

A CLINICO-PATHOLOGICAL ANALYSIS OF UTERINE LEIOMYOMATA IN MAIDUGURI, NIGERIA

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Background: Uterine leiomyoma (UL) is the commonest benign tumour of the female genital tract in the reproductive age group. There is little or no literature on the histopathological study of the disease in Nigeria. This may be the first study to serve as a baseline data in Maiduguri.

Objective: To analyse the frequency of occurrence, age and parity of the patients, clinical presentation, degenerative changes, diseases associated with uterine leiomyomata and the treatment modalities of the tumour in Maiduguri.

Methods: A retrospective analysis of all cases of uterine leiomyomata histologically diagnosed in the Histopathology Department of the University of Maiduguri Teaching Hospital, Nigeria between January 1994 and December 2003 inclusive.

Results: A total of 501 cases of uterine leiomyomas were examined in this study, representing 4.5% of all disease conditions histopathologically diagnosed within the study period. The mean age of patients was 36.3 (± 8.3 SD) and the peak age incidence was in the 4th decade of life. The symptoms are presented in the following order of frequency: lower abdominal pain, 187 (87.8%); menstrual pain and irregularity, 164 (77.0%); urinary frequency/hesitancy/urgency, 68 (31.9%); infertility/subfertility, 42 (19.7%) and constipation 24 (11.3%). Multiparous women accounted for 64.9% of all cases. There were 121 cases of uterine leiomyoma coexisting with adenomyosis (30), ovarian cysts [Non-neoplastic (41), Neoplastic [benign (12), malignant (8)] and cervical inflammatory diseases (30). The commonest mode of treatment was myomectomy in 367 (73%) and hysterectomy in 134 (27%) cases, with mean age of 33.9 and 46.7 years respectively. There were 104 cases of degenerative changes: hyaline (92), cystic (12), calcification (9) and red degeneration (6).

Conclusion: Uterine leiomyoma is common, especially in the reproductive age group and is often associated with degenerative changes, and coexistent with ovarian cysts, adenomyosis and chronic cervicitis. There is need to find the aetiological relationships of the disease in order to reduce its incidence as well as the frequent exposure of women to operations that are necessitated by the disease and its associated complications.

Key Words: Uterine, Leiomyomata, Analysis, Nigeria

Introduction

Leiomyoma (uterine fibroid) is the commonest benign tumour of the female genital tract, occurring in more than 50% of women¹. Leiomyomata are benign tumours composed predominantly of smooth muscle cells separated by variable amounts of fibrous connective tissue². The tumours are well circumscribed and surrounded by pseudocapsule³. Leiomyoma arises from a single cell in the myometrium; however, several observations suggest that oestrogens and progesterone play an important role in their growth⁴. Another factor is genetic predisposition. Majority of the lesions are asymptomatic. However, when symptoms are present, they depend on the size of the tumour, the location and the nature of the associated disease conditions^{5,6}. The clinical presentation includes abnormal endometrial bleeding, lower abdominal mass/swelling and pain, infertility/subfertility and recurrent spontaneous abortions⁷⁻⁹. Surgery is the usual treatment for fibroids although Uterine Artery Embolization (UAE) is a promising new method of treatment for symptomatic cases¹⁰. The histopathology laboratory of the UMTH provides referral services for all the hospitals and private

clinics in Borno State as well as other neighbouring States in the northeastern part of Nigeria.

Therefore, the aim of this study was to provide baseline data on the frequency of occurrence, age and parity of patients, clinical presentation, degenerative changes, diseases associated with uterine leiomyomata and the treatment modalities of the tumour in Maiduguri.

Materials and methods

A review of uterine leiomyomata diagnosed in the histopathology laboratory of the University of Maiduguri Teaching Hospital (UMTH) between January 1994 and December 2003 was carried out. All cases without stated ages were excluded from the study. Five hundred and one (501) cases were, therefore, recruited in the study.

