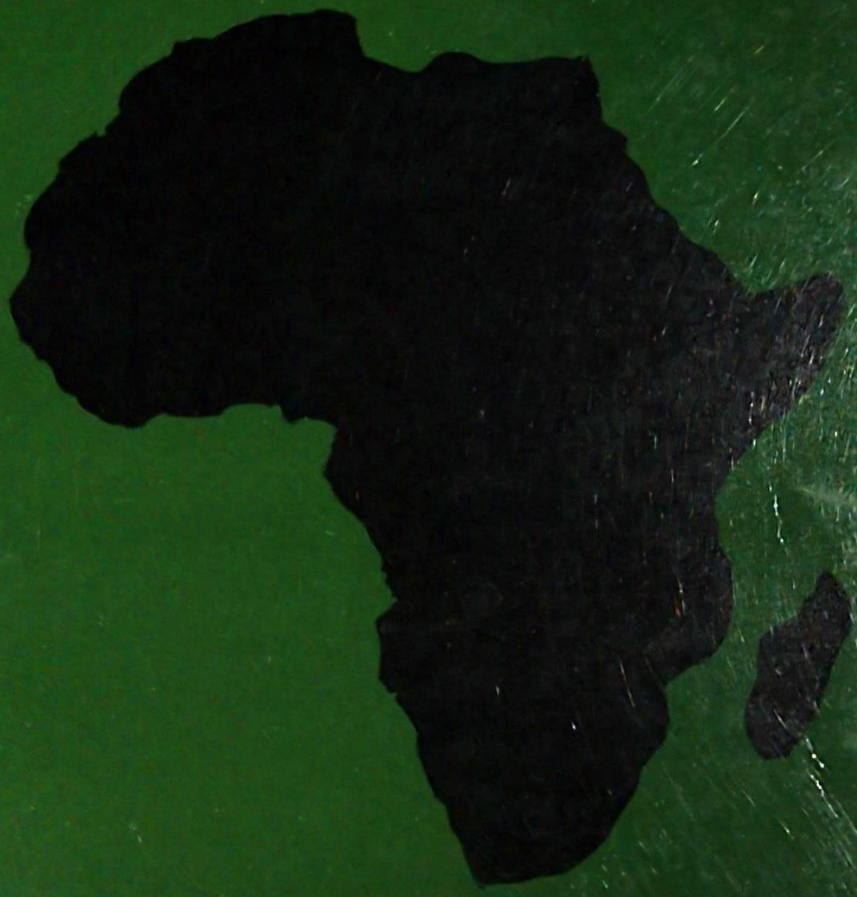
AFRICAN JOURNAL OF MEDICINE and medical sciences

VOLUME 38 NUMBER 2 JUNE 2009



ISSN 1116—4077

Benign childhood tumours in Benin City, Nigeria

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Summary
A retrospective analysis of benign tumours seen in children aged 0-14 years over a 10-year period (1993-2002) was carried out in Benin City Nigeria, in order to determine the various histological types of such tumours. A total of 76 cases were seen during the study period, out of which 32 occurred in males and 44 in females. The commonest histological categories were tumours of connective tissues, peripheral nerve and teratoma. Haemangioma and neurofibroma occurred with equal frequency and were the single most common histological types of benign childhood tumours. Head and neck was the most common anatomic region to be involved with childhood benign tumours.

Keywords: *Tumours, childhood, benign*

Résumé
L'analyse rétrospective des tumeurs bénignes observées chez les enfants âgés de 0-4 ans au cours d'une période de 10 ans (1993-2002) était faite dans l'état de bénin au Nigeria, en vue de déterminer les types histologiques variés de telles tumeurs. Un total de 76 cas étaient observés durant la période d'études, parmi lesquels 32 se présentaient chez les males et 44 chez les femelles. Les catégories histologiques les plus communes étaient les tumeurs des tissus connectives, des nerfs périphériques et du tératogène. L'hemo-angiome et le neurofibrome se présentent avec une fréquence égale et étaient le seul type histologique plus commun des tumeurs bénignes d'enfance. La tête et le cou étaient les régions anatomiques les plus communes à être impliquées avec les tumeurs bénignes d'enfance.

