The Prevalence of Histopathologically Diagnosed Uterine Leiomyomas in a Teaching Hospital: A Cross-Sectional Study

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ABSTRACT

Background: Uterine leiomyoma is a the most common benign gynaecological tumour seen in women of reproductive age. **Aim**: This study aims to determine the frequency and age distribution of histologically diagnosed cases of uterine leiomyomas. **Method**: This was a cross-sectional retrospective review of histologically diagnosed leiomyoma at the Department of Morbid Anatomy, LAUTECH Teaching Hospital (LTH), Ogbomosho between January 2012 and December 2016. The age of patients, nature of specimens, and presenting symptoms were extracted from request cards. The data obtained was analyzed using both Microsoft Excel and Statistical Package for Social Sciences 23.0 (SPSS version 23.0). **Results:** The mean age of patients presenting with uterine leiomyoma was 40.5 years (SD=±10.1) with the peak age incidence in the fourth decade with a total number of 78(40.6%) cases. Menorrhagia and abdominal mass were the most common presenting complaints accounting for 117(60.9%) and 101 (52.6%) of cases respectively. **Conclusion**: Uterine leiomyoma is a benign neoplasm of smooth muscle origin commonly seen in women of reproductive age and abnormal uterine bleeding was the commonest presenting complaint.

Keywords: Leiomyoma, age, frequency, prevalence, histopathology

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Introduction

Uterine leiomyomas are benign tumours composed of smooth muscle cells which occur most frequently in women of reproductive age. They are the most common female reproductive tract tumors with their frequency in hysterectomy specimens following careful histopathological examination in a study reaching 77%.[1] The exact etiology is largely unknown, but there is considerable evidence that oestrogen and progesterone promote the growth and development of the tumour as the tumors rarely appear before menarche and regress after menopause.[2]

The tumour also increases rapidly during pregnancy and shrinks during puerperium. Racial, geographical location and genetic factors also play a role in the development of leiomyomas.[3,4]

Although leiomyoma is rarely associated with significant mortality it may cause morbidity and reduce quality of life, as they are mostly asymptomatic. The symptomatic patients usually present with abdominal mass, abnormal uterine bleeding, pressure symptoms, and infertility.[2] The diagnosis of uterine leiomyoma can be made clinically but ultrasonography is also useful.[5,6] Histopathological diagnosis is usually required for confirmation and to rule out other associated uterine or ovarian pathologies like endometriosis and

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sarcoma.[6] The management of uterine leiomyoma ranges from the expectant, medical to surgery.[7,8] Hysterectomy is the definite treatment option for leiomyoma. Myomectomy is offered to women in their reproductive age who are still desirous of having children or those who want to maintain their menstrual function for personal or psychological reasons.[9] Hysterectomy is the treatment of choice in older women.[7,8]

The objective of this study was to evaluate age distribution and clinical characteristics of histologically diagnosed cases of uterine leiomyomas seen in the department of morbid anatomy and histopathology, LAUTECH Teaching Hospital, Ogbomosho, Oyo State to provide baseline data.

Methods

The study was a 5- year retrospective study of all cases of uterine leiomyoma diagnosed histologically at the department of morbid anatomy, LTH, Ogbomosho between January 2012 and December 2016. This is a tertiary health institution in the south-west geopolitical zone of Nigeria and it receives surgical specimens from Oyo, parts of Kwara and Osun states. The department runs full routine histopathological services. Records of all cases of uterine leiomyoma within the study period were retrieved from the histopathology register of the department of morbid anatomy, LTH, Ogbomosho, Oyo State. The demographic characteristics such as age, as well as clinical information, were extracted from the histopathology registers, laboratory request forms as well as case folders of patients where necessary.

Data obtained was analysed using both Microsoft excel and statistical package for social sciences 23.0 (SPSS version 23.0). Data obtained from this study was presented in tables and chart. Frequencies of variables were calculated, chi-square test was used to determine association between age group of patients and variables like nature of specimen and clinical symptoms. A p-value of less than 0.05 was considered statistically significant.

All histologically diagnosed cases of uterine leiomyomas from both myomectomy and hysterectomy specimens within the study period were included while all cases with incomplete biodata were excluded.

Permission for the conduct of this study was obtained from the ethical review committee of the LTH, Ogbomoso with protocol number LTH/OGB/EC/2017/155. This study was performed in compliance with the guidelines of the Helsinki declaration on biomedical research on human subjects. Specimen processing and evaluation were strictly confidential and appropriately coded.

Results

Uterine leiomyoma accounted for 34.7% of all gynaecological lesions and 14.1% of all surgical pathology lesions seen among female patients within the study period.