The specimens had been received and fixed in 10% formalin and routinely processed for embedding in paraffin wax. Sections were cut at 3-5 μ and stained with Haematoxylin and Eosin (H&E). The slides and the request forms were retrieved and reviewed. The following data were extracted from the case notes, request forms and the diagnosis registers: patients' age and parity, clinical presentation, degenerative changes, associated diseases

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and mode of treatment. The results were analyzed by simple statistics.

Results

A total of 515 cases of uterine leiomyomata were examined histopathologically; 14 cases were excluded from this study because of inadequate demographic data. However, 501 cases were found suitable for this study and these accounted for 4.5% of all histopathologically diagnosed specimens and 99.4% of all uterine neoplasm within the study period. The ages ranged between 16 and 75 years, with a mean of 36.3 (±8.3 SD) years. The peak age incidence was the 4th decade of life (Table 1).

Table 2 shows 104 cases of leiomyomata with various types of degenerative changes. Hyaline degeneration occurred most frequently, accounting for 92 (88.9%) cases, followed by cystic degeneration (12), Calcification (9) and red degeneration (6). Ninety (86.5%) cases were myomectomy specimens while 14 (13.5%) cases were hysterectomy specimens with mean ages of patients being 33.9 and 51.4 years respectively.

Table 1: Age distribution of uterine leiomyomata in Maiduguri

Age Group (Years)	No. of cases	%
< 20	1	0.2
20 – 29	104	20.7
30 – 39	223	44.5
40 – 49	140	27.9
50 - 59	23	4.6
≥ 60	10	2.0
Total	501	100

Table 2: Degenerative changes in uterine leiomyomata

Degenerative changes	*Frequency	*%
Hyaline degeneration	92	88.5
Cystic degeneration	12	11.5
Calcification	9	8.7
Red degeneration	6	5.8

* No of cases and total percentage do not add up to 104 and 100 respectively due to presence of multiple features in patients

Table 3 shows 121 cases of uterine leiomyoma coexisting with adenomyosis in 30 (24.8%) cases; non-neoplastic ovarian cysts in 41 (33.9%) cases, neoplastic ovarian cysts in 20 (16.5%) cases and cervical inflammatory diseases in 30 (24.8%) cases. Table 4 shows the clinical presentations of 213 cases of uterine nodules in

the order of frequency: lower abdominal pains 187 (87.8%), menstrual pain and/or irregularity 164 (77.0%), urinary frequency/hesitancy/urgency 68 (31.9%), infertility/subfertility 42 (19.7%) and constipation 24 (11.3%). Table 5 shows the parity of 197 cases of uterine nodules with multiparous women accounting for 65% while nulliparous women and those with Parity 1 accounted for the remaining 35%.

Table 3: Diseases associated with uterine leiomyomata

Diseases	Frequency	%
Adenomyosis	30	24.8
Ovarian cysts		
Non-neoplastic	41	33.9
Neoplastic:	20	16.5
- Benign	(12)	
- Malignant	(8)	
Chronic cervicitis	30	24.8
Total	121	100

Table 4: Frequency of clinical presentation of uterine nodules

Symptoms	*Frequency	*%
Lower abdominal pains	187	87.8
Menstrual pain and irregularity	164	77.0
Urinary frequency/hesitancy/urgency	68	31.9
Infertility/subfertility	42	19.7
Constipation	24	11.3

* No of cases and total percentage do not add up to 213 and 100 respectively due to presence of multiple features in patients

Table 5: Parity of *patients with uterine nodules

Parity	Frequency	%
Multiparous (para ≥ 2)	128	65
Nulliparous/parity 1	69	35
Total	197	100

