Duct ectasia in bilateral accessory and unilateral normally located breast: a case report

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ABSTRACT

Background: Accessory breast tissue is a residual breast tissue that persists due to the failure of regression of mammary streaks in embryogenesis. It is essential to diagnose accessory breast tissue, because it can harbor all the pathological conditions that can occur in normally located breast. Cases of accessory breast with benign cystic changes, mastitis, abscesses, fibroadenomas, and carcinomas are documented. Duct ectasia is, however, a rare occurrence in accessory breast and only a few cases have been previously reported.

Case Presentation: A 38-year-old female, presented with marked and extensive duct ectasia involving almost whole of the right breast parenchyma and bilateral accessory axillary breasts with infrequently observed findings on mammography and ultrasonography.

Conclusion: This case report highlights the imaging features of duct ectasia involving the accessory axillary breasts which is a rare occurrence. Awareness of imaging features of this entity may help in early diagnosis to allow adequate management, and also, to prevent its complications like the formation of abscesses and fistulae.

Keywords: Accessory breast, fibroadenoma, duct ectasia, mammography, ultrasonography, case report.

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Background

Incidence of accessory breast tissue in women ranges from 0.4% to 6%, and in men, from 1% to 3% [1]. It can occur anywhere along the embryonic mammary streak from the axilla to the groin, of which the commonest site is axilla. They may present as an asymptomatic mass or have symptoms evident during menarche, menstrual cycles, gestation, and lactation. In addition to its cosmetic effect, it may develop the same pathological conditions that can occur in the normally situated breasts like abscesses, mastitis, milk fistula, cyclical mastalgia, cysts, fibroadenomas, fibroadenosis, hamartomas, phyllodes tumors, and carcinomas (CAs) [1,2]. Duct ectasia is an unusual breast disorder defined as non-specific dilatation of one or more ducts that predominantly affects ducts in the retroareolar region [3]. Mammography, ultrasonography, and MRI are the main imaging modalities used for the diagnosis followed by a fine-needle aspiration cytology and biopsy when required. Duct ectasia has been rarely reported in accessory breast.

Due to its rarity, we are driven to report this unique case of duct ectasia occurring simultaneously in bilateral accessory axillary breasts as well as in unilateral normally located breast with infrequently observed imaging findings.

Case Presentation

A multiparous, non-lactating 38-year-old female presented for work-up of a palpable lump in her right breast for the last 3 months. She was also having a history of painless bilateral axillary swellings for the last 15 years. For the last 3 months, there was also an increase in the size of both axillary swellings and these had become painful. She had five children and husband in her family. Her last born child was of three years. There was no family history of CA breast.

On examination, her right breast was slightly heavier than the left (Figure 1a). There was a firm and mobile swelling in the upper-outer quadrant of right breast, which was not fixed to the skin or the underlying muscles. Contra-lateral breast was clinically unremarkable. Examination of both axillae revealed bilateral accessory axillary breasts both of which were tender to touch. Tenderness was more on the left side. Rudimentary nipple and areola complex was seen on the left side (Figure 1b). No nipple or areola was seen on the right side. No discharge noted at the time of examination from either in normal or accessory breast.

Bilateral mammography was performed, which revealed heterogeneously increased density involving

Figure 1. *Clinical photograph. (a) Right breast is heavier then left (black arrow). Bilateral accessory axillary breasts are also seen. (b) Left accessory axillary breast with rudimentary nipple and areola complex (white arrow).*

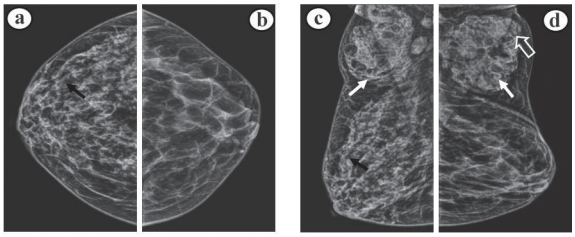

Figure 2. *Bilateral mammogram. (a) Right breast craniocaudal (CC) view. (b) Left breast craniocaudal (CC) view. (c) Right breast mediolateral oblique (MLO) view. (d) Left breast mediolateral oblique (MLO) view. Heterogeneously increased density is noted involving almost whole of the right breast with sparing of lower inner quadrant. Few radio dense serpentine tubular structures are also noted in retroareolar region (Black arrows). Left breast is unremarkable. Bilateral accessory axillary breasts show findings similar to that of right breast with serpentine tubular structures (White arrows). An oval shaped opacity is seen super imposed on left accessory axillary breast (Hollow white arrow) corresponding to abscess. Bilateral axillary lymph nodes are also identified.*

almost whole of the right breast with sparing of the lower inner quadrant. Few radiodense serpentine tubular structures were also noted in retroareolar region. Left breast was unremarkable. Bilateral accessory axillary breasts were also showing findings similar to that of the right breast. An oval-shaped opacity was seen super imposed on the left accessory axillary breast. Bilateral axillary lymph nodes were also identified (Figure 2). No micro calcifications were found. Ultrasonography of both breasts and axillae was then performed with a high resolution probe. It revealed multiple anechoic smooth-walled branching and tapering tubular structures involving most of the right breast (Figure 3), with sparing of lower inner quadrant representing dilated ducts. Few of these ducts revealed rounded soft-tissue nodules, which were not having flow on the Doppler evaluation (Figure 4). Left breast was normal (Figure 5). Bilateral axillary accessory breasts also revealed multiple dilated ducts (Figures 6 and 7a); few of these had intra ductal soft tissue nodules. An abscess was also seen in left accessory axillary breast corresponding to oval-shaped axillary opacity on the left breast mediolateral oblique view mammogram (Figure 7b).