The mean age was 40.5 years (SD ± 10.1) with the peak age incidence in the fourth decade with a total number of 78(40.6%). Patients in the fourth and fifth decades accounted for 144 (75.0%) cases of uterine leiomyomas while 9(4.7%) cases occurred among patients aged 60 years and above. No single case was reported in patients aged 20 years and below. Menorrhagia and abdominal mass were the most common presenting complaints accounting for 117(60.9%) and 101 (52.6%) cases respectively. Infertility was a presenting symptom in 35 (18.2%) of patients with uterine leiomyoma. There were significant association between the age group of the patient and presenting symptoms of abnormal uterine bleeding, pelvic mass, and infertility with a *p*-value of 0.029, 0.048, and 0.004 respectively (confident interval of 95%), Table 1.

This study showed 83 (43.2%) and 109 (56.8%) of leiomyomas were reported in myomectomy and hysterectomy specimens respectively. There was a significant association between the age of the patient and the nature of the specimen with a *p*-value of less than 0.001(confident interval of 95%), Table 2.

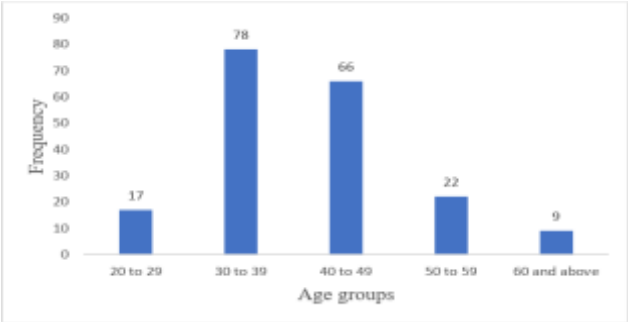

Figure 1: Age distribution of patients with uterine leiomyomas

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Table 1: Age distribution and presenting symptoms in patients with uterine leiomyomas

Age group	Uterine bleeding	Mass	Pain	Infertility	Total
20 to 29	11 (5.7%)	11 (5.7%)	4 (2.1%)	4 (2.1%)	17 (8.9%)
30 to 39	37 (19.3%)	48 (25.0%)	20 (10.4%)	23 (12.0%)	78 (40.6%)
40 to 49	46 (24.0%)	28 (14.6%)	11 (5.7%)	8 (4.2%)	66 (34.4%)
50 to 59	17 (8.9%)	12 (6.3%)	5 (2.6%)	0 (0.0%)	22 (11.5%)
60 and above	6 (3.1%)	2 (1.0%)	0 (0.0%)	0 (0.0%)	9 (4.7%)
Total	117 (60.9%)	101 (52.6%)	40 (20.8%)	35 (18.2%)	192 (100.0%)
P-value	*0.029*	0.048	0.370	0.004	

Table 2: Age distribution and nature of specimens in patients with uterine leiomyomas

Age group	Hysterectomy	Myomectomy	Total
20 to 29	2 (1.0%)	15 (7.8%)	17 (8.9%)
30 to 39	5 (2.6%)	73 (38.0%)	78 (40.6%)
40 to 49	45 (23.4%)	21 (10.9%)	66 (34.4%)
50 to 59	22 (11.5%)	0 (0.0%)	22 (11.5%)
60 and above	9 (4.7%)	0 (0.0%)	9 (4.7%)
Total	83 (43.2%)	109 (56.8%)	192 (100.0%)

P-value, <0.001

Discussion

The uterine leiomyomas seen in this study is higher than that from a study by Ukwenya *et al.* in Akure who recorded a prevalence rate of 6.3%, but similar to 13.6% reported by Obuna *et al.* in Abakaliki and much less than 24.5% reported in Ghana.[5,10,11] The prevalence rate observed in this study is also higher than what was obtained in other parts of the world.[12] The prevalence rate for uterine leiomyomas was 5.5% in Canada, 6.9% in the United States of America, 7% in Brazil, 8% in Germany, and 9% in South Korea according to an international study.[12] These disparities show that geographical and racial differences may be important risk factors in the pathogenesis of uterine leiomyoma.[2,3,4] The finding

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in this study also shows that uterine leiomyomas contribute significantly to the health burden in Ogbomosho and its environs. It, therefore, becomes imperative that clinical and laboratory research is focused on cost-effective medical treatment for leiomyomas especially for women who desire non-invasive treatment.[9,13,14]

The earliest age at presentation in this study was in the third decade, precisely in a patient aged 24 years. This finding contrasts to findings in various studies from different parts of Nigeria and Africa.[15,16] In view of this, the earliest age at presentation in Calabar and Maiduguri was 16 years while in Ghana it was 14 years.[22] This might be due to the fact that the development of leiomyoma is greatly influenced by reproductive hormones and the tumour is rare among teenage girls.[11]

