Breast tumours of adolescents in an African population

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ABSTRACT

Background: Tumours of the breast are uncommon in childhood and adolescence. Patients in this age group often require a different approach to diagnosis and treatment. The purpose of this study is to highlight the clinicopathologic features of breast tumours in adolescents in a Nigerian city. **Materials and Methods:** Eighty-four breast tumour materials from patients aged 10–19 years were analyzed over a 10-year period at the Department of Pathology, University of Benin Teaching Hospital (UBTH), Benin City, Edo State, Benin City, Nigeria. **Results:** A majority of the breast tumours were benign. Fibroadenoma was the most common tumour with 46 cases (54.8%), followed by fibrocystic changes with 15 cases (17%). Malignancy was extremely rare in this group, with only one case (1.2%) of an invasive ductal carcinoma. Histologically, most tumours were indistinguishable from the adult types. **Conclusion:** Fibroadenoma is the most common breast tumour in adolescents in Benin City, Nigeria. Breast cancer and male breast tumours are rare in this age group. Routine complete physical examination of children and adolescents should include breast examination.

Key words: Adolescents, breast, tumours

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INTRODUCTION

Breast tumours are uncommon in childhood and adolescence.[1,2] This is because enlargement of the female breasts is one of the most prominent and dramatic physical changes associated with puberty, and when an abnormal breast mass occurs in early adolescence, it may be overlooked or assumed to be developmental in nature.[3] In Nigeria and in most parts of Africa, although breast cancer screening is still at an infantile stage, awareness of the disease is increasing and the discovery of a breast mass evokes anxiety in patients irrespective of age.[4]

Although studies on adolescent breast diseases are relatively few, the available literature indicate that most lesions are usually benign.[1-2,5-8] There are several histological patterns of adolescent breast tumours and these lesions vary in biologic behaviour. In many developed countries, patients with breast problems are seen or referred to specialized breast clinics as well as surgical departments.

The aim of this study is to highlight the peculiar features of breast tumours in a vulnerable population so as to improve the overall management of these patients. There is little information on childhood and adolescent breast diseases in Africa, and, to our knowledge, none has been reported from the town of Benin City, Nigeria.

MATERIALS AND METHODS

The surgical pathology records of all patients aged 10–19 years with breast tumours were obtained from the Department of Pathology, University of Benin Teaching Hospital (UBTH), Benin, for a 10-year period (1990–1999). The tumours were initially classified according to the World Health Organization (WHO) histological classification of tumours of the breast and then subcategorised into benign and malignant breast tumours.[9] When a patient's primary diagnosis was made outside this hospital, the patient was excluded from analysis. Patients with known malignant conditions elsewhere, repeat biopsies and those whose request cards, slides and archival pathological material were unavailable for review were excluded. Results were presented as simple frequency tables.

RESULTS

Eighty-four adolescents with breast tumour specimens were studied. Table 1 shows the distribution of breast tumours seen in these adolescents according to

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Table 1: Histological types of breast tumours found in adolescents at the UBTH, Benin City, over a 10-year period

Tumour	Number (*n*)
Benign breast tumours	
Gynaecomastia	1
Fibroadenoma	46
Fibrocystic changes	15
Sclerosing adenosis	6
Tubular adenoma	3
Blunt duct adenosis	3
Adenosis	3
Phyllodes (benign)	3
Phyllodes (borderline)	1
Granular cell tumour	1
Intraductal proliferative lesions	1
Malignant breast tumours	
Invasive ductal carcinoma – NOS*	1
Total	84

*NOS, not otherwise specified

histological type. The most frequent breast tumour in adolescents in this study was fibroadenoma, 46 (54.8%), followed by fibrocystic changes, 15 (17.9%), sclerosing adenosis and other variants of adenosis, 12 (14.3%). Phylloides tumours occurred in four (4.8%) instances and there was one (1.2%) case of granular cell tumour. Malignant breast tumours were very rare, as only a single case of invasive ductal carcinoma was seen in a 19-year-old girl. The patient had no family history of breast cancer or exposure to any known carcinogen. Male adolescent breast tumours were equally rare, with a single case of gynaecomastia in a 16-year-old patient.

DISCUSSION

Breast problems constitute a considerable proportion of pathologies managed in the surgical clinic and are often managed in specialised breast clinics in many developed countries.[10] Most studies of breast tumours have been on adults and frequently highlight malignant tumors of the breast, unlike in adolescents.