Based on these findings, a diagnosis of severe duct ectasia with significantly dilated ducts was made, which was involving most of the normally located right breast parenchyma and bilateral accessory axillary breasts with abscess formation in the left accessory axillary breast.

Ultrasound-guided core needle biopsy confirmed the diagnosis of severe duct ectasia with ducts containing chronic inflammatory infiltrates.

The patient was treated with antibiotics and anti-inflammatory drugs after the ultrasound-guided aspiration of the left accessory axillary breast abscess. She was offered surgical excision of bilateral accessory axillary breasts and right breast lesion, which was refused by the patient and she was kept on follow-up.

Discussion

Accessory breast tissue may occur anywhere along the embryonic mammary streak. Knowledge about accessory breast tissue has important inferences for patient care. Accessory breast tissue respond to physiological hormonal changes like normally situated breast and may go through an increase in size and even milk secretion during pregnancy and lactation. In addition, it is important to recognize that the same spectrum of pathologic processes that occur in normal breast tissue can occur in accessory breast tissue [4,5]. Benign pathologic entities occurring in accessory breast tissue that have been reported in the literature include lactating adenoma, fibroadenoma, mammary hamartoma, and fat necrosis [6]. The most frequently reported malignant disease in accessory breast tissue is infiltrating ductal CA (79%). Rare reports of medullary breast cancer, Paget disease, cystosarcoma phyllodes, papillary CA, leiomyosarcoma, and invasive secretory CA also exist [7].

Mammary duct ectasia is, however, a rare occurrence in accessory breast. Only a few cases have been previously reported in the literature [8,10]. But any of these cases do not describe imaging features of duct ectasia in accessory breast. Mammary duct ectasia is a benign abnormality of mammary gland characterized by non-specific dilatation of one or more mammary ducts. It usually affects women around menopause, however, it can also be seen in younger women, and occasionally in children and even in men.

The exact etiology of mammary duct ectasia is not well understood; however, histopathologically there are dilated

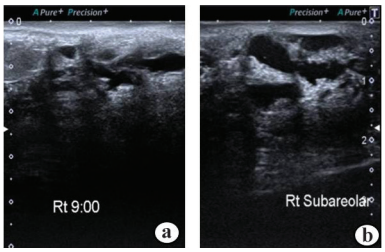

Figure 3. *Right breast ultrasonography (a,b) revealed multiple anechoic branching tubular structures converging towards nipple representing dilated ducts.*

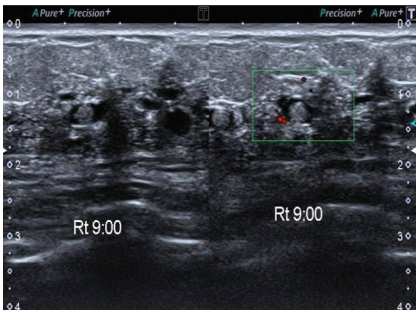

Figure 4. *Right breast ultrasonography. There are multiple dilated ducts showing rounded soft-tissue nodules having no flow on Doppler evaluation. Proven to be inflammatory infiltrates on ultrasound guided core biopsy.*

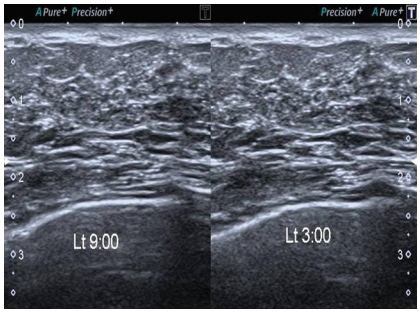

Figure 5. *Left breast ultrasonography revealed normal left breast parenchyma. No dilated ducts found in left breast.*

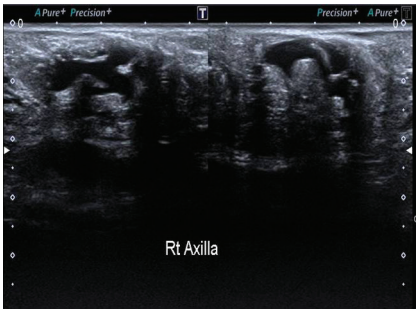

Figure 6. *Right axillary ultrasonography showing multiple anechoic tubular structures representing dilated ducts.*

