Fibroadenoma of the supernumerary breast of the axilla

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ABSTRACT

Supernumerary breast or polymastia is a well documented anomaly of the breast, and commonly presents along the embryonic milk line extending between the axilla and groin. However, cases of polymastia have been recorded in the face, vulva and perineum. The clinical significances of these anomalies include their susceptibility to inflammatory and malignant changes, and their association with other congenital anomalies of the urinary and cardiovascular systems. The present article reports a case of fibroadenoma developing in the supernumerary breast of the right axilla in a 28 year old woman. Clinical and mammography examination of both breasts revealed no abnormalities and no lymph nodes were detected in the axillae or the neck. No associated urologic or cardiovascular abnormalities were found, and the histopathological examination of the excisional biopsy samples showed a well-defined, capsulated intracanalicular type of fibroadenoma similar to that of eutopic mammary tissue. The article also outlines the common congenital anomalies of the breast, and emphasizes on their proper clinical assessment for any other associated anomaly together with adequate surgical excision and regular follow up of the treated patients.

Keywords: Supernumerary breast, fibroadenoma, histopathology, axilla.

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Supernumerary nipple (polythelia) and supernumerary breast (polymastia) are common congenital anomalies of the breast in both men and women. They usually develop along the embryonic milk line between the axilla and inguinal region.[1,2] Their incidence from the literature ranges between 1-6%,[3] and it is believed to be due to failure of regression of milk line after normal development of the breast in the pectoral area,[4] though its embryonic association with the apocrine sweat glands cannot be ruled out.[5] Supernumerary breast in the axilla has been reported as one of the most frequent anomalies, however, ectopic breast tissue has been reported in areas other than the milk line region, such as, perineum, face and vulva.[6-9] Its clinical significance, apart from cosmetic reasons, resides in the possibility of pathological changes and its association with other congenital anomalies of the urinary and cardiovascular systems. Cases of cystic, inflammatory, fibrotic and malignant changes in ectopic breast have been previously reported.[4,10,11] The present report aims at a careful clinical assessment of breast congenital anomalies, a proper clinical examination for other associated anomalies, and a regular follow up of the treated case.

Case Report. A 28 year old woman was presented with a 2 x 3 x 2 cm right axillary mass of 3 years duration and a history of enlargement in the size of the mass during her last pregnancy. The mass was firm, freely mobile and completely isolated from the right breast. Both breasts and nipples were clinically normal, and no lymph nodes were detected in the axillae and the neck. Mammography of the breasts revealed clear shadows with no pathological

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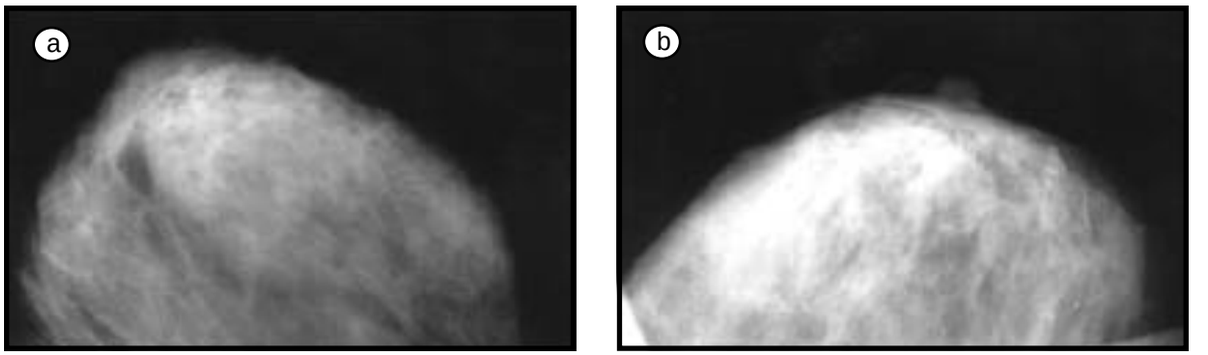

Figure 1 - Mammography pictures showing normal right (a) and left (b) breast shadows.

changes (Figure 1a and 1b), and the general and radiological examination of the urinary system showed no any associated abnormality.

Histopathological findings. Initial cytological examination of the needle aspiration biopsy from the mass revealed many clusters of cohesive epithelial cells with a few clusters of mesenchymal cells. A provisional diagnosis of fibroadenoma with no malignant changes was made. The whole surgically excised mass was 2 x 3 x 2 cm in size and had a whitish-lobular cut surface. Samples from different levels of the mass were taken, divided into small pieces and were fixed in modified Bouin's fluid (formaldehyde:picric acid = 1:3) overnight. The tissue samples were dehydrated in graded ethanol and embedded in paraffin. Serial 4µm thick sections were cut from all blocks and mounted on clean glass slides coated with egg albumin. The sections were processed for routine histological examination and stained with hematoxylin and eosin. Histopathological examination of the sections taken from different levels of the sample showed a well-defined capsule with multiple septa dividing the lesion into several lobules (Figure 2). Each lobule consisted of several interconnected ductules lined by cuboidal epithelial cells resting on the myoepithelial cells layer and surrounded with plenty of mesenchymal loose fibro-collagenous tissue. Occasionally, isolated epithelial-lined small cysts were also observed (Figure 3). The histopathological picture was of intracanalicular type of fibroadenoma similar to the conventional type arising in normal breast tissue.

