ORIGINAL ARTICLE

Spectrum of Fibroblastic Lesions in University of Benin Teaching Hospital; A Twenty-Year Retrospective Study

ABSTRACT

Introduction
Fibrous tumours have been shown to occur commonly though the actual incidence is unknown since the lesions are predominantly benign and patient presentation is usually based on cosmesis. The few malignant varieties are however of great importance in health management hence this study which was aimed at determining the pattern of fibroblastic lesion in UBTH.

Materials and method
This was a retrospective study involving all anatomical pathology consultations in UBTH over twenty-year period (January 1990-December 2010). The study involved records of all consultants made within the period and selection of the fibroblastic lesion and subsequent categorization according to WHO standard selected diagnosis were reviewed to confirm previous result according to current protocol.

Result
The study revealed that fibromas were the most common lesions constituting 52% of the recorded fibrous tumours while fibro sarcomas were the next most common. Nodular fasciitis was the least common. The mean age of fibrous tumour was 40.44 years old. While benign fibrous tumour occurred in the mid adulthood, malignant lesions presented predominantly in the elderly. The percentage prevalence of fibroblastic tumours was 0.137%
Similarly, the extremities were the most common sites of presentation; most benign tumour occurred in the upper extremities unlike the malignant variety that was distributed mainly to the lower extremity.

Conclusion
Fibrous tumours are relatively common predominantly benign neoplasms which are more common in males than females. These lesions occur mainly in middle to late age intervals and are distributed to the extremities in most cases.

Keywords: *Age, Benign, Extremities, Fibrous, Gender*

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Introduction

Fibroblast have been described as stellate or spindle shaped cells with cytoplasmic processes present in connective tissues which are capable of forming collagen fibers. [1] Fibrous tumour have been described as tumours which arise solely or predominantly from fibrous tissues.[2] These tumours which may be benign, borderline or malignant are

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known to occur commonly though their actual incidence is a mere speculation since most cases handled in the hospital setting usually present for either cosmetic or symptomatic purposes. [3] Despite this, the existence of a few malignant tumours in the spectrum of these lesions is sufficient consideration for those involved in health care delivery. [4]

The aim of this study was to determine the patterns of fibroblast derived soft tissue tumours in University of Benin Teaching Hospital within a twenty-year period. In this inquiry, an objective analysis of the histopathological patterns, site, age and gender distribution of benign and malignant fibrous soft tissue neoplasms were outlined within the period of examination.

This is perhaps the first study in Benin-City were the pattern of fibroblastic soft tissue was exhaustively described. The index study is expected to furnish concerned health entrepreneurs and inform health managers on the patterns of fibroblastic soft tissue tumours and undoubtedly influence appropriate budgetary and financial provisions for the management of patients with these lesions.

Materials and Methods

Materials

The records of all patients seen in consultation by the Department of Morbid Anatomy, University of Benin Teaching Hospital were used during the twenty-year period commencing January 1, 1990 and ending December 31, 2010, retrospectively. Relevant clinical information including age, sex, and location of lesions was obtained from the available surgical pathology records.

Sample size determination

This was a retrospective study in which available results were used in determining the existing prevalence of fibroblastic soft tissue in UBTH. The estimated population of patients with these lesions was seven hundred and three (703) over the twenty-year period of review.[5]

Inclusion criteria

Only mesenchymal lesions originating from somatopleuric mesoderm, intra-abdominal and retroperitoneal lesions arising in the chest, abdominal walls and paraspinal region were included in this study. [6]

Exclusion criteria

Mesenchymal soft tissue arising from splanchnopleuric mesoderm including visceral adnexa and bone (except gastrointestinal stromal tumours) were not described in this study.

Description of method used

Formalin fixed, paraffin embedded tissue specimen sectioned at 3µm and stained with haematoxylin-eosin was used for this study. [7-8] The lesions were individually reviewed and standardized in accordance with the classification system used by the World Health Organization [9] (as modified by Enzinger and Weiss) [10] and further subcategorized.

For purposes of analysis, all lesions were placed in one of ten anatomical categories: foot and ankle, lower extremity, hip and buttocks region, head and neck, trunk, retro peritoneum, hand and wrist, upper extremity, proximal limb girdle (axilla and shoulder) and other lesions. Age was recorded at intervals of ten (10) years and the patient's sex was recorded for each case.

Analysis of results

The percentage frequencies of the observed lesions were determined and subjected to correlation studies to determine their relationship and *p*–values of the following parameters; sites, age and sex. The Statistical Package for the Social Sciences (SPSS) version 20 and Microsoft Excel was used to analyse this data.