* Data available in 197 cases

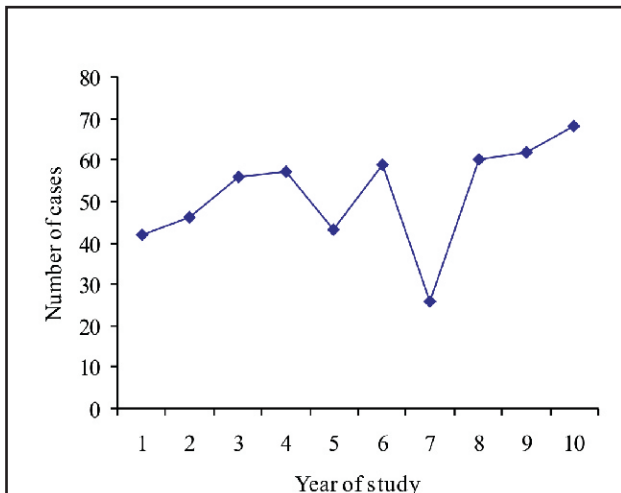


Figure 1: Annual rate of diagnosis of uterine leiomyoma

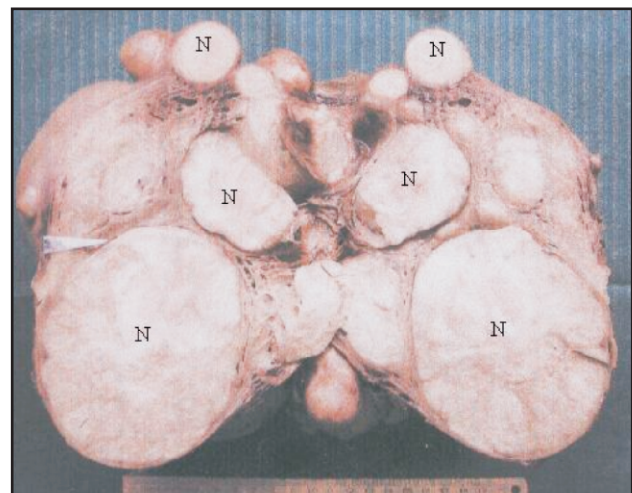


Figure 2: Hysterectomy specimen with multiple uterine nodules (N) in a 34-year-old woman

