

INTRODUCTION

Breast cysts are the commonest non-proliferative lesion in the breast. These are usually present bilaterally and may be of different sizes. Etiologically, they are formed from coalescence of lobular acini[1]. When they are small, they are barely perceptible and seldom noticed by patients. It is only when they enlarge that they become symptomatic and patients present with a breast mass[2]. The walls of the cysts may sometimes calcify. An association of these cysts with polycystic disease of kidney has also been described[3].

Cystic breast lesions are traditionally believed to be benign. But malignant cystic lesions can also occur[4]. This study was therefore undertaken to understand whether Fine needle aspiration cytology (FNAC)- a quick diagnostic procedure can effectively differentiate whether the lesions diagnosed as cystic on palpation or sonomammography are benign or malignant. Retrospective analysis of imaging appearance of cystic lesions that turned out to be malignant on FNAC was also performed.

MATERIALS and METHODS

This prospective study was carried out from May 2010 to January 2014. The institutional ethical committee had approved this study. Informed written consent from each patient was also obtained in local language.

FNAC of the cystic lesions of breast was done manually, blindly when the lesion was large enough to localize or palpate or under sonomammography guidance in manually difficult or unreachable lesions.

FNAC was done using a 23 Gauge needle attached to 10cc disposable syringe. Air dried smears were fixed and stained with May GrunwaldGiemsa Technique. One smear was fixed with 95% alcohol for Papanicolaou stain.

RESULTS

During the study period; a total of 226 FNAC's of breast were done for different palpablebreast masses. Out of these 72 caseswere diagnosed to be cystic breast lesions clinically or on sonomammography. FNAC of these lesions revealed benign nature in64cases (88.88%) and malignant nature in 08 (11.11%) cases. Representative images are shown in Figure 1.[Pathologic panorama of simple cystic lesion] and Figure 2 [Pathologic panorama of complex cystic lesion].

Retrospective imaging correlation of the 08 cystic cases that were found to be malignant on FNAC revealed that they were of complex cystic nature and had either thick septae(03 cases i.e. 4.16%), solid areas (04 cases i.e.5.55%) or dense contents (01 case i.e. 1.38%) within.

This internal nature of cystic lesions that were found to be malignant on FNAC was not identifiable by clinical palpation alone. None of the lesions diagnosed as simple cystic lesion on sonomammography was found to be malignant on FNAC.

Out of the total 64 cases that were labeled as benign on FNAC, majority of the lesions werefinally categorized as fibrocystic disease 32 (44.44%) cases, mastitis/breast abscess for 21(29.16%) cases, Galactocele 5(6.94%) cases, 3(04.16%) cases showed epithelial hyperplasia,Lipoma2(2.77%) cases and fat necrosis, duct ectasia in 1(01.38%) case each.

On the other hand, the cytological spectrum of various malignant breast lesions (total 8 cases i.e.

11.11% out of all cases included in study) all were categorized as Infiltrating ductal carcinoma. Most of the patients belonged to age group of 19-50 year. Right and Left both sides were almost equally involved by the different types of cytological lesions. Upper and Outer quadrant is the most commonly involved quadrant by all types of cytological lesions.

DISCUSSION

A breast cyst is an epithelium lined intramammary lesion that may be large or small in size and oval or round in shape. Majority of them are benign in nature[1-4]. Clinically too, most of them are asymptomatic and hence, patients generally disregard them or even if patients visit a medical professional, they are counselled and kept on follow up. Often such cases may undergo sonomammography but rarely are they asked to undergo pathological studies like biopsy or FNAC.

But with reports that cystic lesions too can harbour malignancies, it has become imperative that all such lesions be carefully evaluated by appropriate imaging modalities[4,5] Suspicious lesions should then undergo FNAC under sonographic guidance. The definitive diagnosis is given by the Pathologist.

Macroscopic appearance[6] of cystic lesion in breast is that of a variable sized round fluctuant fluid filled structure. The fluid may be clear or yellowish in colour.

Microscopically, simple cysts (Figure 1) may have a double layer of flat or cuboidal cells. Sometimes no lining may be seen. When the cyst ruptures it may cause inflammatory response that is characterised by foamy macrophages. Rarely fibrotic changes may also be seen.

