

Prevalence, Age and Sex Distribution of Dermatofibroma in a Tertiary Hospital in South-South Nigeria

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ABSTRACT

Background: Cutaneous benign fibrous histiocytoma, or dermatofibroma (DFM), is a benign, soft tissue tumour that is sometimes a differential of more sinister skin neoplasms. There are no known documented or published studies from our environment as to the pattern of this relatively common lesion. This study therefore, was conducted to determine the prevalence, age and sex distribution of dermatofibroma as seen in the University of Benin Teaching Hospital.

Methods: A 10-year retrospective descriptive study was carried out to investigate the epidemiological and pathological characteristics of dermatofibroma in this region. The data for the study was gotten from the surgical pathology register, histology request forms, duplicate copies of the histology reports and patient case notes. Histology slides were retrieved, reviewed under the light microscope and the diagnoses recorded against the corresponding patients' names on a data spread sheet. The data obtained was analyzed using the Statistical Package for Social Sciences, version 16 (SPSS 16, SPSS Inc. Chicago, Illinois, United States of America).

Results: Twenty-one cases of DFM were recorded, which represented 5.6% and 11.17 % of all skin tumours and benign skin tumours respectively during the period under review. Twelve (12) cases occurred in males, while 9 cases occurred in females, giving a male to female ratio of 1.3:1. The peak incidence in males and females was in the 3rd and 4th decades respectively. The lower limb (50% of cases) was the most common site for DFM followed by the neck region (44%) and trunk (6%).

Conclusion: This study showed that DFM was more common in males and peaked in the younger age groups. The lower limbs are the most common site for the development of the lesion.

INTRODUCTION

Tumours of soft tissue are aberrant proliferations of mesenchymal cells.¹ These tumours consist of a range of malignant and benign tumours.²⁻¹⁰ A few of them are skin-specific.⁵ The benign soft tissue tumours include, but are not limited to, dermatofibroma (DFM).^{5, 11} Synonyms of this tumour include fibrous histiocytoma, fibroma durum and sub-epidermal nodular fibrosis.¹¹

This tumour has been documented by the World Health Organization as a common benign skin tumour.¹¹ The cellular forms of this tumour had also been noted to be differential diagnosis of bland forms of spindle cell melanoma, spindle cell carcinoma and superficial leiomyosarcoma.¹¹ Despite these, there is a dearth of studies solely dedicated to DFM in the South-South region in particular, and Nigeria in general. A direct consequence of this is that there is paucity of data as to the prevalence, age and sex distribution of DFM. This study therefore aimed to determine the prevalence, age and sex distribution of DFM in the University of Benin Teaching Hospital, Benin City, Edo State, in the southern part of Nigeria. This will provide baseline data for the lesion in this environment.

MATERIALS AND METHODS

This was a 10-year retrospective descriptive study which took into account all the cases of DFM (fibrous histiocytoma) diagnosed histologically between January 2004 and December 2013 in the Department of Anatomic Pathology, University of Benin Teaching Hospital, which receives skin

biopsies from the Dermatology and General Surgery Departments of the University of Benin Teaching Hospital, as well as from secondary health care centres within the Benin City metropolis, and from neighbouring towns within and outside Edo State. The surgical pathology register, histology request forms, duplicate copies of the histology reports and patient case notes were useful in providing information on the age, sex, nature of specimen, hospital number, and histology laboratory number of each patient/case. Histology slides were retrieved, reviewed under the light microscope and the diagnoses recorded against the corresponding patients' names on a data spread sheet. Newly prepared sections were made from the paraffin-embedded tissue blocks that were retrieved from the departmental archives, and stained with haematoxylin and eosin, in cases where slides were missing, or the quality of the slides had greatly diminished. The data obtained was analysed using the Statistical Package for Social Sciences, version 16 (SPSS 16, SPSS Inc. Chicago, Illinois, United States of America). Ethical approval was obtained from the Ethics and Research Committee of the University of Benin Teaching Hospital. The dearth of similar studies that focused solely on DFM to compare with the findings of this study was a limitation.

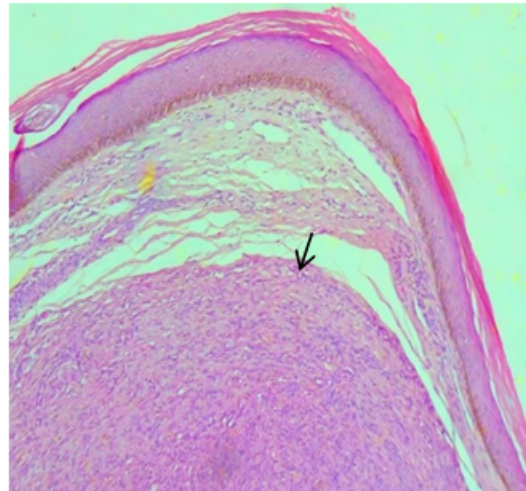
RESULTS

During the 10-year study period, a total of 375 skin tumours were diagnosed, 188 cases were benign, the rest being malignant. Twenty-one cases were DFM, which represented 5.6% and 11.17 % of all skin tumours, and benign skin

