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Histopathological review of breast tumours in children and adolescents in Delta State Nigeria

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ABSTRACT

Background: Breast swellings in children and adolescents may be overlooked on assumption that they are physiological enlargement. Pathologic swellings including cancers have however been encountered in this age group. This study highlighted the spectrum of tumours in childhood and adolescents. **Materials and Methods:** This was a 7 year retrospective analysis of all histologically diagnosed breast tumours in people aged 0 - 19 years. **Results:** There were 134 breast tumour diagnoses occurring in 133 females and 1 male (gynaecomastia). One hundred and nineteen cases (88.8%) were recorded in the 10 - 14 year age group and 15 cases (11.2%) in the 15 - 19 year age group. No case was found in children aged less than 10 years. The most common tumour was fibroadenoma accounting for 75.4% (*n* = 101) of all tumours followed by tubular adenoma (*n* = 11; 8.2%) and adenosis (*n* = 10; 7.4%). No case of malignancy was recorded in this study. **Conclusion:** Fibroadenoma is the most common breast tumour in children and adolescents in our environment.

Key words: Adolescents, breast tumours, childhood, fibroadenoma

INTRODUCTION

The breast is the commonest site for malignancy in women.[1] A wide range of tumours including those derived from specialised breast intra-lobular stroma may occur in the breast. Breast tumours however, are rare in childhood and adolescents.[2-5] Most breast swellings in this age group are physiological enlargement associated with puberty, hence, they may be overlooked on assumption that they are peri-pubertal physiological changes. Pathologic swellings including neoplasms however, have been reported in this age group.

The purpose of this study is to document the various histological types of tumours of the breast in children and adolescent as seen in our environment.

MATERIALS AND METHODS

This study was a retrospective analysis of all breast tumours in people aged 0-19 years as seen in the histopathology laboratory of Central Hospital, Warri, Delta state of Nigeria. The hospital is the only centre in Delta state offering histopathology services. Therefore, it is a major referral centre for histopathology services from government and privately owned hospitals in the state and its environs. The study spanned the 7 year period of 2005-2011. The cases for the study were identified and extracted from the histopathology register in the hospital. All specimens were formalin fixed, paraffin embedded, and sectioned at 3-5 microns before staining with haematoxylin and eosin. The result obtained were analysed in respect of age, sex, and tumour type. The study included both neoplastic and non-neoplastic tumours. Inflammatory swellings were however, excluded from the study. The tumours were classified according to the World Health Organization (WHO) histological classification of breast tumours.[6]

RESULTS

A total 905 breast tumours were diagnosed at the Hospital during the 7 year period of 2005–2011 out of which 134 cases occurred in children and adolescents. These occurred in 133 females and 1 male. Table 1 shows the age distribution of the various lesions encountered in this study. One hundred and nineteen cases (88.8%) were found in the 15-19 year age group while the rest (15 cases, 11.2%) were found in the 10-

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Table 1: Age distribution of childhood and adolescent breast tumours

Histological type	Age group (years)				Total
	0-4	5-9	10-14	15-19	
Epithelial Tumours	-	-	3	18	21
Adenoma	-	-	2	9	11
Adenosis	-	-	1	9	10
Myoepithelial lesions	-	-	-	3	3
Adenomyoepithelioma	-	-	-	3	3
Mesenchymal lesions	-	-	-	6	6
Angiomatosis	-	-	-	2	2
Fibromatosis	-	-	-	2	2
Pseudoangiomatous stromal hyperplasia	-	-	-	2	2
Fibroepithelial tumours	-	-	12	91	103
Fibroadenoma	-	-	12	89	101
Phylloides tumour (benign)	-	-	-	2	2
Tumours of the male breast	-	-	-	1	1
Gynaecomastia	-	-	-	1	1
Total	-	-	15	119	134

14 year age group.