Cysts that appear complicated or complex on ultrasound (Figure 2) may harbour malignant changes like sheets of cells showing high cellular atypia as in intraductal carcinoma.

A variety of differential diagnoses of cystic lesions of breast is known[6].Ductal ectasia appears cystic on palpation and sonomammography. Microscopically it is characterised by elastic tissues in the wall of the lesion and macrophages in the lumen. In cystic hyper secretory hyperplasia, apart from cystic feel on palpation and cystic appearance on ultrasound, microscopy shows colloid-like secretions.

Infiltrating ductal carcinoma and its variants too are known to present clinically ascystic masses[7,8]. Sometimes, color or power Dopplersonography can show vascularity in such cases, whereas purely cysticlesions do not show any vascularity. Appearance of the margin of the lesion has been reported to be of great value asmalignancies with cyst like appearancesomewhere have an indistinct margin or local wall thickeningin addition to some internal vascularity[7,8].

Malignant lesions alone do not give the appearance of thick-walled cysts. Some benigncauses that can manifest similarly are ruptured cyst, cyst with inflammation, cysts with apocrine metaplasia[4,9]. Abscess containing areas, focal fat necrosis, and hematoma with periodic changes too; have such an appearance and can bedistinguished on the basis of proper history and clinical examination[4,9].

Apart from the standard pathological classification of breast cysts, based on the biochemical composition[10,11] of its contents, cystic lesions of breast can be of following two types-

Type 1 cysts: are the cysts filled with contents that have Na/K ratio of equal to or less than 3. These have increased risk of breast malignancy; and are associated with higher levels of melatonin, estrogen, epidermal growth factor and DHEA-S and lower levels of TGF-B2 than type 2 cysts[10]

Type 2 cysts: are the cysts filled with contents that have Na/K above 3. They have been found to have less risk of breast malignancy.

It must be kept in mind that this classification of breast cysts is not in common use. A patient may have either a single type or even both types of cysts co-existing in the same breast[11].

As benign or malignant pathologies both can present as cystic lesions, management of suchlesions should therefore be by carefully weighted path. A correlation of clinical findings, imaging findings and FNAC findings should be done prior to deciding the best path for any patient.

Asymptomatic breast cysts usually require no treatment. It is only when they become symptomatic, that they can be aspirated. They may get reformed at variable interval, post aspiration. Excision of symptomatic cyst does not ensure that other cysts will not enlarge and become symptomatic. Alternately simple cysts may be followed up periodically[4,9].

Complex cystic lesions have high chances of being malignant, hence a satisfactory FNAC or better still ultrasound guided core biopsy may be performed from solid portions[12].

It is also believed that excision is definitely required if the imaging findings suggest solid mass inside it or if imaging findings favour a complex cyst. Moreover, if aspiration yields no fluid or if the cystic mass persists; excision is warranted[13].

Although today, breast cyst aspiration is a routine procedure[14], evaluation of nonbloody cyst fluidcan at times be of non diagnostic value[15].False Negative Cytologic Diagnosis of Breast Carcinoma has also been described[16].

CONCLUSIONS

Cystic lesions of breast are quite common in females of all age groups. Simple cystic lesions are usually benign and complex cystic lesions are mostly malignant.FNAC is a rapid and effective method for the primary categorization of palpable breast lumps into benign or malignant, so that appropriate further treatment can be started at the earliest.