Limitations of the study

Cases where adequate clinical data could not be obtained or where original tissue blocks could not be found were excluded from this study.

Ethical clearance

Approval for this study was obtained from University of Benin Teaching Hospital ethics committee as recommended by the provisions of the Declaration of Helsinki in 1995 (revised in Edinburgh 2000). [11]

Results

As shown in table 1, fibroma's constituted the predominant tumour type comprising 62% of all the fibrous tumours recorded in the index study. Fibrosarcomas were the next most predominant while nodular fasciitis was the least (12.5%). Generally, this tumour is composed of bundles of

mature sparsely clustered fibroblast usually enclosed in a fibrous capsule. Occasional slit-like vascular spaces are usually present within the lesion (figure A).

Fibrosarcomas on the other hand are composed of plump fibroblast some of which display bizarre nuclear patterns, exhibiting abnormal mitotic figures in most cases as shown in figure B and C. Foci of local invasion may sometimes be present.

The age distribution displayed in table 2 showed that majority of the tumours occurred in the third decade of life (27.5%). It was also observed that most of the benign tumours occurred within the first four decades while the malignant variety was distributed to the fifth decade and beyond.

In table 3, it was evident that majority of the nodular fasciitis occurred in the extremities with only one case seen in the chest. A similar observation was also made with fibroma with most of the lesions occurring in the extremities (40%) especially the upper extremities. The lower extremities were also the predominant site for fibro sarcomas with only a few occurring in the trunk.

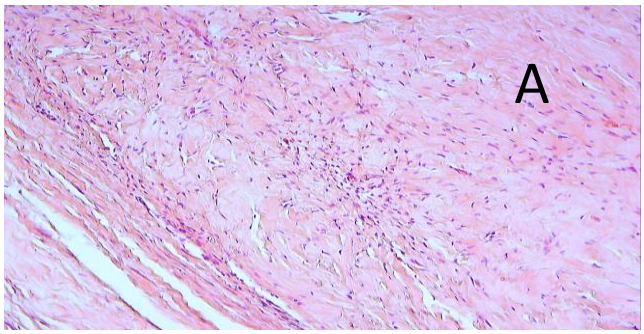
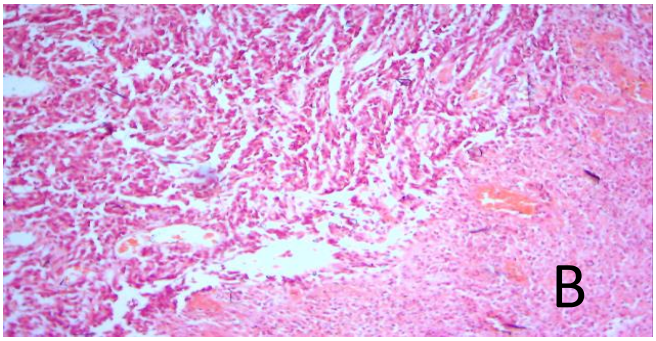


Figure A; A section of fibroma showing nodules separated by narrow clefts. The nodules are peculiar and they contain spindle shaped fibroblasts embedded in a collagenous stroma. Few slit like vascular channels are frequent. A segment of the capsule is also shown.

(H and E) x 100



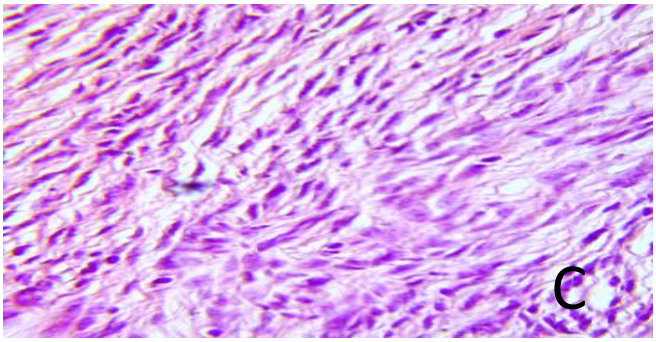


Figure B and C; A section of fibrosarcoma showing spindle shaped cell disposed in a storiform pattern. Cytological features include tapered darkly staining nuclei with variable prominent nucleoli and scanty cytoplasm. Mitotic activity is variable. Collagen is scant in the background.

(H and E) x 100 and 400.

