Cukurova Medical Journal

Araştırma Makalesi / Research Article

Pathological Panorama of Lactating Adenoma

Laktasyonel Adenomun Patolojik Panoraması

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Cukurova Medical Journal 2014; 39 (3):464-469.

ABSTRACT

Purpose: Lactating adenoma is the most common lesion found in a pregnant or a puerperal lady. Apart from its occurrence in normally located breasts, it has also been reported in ectopic breast that may be located anywhere along the milk line. Often it presents as a firm and palpable mass. Prompt 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 such breast lesions on FNAC in our setup. Correlation with sonomammography was also performed.

Materials and Methods: This was a four year prospective study carried out from May 2010 to February 2014. Palpable breast mass in any lactating lady was first evaluated by sonomammography. FNAC was then performed and the smears were stained with MGG and Papanicolaou stain.

Results: Out of the 14 palpable breast masses in lactating women that were diagnosed as lactating adenoma on sonomammography, 05 were found to be tense galactoceles and 09 were found to be lactational adenomas. Panorama of lactational adenomas showed 4 distinct patterns. Pattern A(04 cases): low columnar epithelium, No necrotic areas or cytoplasmic vacuoles.Pattern B (03 cases): high columnar epithelium with cytoplasmic vacuoles. No necrotic areas. Pattern C (1 case): prominent lactiferous ductules with areas of necrosis and infarct. Pattern D (1 case): cytoplasmic vacuoles, and islands of ductal cells in a background of prominent foamy material. This internal nature of lesions on FNAC was not identifiable by clinical palpation alone. None of the lesions labelled as lactating adenomas on sonomammography showed any signs of malignancy on FNAC.

Conclusions:FNAC is a useful method for confirming that a palpable breast lump in a lactating lady is lactating adenoma indeed. Four different patterns of microscopic appearances of lactational adenoma were noted in this study.

Keywords: Breast; Lactational adenoma; FNAC; Palpation; Sonomammography; Pathology

ÖZET

Amaç: Laktasyonel adenom hamile ve doğum yapmış bayanlarda en yaygın görünen lezyondur. Memede normal olarak bulunduğu bölge dışında süt hattı boyunca herhangi bir yerde de ektopik olarak da bulunabilir. Sıklıkla sert ve hissedilir bir kitle olarak kendisini gösterir. Hızlı tanısı İnce İğne Aspirasyon Sitolojisi (İİAS) (FNAC) yardımıyla mümkündür. Bu çalışma kurumuzuzda çeşitli meme lezyonlarının panaromasının belirlenmesi amacıyla İİAS yöntemi ile çalışılmış hastalarda yürütülmüştür. Aynı zamanda sonomamografi ile kolerasyonda çalışmamızda uygulandı.

Materyal ve Metot: Bu çalışma 2010 Mayıs'tan 2014 Şubat'a kadar yürütülmüş 4 yıllık prospektif bir çalışmadır. Göğüsünde hissedilir kitle olan emziren bayanlar önce sonomamografi ile değerlendirildikten sonra İİAS ile alınan doku MGG ve Papanicolaou boyası ile boyandı.

Bulgular: Hissedilir meme kitlesi olan emziren bayanların 14'üne sonomamografi ile laktasyonel adenom tanısı konmuştur. Bunlardan 5'inin yoğunlaşmış galaktosel, 9'unun ise laktasyonel adenom olduğu bulundu. Laktasyonel adenomlar 4 farklı patern göstermektedir. Patern A (4 vaka): düşük kolumnar epitel, nekrotik bölge veya sitoplazmik

vakuol yok. Patern B (3 vaka): sitoplazmik vakuollü yüksek kolumnar epitel, nekrotik bölge yok. Patern C (1 vaka) nekroz ve enfarktüs bölgeleri olan prominent süt kanalları Patern D (1 vaka): sitoplazmik vakuol, prominentköpüksü materyalin gerisinde duktal hücre adaları vardır. İİAS yöntemi ile bulunan, lezyonların bu içsel doğasını sadece klinik palpasyon ile tespit etmek mümkün değildir. Sonomamografi ile laktasyonel adenom olarak belirlenmiş lezyonladan hiçbiri İİAS' de malinsel bir bulgu göstermemiştir.

Sonuçlar: İİAS yöntemi emziren bayanlarda ki hissedilir meme yumrularının gerçekte laktasyonel adenom olup olmadığını doğrulamada faydalı bir yöntemdir. Bu çalışma laktasyonel adenomlara ait 4 farklı mikroskopik görüntü olduğunu belirlemiştir.

Anahtar Kelimeler: Meme; laktasyonel adenom; İİAS; palpasyon; sonomamografi; patoloji.