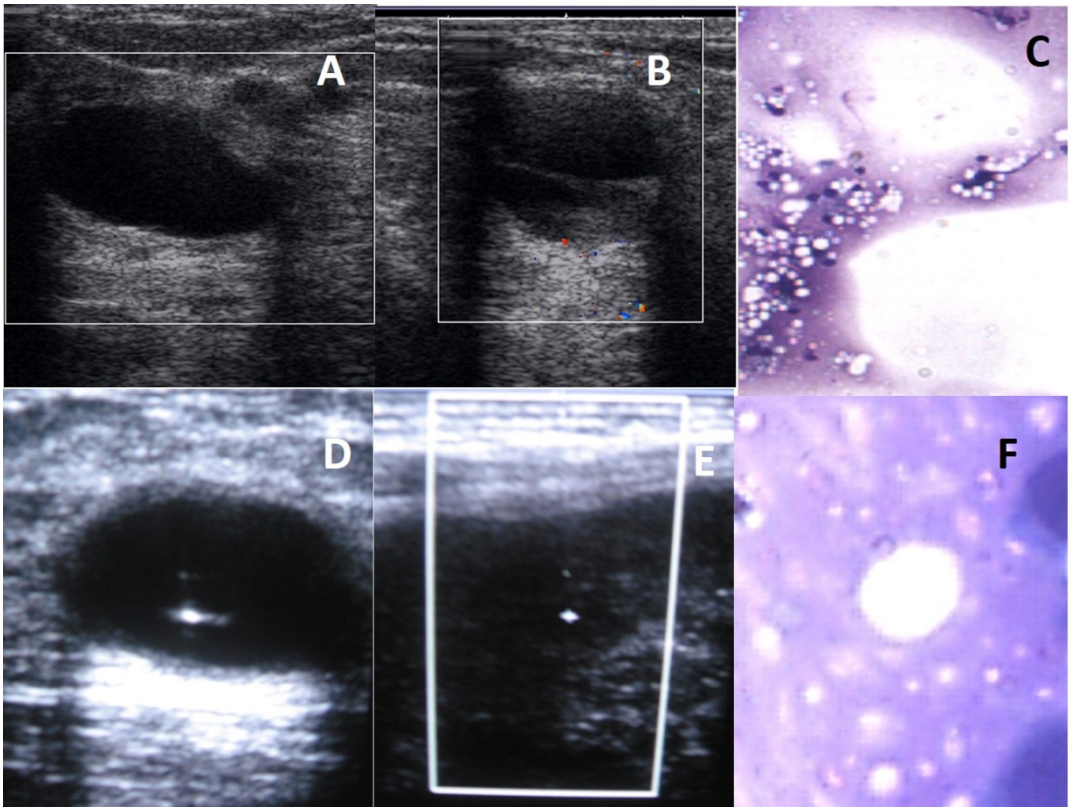

Figure 1. Panorama of Simple Breast Cysts

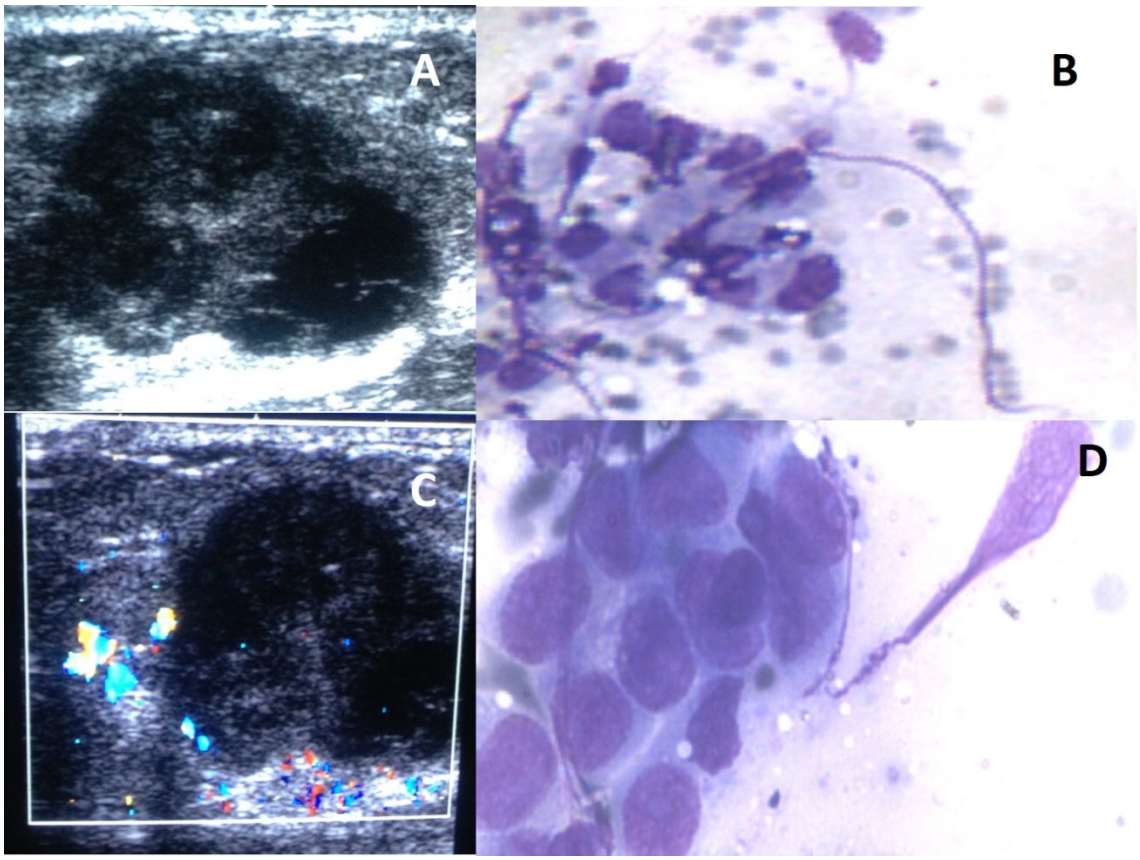

Figure 2. Panorama of Complex Breast Cysts.

REFERENCES

1. Ciatto S, Cariaggi P, Bulgaresi P. The value of routine cytologic examination of breast cyst fluids. ActaCytol. 1987;31:301–4.
2. Smith DN, Kaelin CM, Korbin CD, et al. Impalpable breast cysts: utility of cytologic examination of fluid obtained with radiologically guided aspiration. Radiology. 1997;204:149–51.
3. Maleki D, Ghafari A. Cystic changes of breast in a family with autosomal dominant polycystic kidney disease. Iran J Kidney Dis. 2009;3:246-8.
4. Berg W, Campassi C, Ioffe O. Cystic lesions of the breast: sonographic-pathologic correlation. Radiology. 2003;227:183–91.
5. deiMalatesta ML Framarino, Piccioni MG, Felici A, et al. Intracystic carcinoma of the breast. Our experience. Eur J GynaecolOncol. 1992;13:40–4.
6. Robbins SL, Kumar V, Abbas AK et-al. Robbins and Cotran pathologic basis of disease. W.B. Saunders Company. (2010) ISBN:1416031219.
7. Hong AS, Rosen EL, Soo MS, et al. BI-RADS for sonography: positive and negative predictive values of sonographic features. AJR Am J Roentgenol. 2005;184:1260–5.
8. Lamb PM, Perry NM, Vinnicombe SJ, et al. Correlation between ultrasound characteristics, mammographic findings and histological grade in patients with invasive ductal carcinoma of the breast. ClinRadiol. 2000;55:40–4.