Although cancer of the breast can occur in adolescents, the incidence is extremely small in this age bracket.[3] In this study, only one case of invasive ductal carcinoma occurred, which is similar to the findings in other series where there were extremely few or no cases of malignancy.[1-2,5-8] Malignant breast tumours found in adolescents from other studies include infiltrating ductal carcinomas, lymphomas, alveolar soft part sarcoma and metastatic carcinomas,[1,2,5,7,8,11] and most of these patients had prior irradiation or positive family history of breast cancer.

The incidence of fibroadenoma in this study is similar to the findings from several studies that reported that fibroadenoma is the most common breast tumour in adolescents.[1,2,5,7-9,12] An earlier study among Nigerian Igbos (Eastern Nigeria) reported that most breast masses in this age group were due to fibroadenoma and gynaecomastia and that the peak ages differed from those in the American series.[12] Another study[13] from Jos, Nigeria reported that fibroadenoma occurred more commonly in young nulliparous women below the age of 20 years.

Although some authors reported greater cellularity and a dense stroma in fibroadenomas of adolescents,[1] we found no marked histolgical differences from the adult fibroadenomas in our study. Fibroadenomas are reportedly more commonly in blacks.[6,12] In a series by Daniel and Matthews, where 90% of adolescent breast tumors were fibroadenomas, a greater number of breast tumours occurred in black girls than in Caucasian girls below the age of 16 years, and those in black girls occurred 2 years earlier.[1]

Fibrocystic change is a non-proliferative lesion comprising cysts, adenosis, epithelial hyperplasia and apocrine metaplasia. These changes are often regarded as part of a spectrum of histologic features of normal breast and are managed conservatively.

The incidence of malignant phylloides tumours in our study raises concern. Histologically, some consider phylloides tumour to be a variant of fibroadenoma. Although the majority are benign, treatment of phylloides is often surgical, using breast-sparing techniques because metastasising cystosarcoma phyllodes is reported to be extremely rare in this age group.[1,14]

Male breast tumours were rare in this study. We recorded a single case of gynaecomastia in a young boy aged 16, in contrast with other studies where gynaecomastia occurred in much older subjects.[1,8] In one study, gynaecomastia occurred in older American males compared with their Nigerian counterparts.[8] There was no history of a feminising syndrome or use of exogenous hormones in our patient.

A conservative approach is usually advocated in the care of a majority of adolescence breast tumours because most of them are benign, but where surgery becomes necessary, aesthetic outcome is important and breast-sparing techniques are preferred.[14] Because lesions such as cystosarcoma phylloides tend to behave in

a benign fashion in adolescents, irrespective of the histologic type, it has been reported that patients can be cured by local excision.[14] Invasive investigative procedures such as biopsies and fine needle aspirations are often performed in adolescents in rare instances such as suspected malignant breast lesions to avoid interference with normal breast development.[1,2,5,6]

Mammograms are usually not ordered because the dense stroma of the adolescent breast renders interpretation difficult.[1,5] Ultrasound (US) is reported to be the ideal modality to study the paediatric breast and can be useful in all cases in identifying and characterising the abnormality and guiding further investigation.[15,16] Whereas malignant breast lesions in adolescents are often reported to have non-specific US appearances, fibroadenoma is usually solitary, homogenous and hypoechoic on US while cysts appear as a complex mass sonographically.[16] This was illustrated in the series by Foxcropt *et al.*[15] in which, of 615 adolescents who were investigated on account of complaints of breast tumours, 59% showed no abnormality by US and only 23 eventually had excision biopsy. In our study, neither US nor mammograms were routinely performed by patients due to the additional costs of these investigations.

Heightened awareness of adult breast malignancy in the lay population and the media has often led to parental and physician anxiety when a breast mass is encountered in children and adolescents. It is pertinent that patients and parents be reassured and that their anxiety be allayed.

This study had a few limitations, the major one being the retrospective nature of our analysis, which was inimical to our obtaining further relevant data such as patients' age at menarche and their history of contraceptive use.

In conclusion, the most common tumour in this study was fibroadenoma. Although malignant breast tumours and male tumours were rare, paediatricians and family physicians should routinely examine the breasts in children and adolescents and also teach them breast self-examination (BSE) on attaining puberty for early detection of breast diseases. We advocate the establishment of specialised breast clinics, especially in tertiary hospitals for this purpose.

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