Case Report

Primary adenoid cystic carcinoma of axillary ectopic breast tissue: Case report of a rare entity

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ABSTRACT

Ectopic breast tissue, a developmental anomaly, is a rare occurrence. Isolated pathologies in ectopic breast tissue with normal breast architecture are even rarer. Cases with primary invasive ductal carcinoma, invasive lobular carcinoma, secretory carcinoma, and mucinous carcinoma have been reported in ectopic breast tissue. We report a case of primary adenoid cystic carcinoma of axillary ectopic breast tissue, which to our belief has never been reported earlier.

Key words: Accessory breast, adenoid cystic carcinoma, breast, ectopic breast

INTRODUCTION

Ectopic breast tissue is found in around 6% of the population, with most of the cases seen in women in the axillary area.[1,2] Copeland and Geschickter classified ectopic breast tissue as (1) supernumerary breast, which contains accessory nipple or areolar formation or both with or without glandular tissue, and (2) aberrant breast tissue, which contains ectopic breast tissue without a nipple or areolar complex.[3] Our case was that of an aberrant breast tissue. Ectopic breast tissue occurs as a result of the failure of involution of the mammary ridge and can present anywhere along the milk line, most frequently in the axilla (60–70%) and less frequently in the thorax (5–10%) and more rarely in the vulva.[4,5] Pathological changes in ectopic breast tissue are rare, among which the most common are of carcinomas followed by inflammation and fibroadenoma.[6,7] Primary carcinoma of the ectopic breast tissue is rare, accounting for 0.3% of all breast neoplasms, with very few reported cases so far.[8] Majority of the reported cases are that of primary invasive ductal carcinoma of ectopic breast tissue followed by medullary and lobular carcinomas.[4,9] We report the case of a 30-year-old female who presented with an axillary mass. Tru-cut biopsy of the swelling revealed adenoid cystic carcinoma with normal mammographic study of bilateral breasts, we report the case because of its rarity.

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CASE REPORT

A 30-year-old female was referred to DKM Diagnostic Centre, Jhothwara, Jaipur, Rajasthan, for biopsy of a right-sided axillary mass of 3 weeks duration. The swelling was well defined, measuring 5 cm × 4 cm, nontender, and firm.

A tru-cut biopsy was performed under local anesthesia using an 18-gauge needle. The biopsy materials were then fixed in 10% formalin, processed, and stained with hematoxylin and eosin stain.

The sections showed breast tissue with an infiltrating tumor composed of bimodal cell population. One cell

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population comprising basaloid cells, which constituted the bulk of lesion, and the other comprising smaller cells with bright eosinophilic cytoplasm, which lined the glandular lumina [Figure 1]. The cells were arranged in tubular, trabecular, and cribriform pattern. The basaloid cells had scanty cytoplasm and round to oval nuclei with occasional nucleoli. The smaller cells lining the glandular lumina had eosinophilic cytoplasm and round nuclei with occasional nucleoli. The sections stained positive for periodic acid-Schiff stain. A diagnosis of adenoid cystic carcinoma was made. Following this, a mammography was done to exclude any primary in the breast, which showed a normal study [Figure 2]. Immunohistochemistry was done on the tumor sections, which showed positivity for cytokeratin 7, smooth muscle actin, and antibody to Collagen IV. The sections stained negative for estrogen receptor, progesterone receptor, and HER-2neu. A final diagnosis of primary adenoid cystic carcinoma of ectopic axillary breast tissue was made and the patient was referred for surgical removal of the tumor. The woman was then referred to a tertiary care center where she underwent tumor excision with axillary lymph node dissection, followed by postoperative chemotherapy and radiotherapy. She is under follow-up now.

DISCUSSION

Polymastia is a term which is used to denote more than two breasts in an individual. This condition has been given many names such as accessory breast, aberrant breast, supernumerary breast, and ectopic breast tissue. Ectopic breast tissue is rare and seen in 0.2–6% of population. It is found more commonly in females.[1,2,4] As stated earlier, ectopic breast tissue has been classified by Copeland and Geschickter into two variants, i.e. supernumerary breast and aberrant breast tissue.[3] According to another classification system, published by Kajava in 1915, supernumerary breast tissue can also be classified into eight types. Class I: Complete breast with nipple, areola, and glandular tissue. Class II: Nipple and glandular tissue; no areola. Class III: Areola and glandular tissue; no nipple. Class IV: Glandular tissue only. Class V: Nipple and areola; no glandular tissue (pseudomamma). Class VI: Nipple only (polythelia). Class VII: Areola only (polythelia areolaris). Class VIII: Patch of hair only (polythelia pilosa).[10] Based on this classification, our case belonged to Class IV.