9. Berg WA, Sechtin AG, Marques H, Zhang Z. Cystic breast masses and the ACRIN 6666 experience. RadiolClin North Am. 2010;48:931-87.
10. Burch JB, Walling M, Rush A, Hennesey M, Craven W, Finlayson C, Anderson BO, Cosma G, Wells RL. Melatonin and estrogen in breast cyst fluids. Breast Cancer Res Treat. 2007;103:331-41.

11. Tsung JS, Wang TY, Wang SM, Yang PS. Cytological and biochemical studies of breast cyst fluid. Breast. 2005;14:37-41.

12. Doshi DJ, March DE, Crisi GM, et al. Complex cystic breast masses: diagnostic approach and imaging-pathologic correlation. Radiographics. 2007;27:53–64.

13. Lucas JH, Cone DL. Breast cyst aspiration. Am Fam Physician. 2003;68;1983-6.

14. Hindle WH, Arias RD, Florentine B, et al. Lack of utility in clinical practice of cytologic examination of nonbloody cyst fluid from palpable breast cysts. Am J Obstet Gynecol. 2000;182:1300–5.

15. Joshi A, Maimoon S. Limitations of fine needle aspiration cytology in subtyping breast malignancies–a report of three cases. J Cytol. 2007;24:203–6.

16. Dey P, Luthra UK. False Negative Cytologic Diagnosis of Breast Carcinoma. ActaCytol. 1999;43:801-5.

YazışmaAdresi / Address for Correspondence:
Dr.SmitaSankaye
Rural Medical College,
PIMS(DU), Loni, Ta-Rahata,
Ahmednagar Maharashtra, INDIA
Email: smitasankaye@gmail.com

Geliş tarihi/Received on: 12.02.2014
Kabul tarihi/Accepted on:14.03.2014