Discussion. Supernumerary breast is a common congenital anomaly of the breast usually confined to the area of the embryonic milk line. The milk line developmentally arises as an ectodermic thickening between the upper limb and lower limb buds during the 6th week of gestation.[1,2] It gives rise to normal breast in the pectoral region and the rest of it will

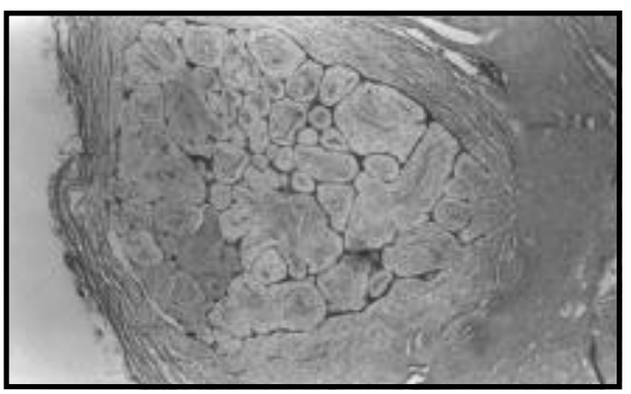

Figure 2 - H & E stained section from the axillary mass showing a lobule surrounded by dense collagen fibrous tissue. Elongated epithelial duct-like structures are seen among loose connective tissue. (Magnification x 50).

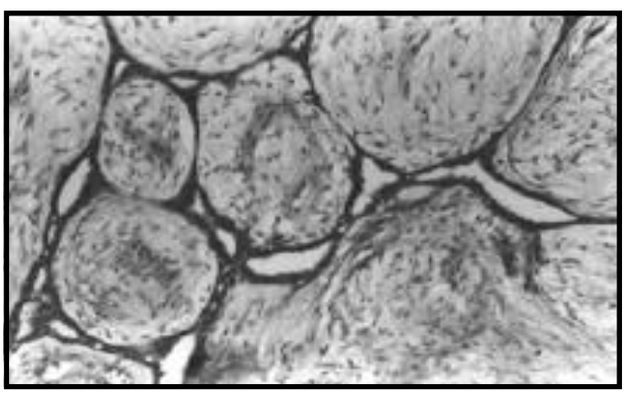

Figure 3 - H & E stained section from the excised mass illustrating few epithelial-lined small cysts. (Magnification x 200).

soon regress. Two hypotheses have been claimed on the embryogenesis of the supernumerary breast. One attributes the anomaly to the failure of regression and displacement of the milk line,[4] while the 2nd believes it develops from the modified apocrine sweat glands.[5]

Polymastia and polythelia are well documented breast anomalies in humans, and have been classified into eight types:[12] - Type 1- complete breast with areola and nipple; Type II- supernumerary breast with nipple only; Type III- supernumerary breast with breast tissue and areola only; Type IV- ectopic or aberrant breast tissue only; Type V- pseudomamma consists of fat with areola and nipple; Type VI- polythelia (nipples only); Type VII- areola only (polythelia areolaris); and Type VIII- patch of hair only (polythelia pilosa). The incidence of these anomalies according to the literature ranges between 1-6%, being more common among Blacks, Jews and Japanese.[13-15] Gilmore et al[16] from their study on a population of American women found that supernumerary nipple and accessory breast tissue were more common in the native Americans than the non-native women. Their study indicates the role of genetic basis in the development of these breast anomalies, and similar observations have been published by Klinkerfuss[17] and Hersh et al.[18] Similar to our reported case, the incidence of supernumerary breast is more frequent in the axillary-inguinal region. However, cases of aberrant breast tissue have been reported in the face, vulva and perineum.[6,7,9]

The clinical significance of the supernumerary breast, apart from cosmetic and psychological impacts, falls into their susceptibility to same physiological and pathological changes affecting normal breast, such as, inflammation, fibrosis, cystic and malignant changes.[8,19,20] Evans and Guyton[11] have stressed that cancer arising in the ectopic breast tissue has poorer prognosis due to difficult evaluation, early lymph node involvement and more difficult surgical excision. Another important significance of the supernumerary breast and polythelia is their association with congenital anomalies of the urogenital system, an issue with many controversial ideas. Several investigators[21-23] have indicated a higher incidence of urogenital anomalies, such as, hydronephrosis, polycystic kidney and ureteric stenosis. On the contrary, Rahbar[14] and Casey et al[24] from their studies on the black neonates could not find any evidence of renal involvement.

In conclusion, it is clinically wise to evaluate carefully cases of supernumerary breast and nipple for any associated urogenital anomalies with adequate surgical excision of the lesion and regular follow up of the treated patients.

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