Introduction

Tumours are broadly divided into two groups- benign and malignant. This is based on certain characteristics including differentiation and anaplasia, rate of growth, local invasiveness, and metastasis [1]. In general, benign tumours are well differentiated, slowly growing, remaining localized to the site of origin and they never metastasize [1]. Although tumours with these characteristics are designated benign, on occasion however, they may cause serious disease by virtue of their locations or rapid increase in size [2] and rarely, they are the cause of death in childhood [3]. Benign tumours are also of importance because clinically they can mimic malignant disease.

Although literature on the pattern of benign childhood tumours is scanty, available records show that these tumours are very common (far more common than malignancies) and that any histological category may be encountered [2]. To the best of our knowledge, there has been no previous study of benign childhood tumours from Mid-W estern Nigeria. This study was therefore carried out to document the frequency and histological patterns of these tumours as seen in the Histopathology Department, University of Benin Teaching Hospital (UBTH), Benin City, Nigeria. Awareness of these entities, which sometimes mimics malignancies in presentation, is important if mistakes in diagnosis and treatment are to be avoided especially in Nigeria where many hospitals lack histopathology facilities. It will also direct our focus towards discovering possible associated aetiological factors

Materials and methods

Histotologically diagnosed cases of benign tumours in children less than 15 years over a 10-year period (January 1993 to December 2002) constituted the materials for the study. These were specimens of benign tumours in childhood received in the Histopathology Department of University of UBTH Benin City. This centre serves the Teaching Hospital and also receives specimens from other hospitals in the city and parts of the South-East, South-West and Niger Delta zones of Nigeria. The pathology request cards were retrieved in order to obtain data on age, sex, and other relevant information. The original slides were retrieved and examined. Fresh sections from archival blocks were made where original slides could not be found and stained with haematoxylin and eosin. All slides were reviewed using standard light microscopy and the neoplasms classified based on the International Classification of Diseases for Oncology (ICD-O) [4].

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Those cases in which the slides and blocks could not be traced were excluded from the study. Also, only specimens from children aged 0-14years were included in the study to conform to international standards [5].

Results

Between January 1993 and December 2002, 9494 surgical specimens were received in the Department of Histopathology, UBTH out of which 3309 (34.0%) were neoplastic lesions. 193 (5.9%) of these neoplasms occurred in children less than 15 years. One hundred and sixty of the 193 tumours met the criteria for inclusion in this study. Thirty three (17.1%) were excluded for reasons of unavailable blocks and slides. Benign tumours made up 76 (47.5%) of the 160 tumours with the rest (52.5%) being malignant tumours.

(9 cases), lymphangioma (8 cases), lipoma (6 cases) and 1 case of giant cell tumour of tendon sheath.

Peripheral nerve sheath tumours accounted for 19.7% (15 out of 76 cases) of benign tumours. There were 11 cases of neurofibroma (7 males and 4 females) with a male to female ratio of 1.8:1.3 cases of schwannoma all occurring in school age females, and 1 case of granular cell tumour which occurred in a school age male.

Teratomas, accounting for 7.9% of benign tumours were the next most common tumours. The six cases seen occurred in females and all but one was found in the 0-4 years age bracket. All of the neoplasms were mature cystic teratomas (2 cases in the ovary, 2 cases in the sacrococcygeal region and 1case each in neck and kidney).