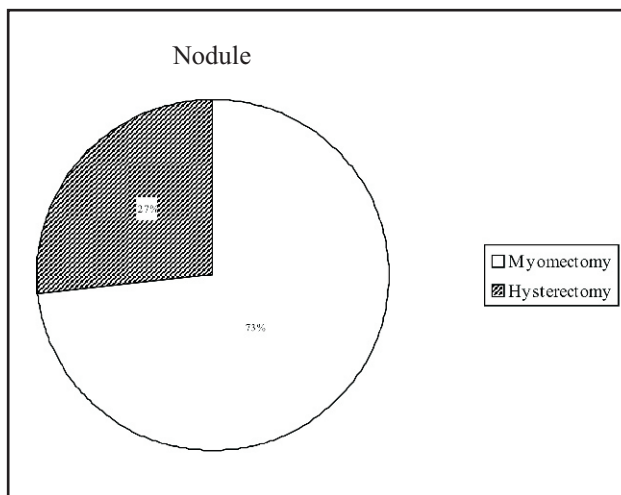


Figure 3: Mode of treatment of uterine leiomyoma

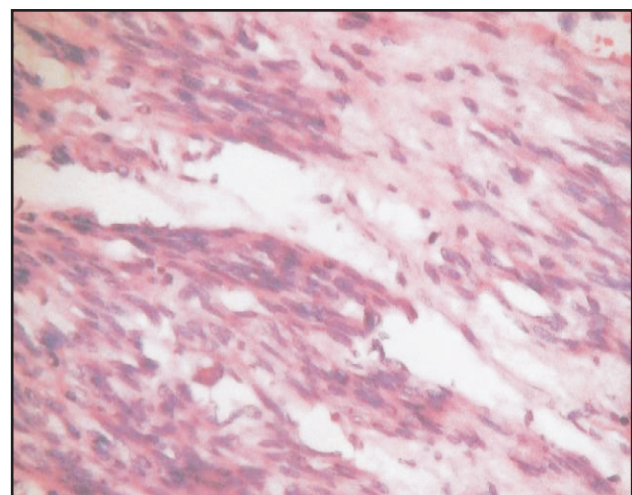


Figure 4: Shows the Photomicrograph of leiomyoma. H&E.X40

Discussion

The incidence of uterine leiomyomata is nearly three times higher in the African and African- American women than their Caucasian counterparts⁵. The racial difference may be due to environmental factors in addition to a genetic predisposition. There appears to be an overall yearly increase of uterine leiomyomas during the study period. This increase may be due to increased awareness of women in health matters and increased search for medical attention. Diagnostic ultrasound scanning for the detection of fibroids has also become increasingly available in hospitals and clinics in the State. There was bimodal sharp fall in the 5th and 7th years of the study period due to long-term industrial or strike action by the resident doctors in our hospitals as shown in Fig. 1.

The uterine leiomyomata are classified anatomically as submucosal, intramural or subserosal and single or multiple with varying sizes and shapes as shown in Fig. 2. Most patients are asymptomatic in the early stage, however, some patients with the submucosal type present later with uterine bleeding, pressure on adjacent organs, abdominal pain, infertility or a palpable abdomino-pelvic

mass. The subserosal type may present as a pedunculated mass, mimicking an ovarian neoplasm¹¹. Some of these symptoms of uterine fibroid provide major indications for myomectomy or hysterectomy depending on the age and parity of the patient, the severity of symptoms, and the size of the fibroid. Uterine leiomyomata are the most common gynaecologic neoplasms, occurring in 48% of cases in Ile-Ife, Nigeria¹². In the United States of America it accounts for approximately 30% of all hysterectomies performed^{13,14}.

Surgery is the only modality for treating uterine fibroid in our hospital. Myomectomy is the commonest and accounted for 73% of all cases as shown in Fig. 3. Majority of the myomectomy in this study were done in the reproductive age group with a mean age of 33.9 years whereas hysterectomy was performed in the postmenopausal age group with a mean age of 46.7 years. The myomectomy may be done to preserve the uterus for subsequent child bearing. Studies have shown that myomectomy done for infertile women leads to conception after the operation¹⁵.

The usual characteristics which may make the diagnosis of uterine fibroid suspect include the presence of

centrally or laterally located mass that is firm to touch, with smooth or irregular surface¹⁶. Abdominal and transvaginal ultrasonography can also reveal irregularly enlarged uterus with focal areas of increased and decreased echogenicity¹⁷.

There is no aetiological relationship between adenomyosis and uterine leiomyoma, and both may coexist. Adenomyosis is a strong clinical and ultrasonographic differential diagnosis of leiomyoma especially the focal type (adenomyoma). The definitive diagnosis may only be made after histopathological examination^{5,6}. Ovarian cysts may be associated with leiomyomata because of the hormonal factors that are implicated in both lesions.

Majority of the uterine fibroids undergo degenerative changes. In this series, these were observed in 21% of all the uterine leiomyomata. These degenerative changes are due to the tumour outgrowing its blood supply. Some of the tumours are huge, measuring more than 10cm in the largest dimension. Microscopically, the tumor is

formed by interlacing bundles of smooth muscle cells separated by a greater or lesser amount of well-vascularized connective tissue as shown in Fig 4. Sarcomatous transformation of a preexisting leiomyoma does occur but is reportedly rare, with most leiomyosarcoma arising independently^{2,3}.

This study has shown that uterine leiomyomata are common in women of reproductive age group. The lesions are associated with degenerative changes, adenomyosis, ovarian cysts and chronic cervicitis. Myomectomy is the commonest form of surgical treatment in women of reproductive age group. Although the tumour is benign, it is desirable that the associated aetiological relationships of the disease are determined so as to reduce their incidence and, therefore, the risks associated with surgical management and associated complications of the disease in affected women.

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