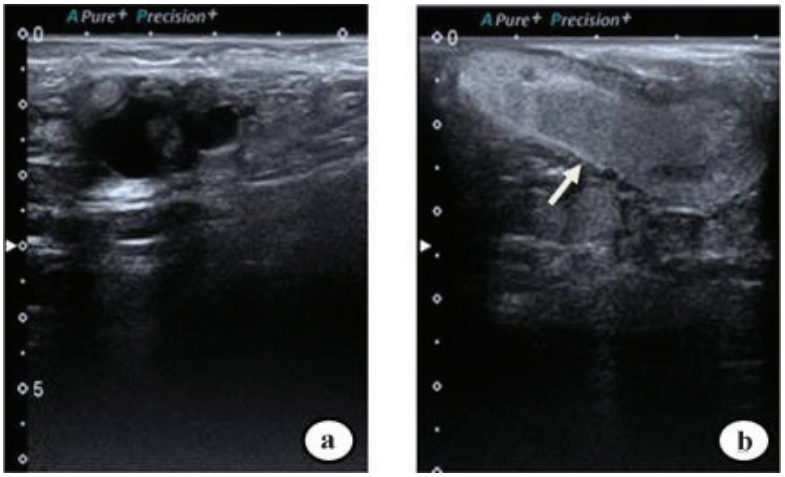

Figure 7. *Ultrasonography of left axilla. (a) Left axillary ultrasound revealed multiple dilated ducts. (b) An abscess was also seen in left axilla (White arrow). This abscess corresponds to an oval shaped axillary opacity on left breast mediolateral oblique view mammogram [Figure 2d (Hollow white arrow)].*

mammary ducts with periductal inflammatory changes. Smoking has been found as a risk factor for mammary duct ectasia in a study, and the risk appeared to be three times higher in smokers than in nonsmokers [9]. Other clinical factors that might be related to duct ectasia are ductal obstruction, hyperprolactinemia, autoimmune disease, infection, and trauma [10]. Periductal mastitis was considered as an initial disorder in this condition; however, a growing body of evidence suggests that it is a separate entity.

Clinical presentation is variable. The condition may be asymptomatic. When symptomatic it may present as a palpable subareolar mass, nipple discharge that might sometimes be blood stained, nipple or skin retraction, pain or tenderness. Secondary infection can result in abscess formation, purulent nipple discharge, and fistula formation [10,11]. In our patient, the presenting complaint was a palpable right breast lump and gradually enlarging painful bilateral axillary swellings. No discharge was seen in our patient.

Diagnosis is usually clinical; however, imaging is required for proper evaluation of the disease process. Mammographic appearance of duct ectasia depends upon the overall density of breast parenchyma and the degree of dilatation of ducts. On mammography, the ectatic ducts appear as dense serpentine tubular structures converging towards the nipple. These ducts may contain inspissated secretions, cellular debris or inflammatory infiltrate, which may appear as filling defects in these ectatic ducts. These filling defects are well circumscribed and located in central ducts. These inspissated secretions may occasionally calcify and appear on mammograms as coarse, smooth bordered, rod or cigar-shaped calcifications pointing towards the nipple [3,12]. In our patient, no calcifications were found on the mammogram. On ultrasonography, these ectatic ducts appear as anechoic tubular structures having smooth walls. Inflammatory infiltrates appear as soft tissue nodules within ectatic ducts having no flow on color Doppler. Our patient was having severe duct ectasia involving both accessory axillary breasts and

most of the right breast parenchyma with multiple inflammatory infiltrates in ectatic ducts. On T1 and T2 weighted MR images, these ectatic ducts are of high signal intensity due to the presence of blood, proteinaceous material or both [12].

Mammary duct ectasia is usually managed conservatively. In acute process, antibiotics are given or simple incision and drainage is performed, if an abscess has been formed. Standard surgical excision is usually necessary for persistent or recurrent cases in which conservative therapy fails. Excision usually includes removal of pathological ducts, abscess, surrounding inflamed tissues, fistulae, and terminal lactiferous ducts [10].

Conclusion

Accessory axillary breast is not an infrequent disorder and should be suspected in the differential of axillary masses when suitable. Mammary duct ectasia is a rare occurrence in accessory breast, but our case is even more unique in having such marked and extensive duct ectasia involving almost whole of the right breast parenchyma and bilateral accessory axillary breasts with infrequently observed imaging findings.

Acknowledgement

None

List of abbrevations

CA	Carcinoma
CC	Craniocaudal
MLO	Mediolateral Oblique
MRI	Magnetic Resonance Imaging

Consent for publication

Informed consent was obtained from the patient to publish this case in a medical journal.

Ethical approval

Ethical approval was obtained from Institutional Review Board to publish this case in a medical journal.

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Summary of the case

Patient (gender, age)	1	Female, 38 year old
Final Diagnosis	2	Duct Ectasia
Symptoms	3	Palpable lump and pain bilateral axillae and right breast
Medications	4	Antibiotics and anti-inflammatory
Clinical Procedure	5	Bilateral Mammography, Bilateral breast and axillary Ultrasonography and Ultrasound guided aspiration of abscess in left axillary accessory breast
Specialty	6	Diagnostic Radiology