Other benign tumours seen in this work included those of breast, bone and epithelial origins. There were 7 breast tumours (4 cases of

Table 1: Distribution of benign tumours by age and sex

Histological Type	Male	Female	M: F ratio	Age Range (years) 0-4	5-9	10-14	Total	%
Connective tissue tumours	19	16	1.2:1	10	11	13	35	46.1
Haemangioma	6	5	1.2:1	4	4	3	11	
Fibromatoses	5	4	1.3:1	-	3	6	9	
Lymphangioma	4	4	1:1	6	1	1	8	
Lipoma	3	3	1:1	-	3	3	6	
Giant cell tumour	1	-	1:0	-	1	-	1	
Peripheral nerve Sheath tumours	8	7	1.1:1	3	5	7	15	19.7
Neurofibroma	7	4	1.8:1	2	2	7	11	
Schwannoma	-	3	0:3	-	2	1	3	
Granular cell tumour	1	-	1:0	-	1	-	1	
Teratoma	-	6	0:6	5	-	1	6	7.9
Other tumours	5	15	0.3:1	1	4	15	20	26.3
Breast	-	7	0:7	-	-	7	7	9.2
Bone tumours	4	3	1.3:1	-	2	5	7	9.2
Epithelial tumours	1	5	0.2:1	1	2	3	6	7.9
Total	32	44	0.7:1	19	20	37	76	100

Table I shows the age and sex distribution of the various histological types of benign tumours. The most frequent histological categories of benign tumours were those of connective and soft tissues. They constituted 35 of the 76 cases of benign tumours (41.6%) with a male to female (M: F) ratio of 1.2:1 (19 male and16 females). There was increasing frequency of these tumours with advancing age. A total of five histological types were encountered. These were haemangioma (11cases), fibromatosis fibroadenoma and 3 cases of phyllodes tumour). All the breast tumours occurred in females of the 10-14 years age group. There were seven benign bone tumours occurring in 4 males and 3 females (M: F ratio 1.3:1). These included 2 cases of ossifying fibroma and 1 case each of ameloblastoma, osteochondroma, osteoblastoma, chondroma and chondroblastoma. Five (71%) of the benign bone tumours occurred in the 10-14 years age bracket and none occurred in preschool children. Epithelial

tumours accounted for 7.9% of benign neoplasms (6 out of 76). All but one occurred in females (M: F ratio 0.2:1). These tumours included squamous cell papilloma (2 cases), eccrine poroma (2 cases), transitional cell papilloma and intradermal naevus. On the whole, Table I shows an increasing frequency of benign tumours with advancing age, with almost half (48.7%) occurring in the 10-14 years age group. Females were slightly more afflicted than males as they accounted for 57.9% of cases.

The anatomical region of 10 benign tumours (13.2%) was not specified.

Discussion

Data on the incidence and pattern of benign childhood tumours is scanty. Available records show the most common benign childhood tumours to be connective/soft tissue tumours and teratomas[2].

Findings in this study reveal the most common benign tumours, in descending order, to be those of

Table 2: Correlation of regional anatomical distribution and histological type of benign tumours

Histological type	Head & Neck	Thorax	Lower limb	Abdomen	Upper limb	Unspecified anatomical site	Total
Connective tissue	16	1	7	4	3	4	35
Haemangioma	5	1	2	2	1	-	11
Fibromatosis	3		2	1	-	3	9
Lymphangioma	7	-	-	-	1	-	8
Lipoma	-	-	3	1	1	1	6
Giant cell tumour	1	-	-	-	-	-	1
Peripheral nerve sheath tumours	7	1	1	1	1	4	15
Neurofibroma	4	1	-	1	1	4	11
Schwannoma	3	-	-	-	-	-	3
Granular cell tumour	-	-	1	-	-	-	1
Teratoma	1	-	-	5	-	-	6
Other tumours	4	10	2	1	1	2	20
Breast	-	7	-	-	-	-	7
Bone tumours	2	2	1	-	1	1	7
Epithelial tumours	2	1	1	1	-	1	6
Total	27	12	11	11	5	10	76
(%)	(35.5%)	(15.8%)	(14.5%)	(14.5%)	(6.5%)	(13.2%)	100%