INTRODUCTION

A lactating adenoma is a well circumscribed palpable intra mammary mass, seen in a lady when she is pregnant or shortly after she delivers and is characterised by typical changes secretory epithelium leading to formation of a well differentiated benign tumor[1].

It is the most common lesion found in a pregnant or a puerperal lady. Apart from its occurrence in normally located breasts, it has also been reported in ectopic breast that may be located anywhere along the milk line[2].

Often it presents as a small, firm and palpable mass. Rarely they may be giant and weigh upto 750 grams[3]. Sonomammography can demonstrate the smaller as well as larger lesion. Prompt tissue 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 such breast lesions on FNAC in our setup. Correlation with sonomammography was also performed.

MATERIALS and METHODS

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

FNAC of the palpable lesion of breast in a lactating lady was done manually, blindly when the lesion was large enough to localize or palpate; or under sonomammography guidance in non palpable or manually unreachable lesions.

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

RESULTS

Demographic characteristics showed that the patients belonged to age group of 21-32 years.Right and Left both sides were almost equally involved by these lesions. Upper and outer quadrant was the most commonly involved quadrant by all types of cytological lesions.

Out of the 14 palpable breast masses in lactating womenthat were diagnosed as lactating adenoma on sonomammography, 05 were found to betense galactoceles and 09 were found to be lactational adenomas.

Panorama of lactational adenomas demonstrated 4 distinct patterns:

- Pattern A(04 cases - 44.44.%): low columnar epithelium, No necrotic areas or cytoplasmic vacuoles.
- Pattern B (03 cases-33.33%):high columnar epithelium with cytoplasmic vacuoles. No necrotic areas.
- Pattern C (1 case-11.11%):prominent lactiferous ductules with areas of necrosis and infarct.
- Pattern D (1 case-11.11%): cytoplasmic vacuoles, and islands of ductal cells in a background of prominent foamy material.

This internal nature of lesions on FNAC was not identifiable by clinical palpation alone. None of the lesions labelled as lactating adenomas on sonomammography showed any signs of malignancy on FNAC. The 05lesions that were labelled as lactating adenomas and were subsequently found to betense galactoceles, were missed on ultrasound due to the dense contents that masked any posterior acoustic enhancement that characterises a cystic lesion on ultrasound. Thus FNAC was more helpful.

Representative images are shown in Figure 1[Sonomammography appearance of Lactating Breast and Adenomas in such Breasts] and Figure 2 [Pathological Panorama of Lactating Adenoma as seen under Microscope].

DISCUSSION

Lactating adenomas usually have a well circumscribed appearance and a small size; although size as large as 15 cm has also been describe[3].

This entity is considered separate from tubular adenoma and fibroadenoma becauseof its association with lactational stage[4].It has been name as the "tumor of pregnancy" because changes seen in the form of secretion in these lesions resemble lactational changes of pregnancy. It is believed that lobular proliferation leads to nodule formation that is easilyidentifiable than than the adjacent lactational tissue[5]

But some researchers believe that it is the previously present adenomas which forms a lactating adenoma[6]. Thus tubular adenomas and lactating adenomas are two ends of a spectrum, in which lactating adenoma typically occurs in pregnancy. Lactating adenomas are slow to grow and are small in size[7], although large size upto 25 cm has also been described[8]

Sonomammography, describes them as a small, well defined solid hypo echoic mass. Not much has been mentioned about the vascularity[9]. But in our study, as shown in Figure 1, we could identify two different patterns of vascularity, a central pattern and a peripheral pattern. As there is an increase in parenchymal density during lactation, the sensitivity X-ray mammography is reduced and hence sonomammography is the diagnostic investigation of choice[10].

Macroscopically it appears as a well circumscribed, lobulated, mass that may either be solitary or multiple. The cut surface appears gray-tan and may show frequent necrosis and even areas of infarction[3,11].

Microscopically it shows abundant stroma that contains cuboidal cells which are actively secreting and arranged to from close clusters of glands. This appearance has been likened to that of a fibroadenoma or tubular adenoma with lactational change. The affected glands have tubulo-alveolararchitecture and florid secretory features. They resemble aggregates of lobules exhibitingsecretory hyperplasia. In the course of clinical progression, this lesion can undergo changes of infarct or may even involute spontaneously. Often it presents as a firm and palpable mass[11].Painof recent onsetand sudden increase in sizeindicate infarction[7,12]. Rarely a lactating adenoma may accompany a malignant lesion[13].

Pathological Panorama of Lactating Adenoma as seen under Microscope in our study demonstrated following four important patterns as shown in Figure 2.