Fibroadenoma was the most common single histological entity accounting for 75.4% ($n = 101$) of cases. Epithelial tumours were the other common lesions encountered and these were made up of 11 cases of tubular adenoma and 10 cases of adenosis (florid adenosis - 8; blunt duct adenosis - 1; sclerosing adenosis - 1). Other uncommon lesions were 3 cases of adenomyoepithelioma, 2 cases each of angiomatosis, fibromatosis, pseudoangiomatous stromal hyperplasia and benign phylloides tumour. Only 1 single case of male breast tumour was encountered and that was a gynaecomastia.

DISCUSSION

Tumours are rare in children; malignancies are even rarer and tumours derived from the breast are not included among the commonly encountered tumours in this age group.[7] Enlargement of the breast, however, is a common phenomenon in both boys and girls especially in the peri-pubertal period. This enlargement is physiological, occurring in response to estrogenic stimulation.[5,8]

Previous studies on childhood tumours reveal an increasing incidence of benign tumours with advancing age while malignant tumours decreased with advancing age.[9] In this study, all the cases encountered were benign with a clear demonstration of increasing incidence with advancing age with no recorded case in those aged less than 10 years.

Fibroadenoma, a fibroepithelial tumour derived from breast intra-lobular stroma, is the most common benign tumour of the breast and it is most frequently encountered in women aged less than 30 years.[9] In this study, this tumour accounted for over 75% of all breast tumours in children and adolescents. This finding is similar to several others which reported this tumour to be the commonest adolescent breast tumour.[2,5,10,11] All the cases in the present series were also encountered in the adolescent age group. The high incidence of this tumour in this study is not surprising, as the tumour is reportedly more common in blacks.[12] Only 2 cases of phylloides tumour, the other fibroepithelial tumour derived from breast intra-lobular stroma, were encountered in this study. Umanah *et.. al.*,[2] also found only 4 cases of phylloides tumour in a 10 year review of adolescent breast tumours in Benin City, Nigeria. In contrast to fibroadenoma, this tumour is reported to be most common in the sixth decade of life.[9]

Epithelial tumours were the next most common group of tumours in this study after fibroepithelial tumours; only adenoma and adenosis were encountered. These findings are similar to those of Umanah *et al.*[2]

Pseudoangiomatous stromal hyperplasia is a benign myofibroblastic proliferation which occurs most commonly in pre-menopausal women but has also been reported in the late second decade.[1,13] We found 2 cases in this series and both occurred in 15 years old females. This entity has been observed to present as a painless, firm, mobile, rubbery mass in young patients hence differentiating it from fibroadenoma clinically is a difficulty. Pseudoangiomatous stromal hyperplasia has also been reported in males with gynaecomastia.[14] This association could not be established in this study as the 2 cases seen occurred in females.

Breast cancer is rare in individuals aged less than 25 years. Umanah *et al.*,[2] found only 1 case in a 10 year study in Benin City while Simpson and Barson[5] found 1 single case in a 40 year study in Canada. There were also unusual cases of alveolar soft part tumour and metastatic ovarian carcinoma presenting as a breast mass reported by Onuigbo[15] in Nigeria and Raju[16] in Trinidad respectively. In our series, no case of malignant tumour was reported.

Male breast tumours are extremely rare. Gynaecomastia and carcinoma are the male breast tumours most commonly discussed in medical literature. Gynaecomastia is enlargement of the male breast occurring in association with increased estrogenic or decreased androgenic activity.[1] We encountered only

one case in a 15 year old boy in this study. Carcinoma of the male breast is a rare occurrence with a life time risk of 0.11% compared to 13% in female.[9] In consonance with the reported rarity of male breast carcinoma, no case was found in this study.

Conclusively, this study reveals that most breast tumours in children and adolescents are benign conditions, fibroadenoma being the most common. Although malignant diseases have been reported, no case was found in this study. A conservative approach to childhood and adolescent breast tumours is adopted by many because most tumours in this age group are physiological enlargement associated with puberty. Pathologic enlargements would require invasive investigative procedures like fine needle aspiration or biopsy. When such procedures are indicated, breast sparing techniques should be employed as removal of breast masses in this age group may lead to failure of breast development.

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