Table 2 shows the correlation of regional anatomical distribution with histological types of benign childhood tumours. Benign tumours were most common in the head and neck region of the body. They accounted for 35.5% (27 out of 76) of benign tumours. Common benign tumours encountered in the head and neck included lymphangioma which constituted 26% of all head and neck benign tumours, haemangioma (19%) and neurofibroma (15%). There were 3 cases each of fibromatosis and schwannoma of the head and neck. Other anatomical regions where benign tumours were encountered in descending order of frequency were thorax (15.8%), lower limb (14.5%), abdomen (14.5%) and upper limb (6.5%). Seven of the twelve benign tumours of the thorax occurred in the female breast while six of the eleven lower limb tumours were fibromatosis and five of the abdominal tumours were benign teratomas.

connective/soft tissues, peripheral nerve sheath and teratomas. In consonance with previous reports on connective/soft tissue tumours [6,7], haemangioma, making up 31% of connective/soft tissue tumours, is the single most common histological type of benign tumour in this study. Among Caucasians haemangiomas constitute 7% of benign childhood tumours [8] while they make up 14% of all benign tumours in this study. Compared to haemangioma, lymphangioma, another benign vascular tumour common in childhood, is relatively rare. Only 8(15%) of the 52 benign vascular tumours reviewed by Rafindadi in Zaria were lymphangiomas [6]. In this series, 8 cases were also seen and these accounted for 11% of all benign childhood tumours. Fibromatosis is among the common soft tissue tumours of childhood [7]. In this study, it is next to haemangioma in frequency and accounted for 26% of the soft tissue

tumours and 12% of all benign childhood tumours reviewed.

Most fatty lesions in childhood are lipoblastomas and affect children below the age of 5 years almost exclusively [7,9]. The converse, however, was observed in this study as all the fatty lesions reviewed were lipomas and all occurred in children above 5 years. These lipomas may actually have been lipoblastomas in earlier ages as the immature lesions have been observed to mature into lipomas as the child grows [9].

Peripheral nerve sheath tumours was the second most common histological category of tumours in this study. They accounted for 19.7% of all tumours reviewed. The 11 cases of neurofibroma seen in this series make neurofibroma equal to haemangioma in frequency. Previous reports show that this tumour is not uncommon in childhood [10]. Ademiluyi and Ijaduola [11] found 14 children with nerofibroma in Lagos, Nigeria, within in a period of 6 years. The male preponderance of neurofibroma in this series agrees with findings by Ademiluyi and Ijaduola.

Teratomas are tumours derived from cells with the potential of differentiating into ectodermal, mesodermal or endodermal derivatives [12]. They may occur as benign well-differentiated cystic lesions(mature teratoma), as lesions of indeterminate potential(immature teratoma),or as unequivocally malignant teratomas [2]. Only six cases of such tumours were recorded in this study and this represents 8% of all benign childhood tumours seen. Previous reports show that this tumour is uncommon worldwide [12].

This study recorded a very high frequency of head and neck tumours, whereas the upper limb was an uncommon region for involvement by benign tumours. Over one-third of benign tumours were located in head and neck region of the body. Apparently, head and neck is frequently involved with tumours as Amusa *et al* [13] had earlier noted a high incidence of childhood head and neck tumours in Ife. Thirty six of the 52 benign vascular tumours found by Rafindadi [6] in Zaria also occurred in the head and neck. Although this high incidence of tumours in the head and neck region has been attributed to some factors including tobacco use and kolanut chewing [14], it may also not be unconnected with the high vascularity of this body region.

Tumours of the central nervous system (CNS) are among the most common tumours in caucassian children second only to leaukaemias in frequency [15]. In the series by Akang in Ibadan, CNS tumours occupied the fourth position [16]. No CNS tumour, however, was recorded in this study as neurosurgical services were not available at the centre nor in the whole of Mid Western Nigeria during the period under review.

Although a comprehensive overview of benign childhood tumours in Nigeria is not available, it is concluded in this study that the patterns of these diseases in Benin City, Nigeria, is not a far deviation from what is reported in the scanty available medical literature. However, this study serves as baseline work which is to provoke further research in this area.

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Received: 12/09/08
Accepted; 04/05/09