Ectopic breast tissue occurs due to failure of involution of the mammary ridge. The mammary milk lines develop during the 6th week of embryonic development along the sides of the embryo, extending from the axillary region to the groin. Ectopic breast tissue can occur anywhere along the milk line or mammary line.[4,11] However, cases depicting ectopic breast tissue in other sites such as face, hip, flank, chest, shoulder, upper extremities, buttock, vulva, and posterior neck have also been found.[4,5,9]

Ectopic breast tissues are usually asymptomatic, but may cause pain and discomfort especially during menstruation, pregnancy, or lactation.[11] Usually, the ectopic breast tissue undergoes the same physiological and pathological processes as the eutopic breast.[7,11] However, nature has its own ways of defiance. Hence, in certain cases, isolated pathological changes have been reported in the ectopic breast tissue with normal eutopic breast. These pathological changes can range from benign to malignant with infiltrating carcinomas being the commonest followed by inflammation and fibroadenoma.[6,7]

Primary malignancy of ectopic breast tissue is rare with not many reported cases so far. The most common primary tumor of ectopic breast tissue has been found to be invasive ductal carcinoma.[1,9] Shin *et al*., Nardello *et al*., and Devine *et al*. reported cases of primary invasive secretory carcinoma,

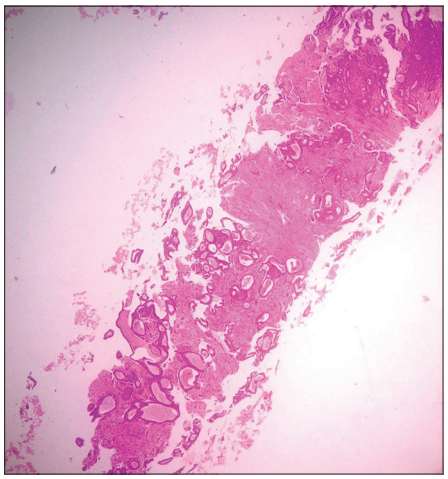

Figure 1: Histopathological section showing an infiltrating tumor composed of cells arranged in tubular, trabecular and cribriform patterns (H and E, ×40)

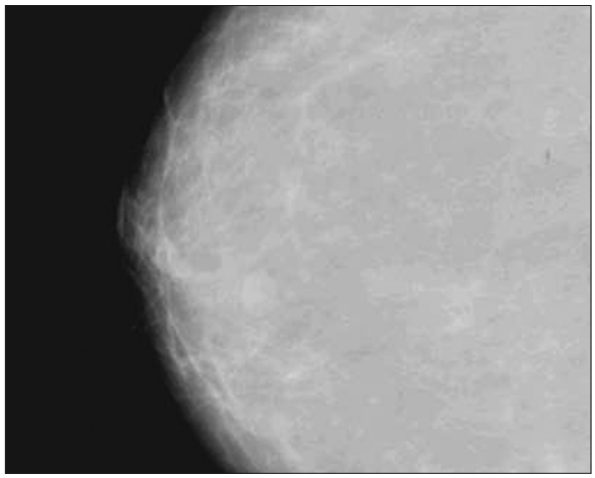

Figure 2: Mammography of ipsilateral breast showing normal study

invasive mucinous carcinoma, and invasive lobular carcinoma of axillary ectopic breast tissue, respectively.[8,11,12] Our case is that of primary adenoid cystic carcinoma of ectopic axillary breast tissue, which to our belief has not been reported before.

Adenoid cystic carcinoma is a rare tumor of breast which presents clinically as a mass lesion. The tumor is usually well defined with size varying from 1 to 6 cm.[13] In our case, the tumor was a well-defined mass in the axilla and measured 5 cm × 4 cm. Adenoid cystic carcinomas are composed of two cell types (1) Small basaloid myoepithelial cells arranged in solid, tubular, trabecular, or cribriform patterns; surrounding pseudoglandular spaces containing basement material (2) Epithelial cells arranged around true glandular lumina.[13] Similar findings were seen in our case.

A grading system has been developed based on the pattern of growth of the tumor. Grade 1: No solid element; Grade 2: Less than 30% solid component; and Grade 3: More than or equal to 30% solid components. Grade 3 tumors have been found to be poorly differentiated with frequent mitotic figures.[13] Our case was that of Grade 1 tumor. Prognosis of adenoid cystic carcinoma has been found to be extremely favourable.[13]

CONCLUSION

Pathologies in ectopic breast tissue may go unnoticed at times due to lack of awareness. In addition, these lesions escape early detection by routine mammographic screening due to their location. Fine needle aspiration cytology or core needle biopsies, being minimally invasive techniques can prove to be valuable aids in diagnosing occult pathologies in ectopic breast tissues.

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Conflicts of interest

There are no conflicts of interest.

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