- A: High power view shows the stroma(1), low columnar epithelium (2) and lumen(3) of the gland in a case of Lactating Adenoma. No necrotic areas or cytoplasmic vacuoles are seen.
- B: High power view shows the stroma(1), high columnar epithelium (2) with cytoplasmic vacuoles and lumen(3) of the gland in a case of Lactating Adenoma. No necrotic areas or infarct are seen.
- C: Low power view in a case of Lactating Adenoma shows the organized and prominent lactiferous ductules (1) with areas of infarct(2) and vessels and bleed(3).

- D: Ultra high power view in a case of Lactating Adenoma shows prominent cytoplasmic vacuoles (1), islands of ductal cells (2) in a background of foamy material(3).

To the best of our knowledge no other study has demonstrated such pathological panorama of lactating adenoma. The limitation of our study is the small sample size. Excisional biopsy and histopathological examination was not carried out as none of the patients were willing for the same.

Lactational adenoma may shrink by itself, and hence may not require any treatment if they are asymptomatic[13]. Treatment of symptomatic lactational adenoma is enucleation[3]. Role of dopamine agonist Bromocriptine, to reduce the size of tumor prior to surgery has also been investigated[3,8].

Fibroadenoma and tubular adenoma are the closest differentials on microscopy. While fibroadenoma lacks the secretory hyperplasia seen in lactating adenoma, tubular adenomas have tightly packed tubules having epithelial and myoepithelial cells and minimal or absent cytoplasmic vacuolisation[2,4,5]. Delayed involution of lactation may also be confused with lactational adenoma but in this condition the lesion is not well delineated. Moreover, unlike lactational adenoma it may show hyperplastic and involuting lobules and cells like neutrophils, macrophages and lymphocytes[14].

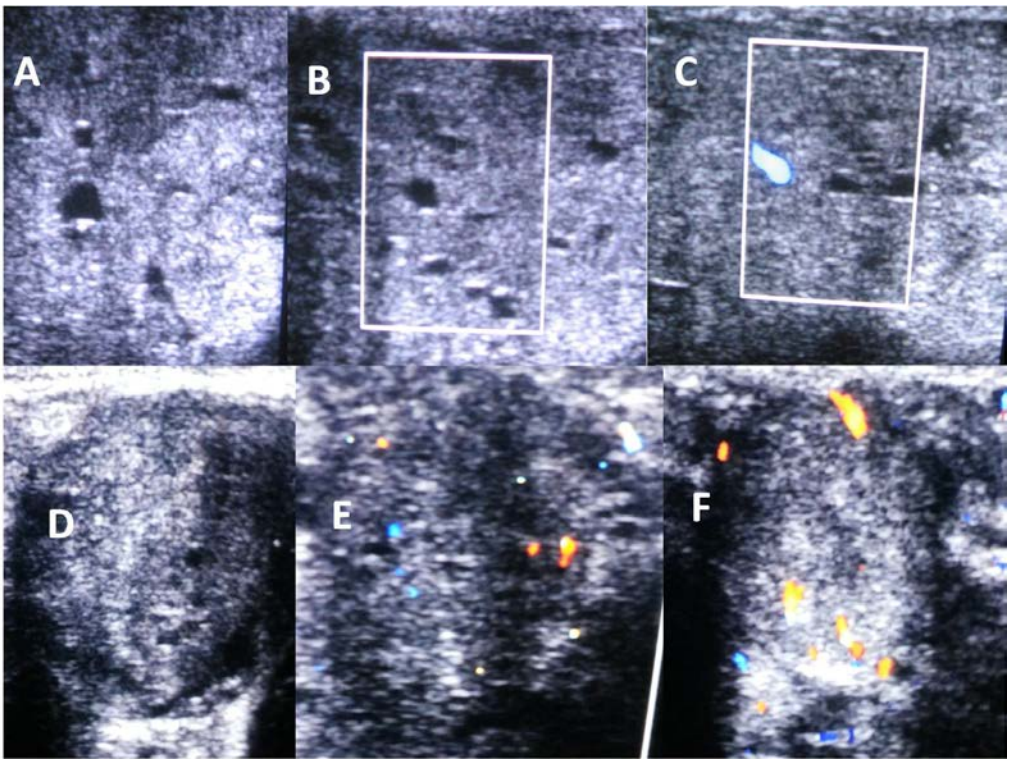

Figure 1. Sonomammography appearance of Lactating Breast and Adenomas in such Breasts.
A: Appearance of normal lactating breast on grey scale sonomammography
B: Color Doppler appearance of normal lactating breast-Pattern 1 -No vascularity
C: Color Doppler appearance of normal lactating breast-Pattern 2 -Peripheral vascularity
D: Appearance of lactating adenoma on grey scale sonomammography
E: Color Doppler appearance of lactating adenoma of breast-Pattern 1 -Central vascularity
F: Color Doppler appearance of lactating adenoma of breast -Pattern 2 -Peripheral vascularity