The mean age at presentation in this study was 40.5 years. This was similar to findings from various studies carried out in the United Kingdom, Korea, Canada Brazil, Italy and the United States which put mean age at presentation of uterine leiomyomas at 35.9, 36.1, 34.3, 33.8, 33.7, and 33.5 years respectively.[12] In Ghana, the mean age at presentation was put at 30.3 years.[11] In Nigeria, mean age at presentation was similar across the various geopolitical zones. Studies carried out in the Nigerian cities of Ekiti, Benin, Nnewi, Kano, and Maiduguri found mean age of presentation at 35.98, 35.7, 36.6, and 36.3 years respectively.[5,17,18,13,16] These results are comparable to each other and show that uterine leiomyoma is a disease that predominantly affects women in the reproductive age group. However, there is a slight disparity in the age at presentation between various regions of the country. This disparity could possibly be due to the differences in the time at first presentation to the hospital although this may point to local geographic differences which may be due to differences in the molecular biology of uterine leiomyomas in our environment and attitude towards health seeking behaviour [3,4,19]

In this study, uterine leiomyomas were most frequently seen in the 30–39-year age group with a frequency of 40.6% and rare in patients older than 60 years old with a frequency of 4.7%. These findings agree with those by Olotu *et al*. [20], Okogbo *et al*. [8] and Muhammed *et al*.[21] who also reported that leiomyomas were most frequently seen in the 30-39 year age group and they were accounted for 44%, 40.2%, 48% respectively.[20,8,21] In Ghana, the highest frequency of 53.8% was found among women aged 30-39 years which is similar to finding in present research.[11] These findings are also similar to those from studies conducted in Europe, America, and Asia.[11,12] In the United Kingdom, leiomyomas were commonest in age group 30-39 years with a frequency of 44% which agrees with the finding in this present research.[12] Similarly, in the South American country, Brazil, leiomyomas were most commonly seen in the 30-39 year age group accounting for 42% of cases.[12] In South Korea leiomyoma was most commonly seen in 30-39 year age group with frequency of 40%.[12] These findings underscore the fact that leiomyoma is a disease of women in the reproductive age group.

The most clinical feature in our study was abnormal uterine bleeding which was seen in 60.9% of patients. The other presenting symptoms were abdominal mass followed by infertility and abdominal pain. There was statistically significant association between the age of the patient and presenting symptoms of abnormal uterine bleeding, pelvic mass and infertility. Our study is comparable to those by Okogbo *et al*., Ibrar *et al.* and Dayal *et al*., who also found abnormal uterine bleeding as the most common clinical symptom in patients with leiomyoma. [8,22,23]The cause of the increased uterine bleeding has been well studies and could be due to ulceration of endometrium overlying leiomyoma and mechanical compression of the venous plexus by leiomyoma nodules.[6.23]

Attributing some clinical symptoms like infertility specifically to uterine leiomyoma may be problematic because pathologies of ovarian, endometrial, and endocrine origin could present with similar symptom.[6] Some cases may be asymptomatic and fibroids could be detected during investigations for primary infertility.[6] In our study, there was a significant association between infertility and leiomyoma with 18.2% of patients presented with infertility. Our finding is lower than 31% and 34.3% reported by Okogbo *et al*. and Isah *et al*. respectively.[8,24,25] Fasubaa et al. also reported that 25.2% of patients being managed actively for infertility had uterine leiomyoma.[26] The literature review has also shown that there is an

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association between uterine fibroid and infertility.[26,27] Primary infertility due to fibroid was seen in 2% of cases studied by Dayal *et al*. [23] Freytag D *et al*. also argued it may be the sole cause of infertility in 2–3% of women.[26] Though the pathogenesis of infertility in leiomyoma is still unclear, however, it has been postulated that fibroids may cause tubal blockage or impair implantation thus contributing to infertility.[27]

Finally, to restore or preserve fertility, myomectomy has been the mainstay of treatment in leiomyoma.[2,] In this study, most patients (56.8%) especially women in the fourth and fifth decades had myomectomy. These findings were in consistent with those from a study by Okogbo *et al.* who reported that 54.7% of patients with leiomyomas had a myomectomy.[8] Myomectomy is usually a preferred treatment option in patients with infertility and in women who are yet to complete their family size.[8] Resection of these leiomyoma nodules has been found to improve pregnancy rates in some women.[25] Myomectomy should be discussed individually with the patient. Management of leiomyoma should be individualized as hysterectomy may be indicated in patients associated with ovarian or endometrial pathologies.[7] A detailed analysis of the value of myomectomy for the treatment of symptomatic leiomyoma to preserve fertility requires further studies with due attention to the size, location, and number of nodules.

Conclusion

This study shows that uterine leiomyoma was the most common gynaecological neoplasm with a prevalence of 14.1% among women presented with surgical lesions in this review. It was commonly seen among women in the fourth decade with mean age of presentation at 40.5 years. Abnormal uterine bleeding was the commonest clinical presentation while myomectomy was the commonest form of treatment.

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