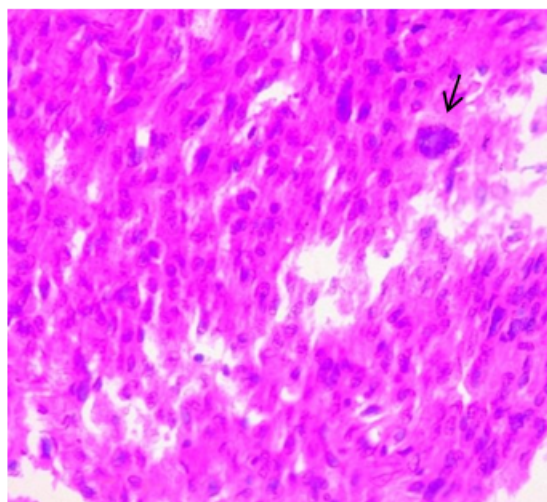
tumours respectively during the period under review. Twelve (12) cases occurred in males, while 9 cases occurred in females, giving a male to female ratio of 1.3:1. Table 1 shows the age and sex distribution. The age range was 7 – 73 years with a mean age of 31.43 years (SD = 14.42), and a peak in the 4th decade. The mean ages for DFM in males and females were 30.83 years (SD=19.02) and 32.22 years (SD=4.58) respectively. The peak incidence in males and females was in the 3rd and 4th decades respectively. The lower limb (50% of cases) was the most common site for DFM. This was followed by the neck region (44%) and trunk (6%). Photomicrographs of DFM are seen in Figures 1 and 2.

Table 1 showing age group and sex distribution of DFM

AGE	DFM		Total
	M	F	
0 – 9	1	-	1
10 – 19	2	-	2
20 – 29	4	3	7
30 – 39	2	6	8
40 – 49	1	-	1
50 – 59	1	-	1
60 – 69	-	-	-
70 – 79	1	-	1
TOTAL	12	9	21



1a



1b

Figures 1a-b: Dermatofibroma showing (a) a well-defined dermal nodule (thin arrow) composed of benign fibroblasts and histiocytes, and (b) multinucleated giant cell (thin arrow).

(1a: H&E X 40 and 1b: X 400)

DISCUSSION

Dermatofibroma (fibrous histiocytoma) is an ill-defined, predominantly dermal lesion characterized by a variable number of spindle and/or rounded cells.^{8, 11} It has been said to occur more commonly in females.^{2, 7, 11} The WHO has documented that dermatofibroma may develop at any age with a peak in the 3rd and 4th decades of life.^{2, 11}

The cause of this tumour is uncertain.¹¹ An inflammatory cause has been suggested following development of dermatofibroma after local injuries, such as trauma, insect bites or folliculitis.¹¹ This is in contrast to reported cases with clonal origin, which is supportive of neoplastic aetiology.¹¹ It is a well circumscribed, but unencapsulated lesion of fibroblasts with entrapped collagen, admixed with histiocytes, foam cells and multinucleated giant cells.⁶ The overlying epidermis is typically hyperplastic with basal cell hyperpigmentation.⁶

Dermatofibroma makes up approximately one-tenth (11.17%) of the benign skin tumours in this environment. This finding is comparatively similar to the findings of Madubuike *et al* (Nnewi), who reported that DFM were 9.47% of benign skin tumours in their study; however, it contrasts with the findings of another study done in Abakaliki by Nnadozie *et al*.^{12, 13} They reported a much higher value of DFM (27.1%) in benign skin tumours in their study.¹³ The reason for this disparity is not readily discernible. In this study, DFM had a unimodal peak in the 3rd decade. This is consistent with the findings of Nnadozie *et al*, who also reported a unimodal

peak in the 3rd decade, while WHO documented a bimodal peak in the 3rd and 4th decades.¹¹ This study noted a male predilection, a finding that correlates with that of Madubuike *et al* from Nnewi, but is at variance with the WHO documentation and the reports of Nnadozie *et al*, who reported a female predilection.^{11, 13} Paucity of data has limited the discussion on the findings of this study to WHO documentation, and reports from studies done by Madubuike *et al* (Nnewi) and Nnadozie *et al* (Abakaliki).^{12, 13} In fact, these studies from Nnewi and Abakaliki were published in April, 2024.^{12, 13} The implication of this is that prior to their respective publications, there were no known documented or published studies from our environment as to the pattern of this relatively common lesion. The reason for this is that most previous studies done on skin tumours in most parts of the world in general, and Nigeria in particular, are on malignant skin tumours.^{1, 14-62}

From the foregoing, this study served to generate a baseline data for the prevalence, age, sex and site distribution of dermatofibroma in Benin City. This we hope will serve as a basis for future research relating to DFM in this environment, while providing a template for comparison with future studies outside this locality.

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