Table 1: Fibroblastic soft tissue tumors and gender distribution

DIAGNOSIS	MALE	%	*F* FEMALE	%	TOTAL *f*	% *f*
Nodular fasciitis	2	5.0	3	7.5	5	12.5
Fibroma	12	30.0	13	32.5	25	62.5
Fibrosarcoma	7	17.5	3	7.5	10	25.0
	21	52.5	19	47.5	40	100.0

Table 2; Age and gender distribution of fibroblastic soft tissue tumours

	0-10				**II-20**				**21-30**				**31-40**				**41-50**				**51-60**				**61-70**				**71-80**				**Total**
DIAGNOSIS	**M**	**F**	**∑**	***%f***	**M**	**F**	**∑**	***%f***	**M**	**F**	**∑**	***%f***	**M**	**F**	**∑**	***%f***	**M**	**F**	**∑**	***%f***	**M**	**F**	**∑**	***%f***	**F**	**∑**	***%f***	**M**	**∑**	***%f***	M	F
N. fasciitis						1	1	2.5	2		2	5.0						1	1	2.5					1	1	`2.5				2	3
Fibroma	3	1	4	10.0	1	1	2	5.0	5	4	9	22.5	2	5	7	17.5		1	1	2.5		1	1	2.5				1	1	2.5	12	13
Fibrosarcoma																	3	2	5	12.5	3		3	7.5	1	1	2.5	1	1	2.5	7	3
Total	3	1	4	10.0	1	2	3	7.5	7	4	11	27.5	2	5	7	17.5	3	4	7	17.5	3	1	4	10.0	2	2	5.0	2	2	5.0	21	19

Table 3; site distribution of fibroblastic soft tissue tumours

DIAGNOSIS	**HEAD**			**TRUNK**		**UPPER EXTREMITY**			**LOWER EXTREMITY**					***R**	**others**	**Total**
	Scalp	**Face**	**Neck**	**Chest**	**Abdomen**	**Finger**	**Shoulder**	**Wrist**	**Gluteal**	**Leg**	**Thigh**	**Foot**	**LN**			
N. fasciitis				1			1	1			1				1	5
Fibroma	2	2	1		3	5	1			2		2			1	25
Fibrosarcoma				1	1					2	1	2	1	1	7	10
	2	2	1	2	4	5	2		1	4	1	5	1	1	9	40

Discussion

The index study has documented the histopathologic pattern and distribution of fibrous tumours diagnosed in University of Benin Teaching Hospital over a twenty-year period.
Nodular fasciitis, a non-neoplastic fibroblastic proliferation has been shown to occur in young adults.[12] This was very similar to the findings in this study in which the preponderance of nodular fasciitis lesions occurred in the third decade devoid of sex predilection.[14] Similarly, a previous study revealed that though the lesion exhibited a general pattern of distribution, the predominant sites of occurrence was the upper extremity as was evident in the index study.[12]

The study showed that benign fibrous tumors were far more numerous than their malignant counterparts with fibroma of tendon sheath constituting the bulk of the lesions. In another study, it was shown that this tumor predominantly affected males and displayed a predilection for the upper extremities specifically, the fingers[14] which mirrored the findings in the current study. Some other sites where this tumor has been described include the lower extremities, head, and neck as was enumerated in the index study.[14-15]

In most cases of fibroma of tendon sheath, the lesion has been described as well circumscribed fibrous nodules composed of bland fibroblast and myofibroblast with pale eosinophilic cytoplasm and tapering nuclei disposed in a variable short fascicular pattern within a collagenous stroma containing thin slit-like vascular spaces[16-17] as was outlined in the index study. The fibroma's in the current study peaked in the third decade of life supporting previous reports and further emphasizing the argument that it was more likely an acquired tumor with a slow growth rate than a congenital one.[18-19]

As was demonstrated in the present study, fibrosarcomas have been recorded to be the least common of the fibroblastic lesions.[20] The age distribution in the index study compared favourably with the observation by Mandog et al in Jos who recorded a peak incidence at the fifth decade of life gradually tapering at the extremes.[21] Genetic changes associated with age could likely account for the observed distribution.[22] Similarly, the current study demonstrated that majority of the fibrosarcomas were distributed to the extremities (specifically, the lower extremities), followed by the trunk and the head regions respectively.

These findings were however not new as several studies had previous reported corresponding reports.[23-25] Though no specific explanation for the site distribution has been documented, some have related the locations of this lesion to sites likely exposed to trauma which further also explains the predominant male distribution of this lesion as was shown elsewhere. [26]

In conclusion Fibrous tumours are relatively common predominantly benign neoplasms which are more common in males than females. These lesions occur mainly in middle to late age intervals and are distributed to the extremities in most cases.

Conflict of interest

The author had no conflict of interest to declare in relation to this article.

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