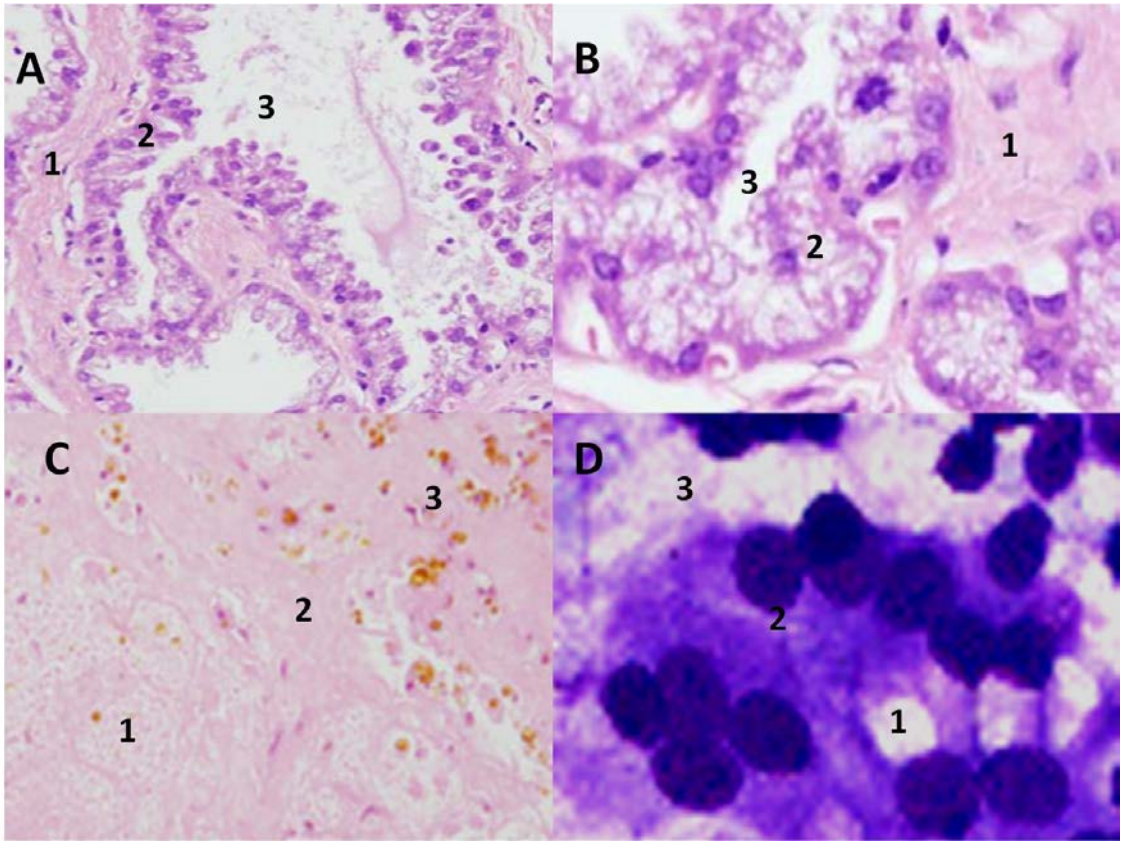

Figure 2. Pathological Panorama of Lactating Adenoma as seen under Microscope

A: High power view shows the stroma(1), low columnar epithelium (2) and lumen(3) of the gland in a case of Lactating Adenoma. No necrotic areas or cytoplasmic vacuoles are seen.

B: High power view shows the stroma(1), high columnar epithelium (2) with cytoplasmic vacuoles and lumen(3) of the gland in a case of Lactating Adenoma. No necrotic areas or infarct are seen.

C: Low power view in a case of Lactating Adenoma shows the organized and prominent lactiferous ductules (1) with areas of infarct(2) and vessels and bleed(3).

D: Ultra high power view in a case of Lactating Adenoma shows prominent cytoplasmic vacuoles (1), islands of ductal cells (2) in a background of foamy material(3).

CONCLUSIONS

FNAC is a useful method for confirming that a palpable breast lump in a lactating lady is lactating adenoma indeed. Four different patterns of microscopic appearances of lactational adenoma were noted in this study.

Although ultrasound was quite effective in demonstrating the lesions, FNAC alone could give the definitive diagnosis. Using ultrasound guidance for proper needel placement can increase the diagnostic accuracy.

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