

## Surgical Management of Uterine Fibroids in Makurdi, Nigeria

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**Abstract:** Uterine leiomyomas are the commonest benign tumours of the female genital tract, occurring in young women of reproductive age. Treatment modalities, in our setting, are mainly surgical. The aim was to determine the incidence, patterns of presentation and appraise the intra and post-operative morbidities associated with the surgical methods of management. A retrospective review of surgically managed cases of uterine fibroids over a five-year period from September, 2002 – August, 2007 was carried out at the Federal Medical Centre, Makurdi, Nigeria. Data was obtained from the medical records department, gynaecology ward admissions and theatre registers. Statistical analysis was performed using SPSS for windows version 16 and significance was set at P-value of < 0.05%. One hundred and thirty one cases of uterine fibroids were reviewed. They constituted 8.4% and 14.9% of new gynaecological admissions and surgeries respectively. Uterine fibroids were commoner amongst nulliparous or low parity women, namely para 0 – 2, 116 (88.5%) and within the 3<sup>rd</sup> and 4<sup>th</sup> decades of life 108 (82.4%). Majority of patients had abdominal swelling 58.8%, and menorrhagia 52.7%. Surgical treatment was the major mode of management of the condition, with myomectomy accounting for 84.0% and hysterectomy 16.0% of the cases. Pyrexia (26.0%), anaemia (19.8%), and prolonged hospital stay (16.0%) constituted the major post-operative morbidities. Uterine fibroids are a major gynaecological condition among women of low parity in the third and fourth decade of life in Makurdi. Surgery was the mainstay of management. The post operative morbidities were pyrexia, anaemia, and occasionally prolonged hospital stay.

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### I. Introduction

Uterine leiomyomas commonly called fibroids are benign neoplasms of the smooth muscles of the uterus. They are the commonest tumours, whether benign or malignant, found in women of reproductive age<sup>1</sup>. Clinically evident tumours are present in 20 – 40% of women depending on their age, ethnicity, parity and methods used to assess their presence<sup>2,3</sup>.

Baird et al showed that the incidence of uterine fibroids by age 35 was 60% among African-American women, increasing to > 80% by age 50 with a peak incidence in women of low parity and those above 30 years of age. In comparison, Caucasian women showed an incidence of 40% by age 35 and almost 70% by age 50<sup>4</sup>. When hysterectomy specimens were examined histopathologically, up to 47% showed evidence of leiomyoma<sup>5</sup>.

The exact pathogenesis of fibroids is not known. However, there is considerable evidence that oestrogens and progestogens proliferate tumour growth as fibroids rarely appear before menarche and regress after menopause<sup>2</sup>. It has been shown that aromatase in fibroid tissue allows for endogenous production of oestradiol, and that fibroid stem cells express oestrogen and progesterone receptors that facilitate tumour growth in the presence of these hormones<sup>6</sup>. Multiple growth factors involved in angiogenesis are differentially expressed in leiomyoma compared with myometrium. These include heparin-binding Endothelial Growth Factor (EGF), vascular endothelial growth factor (VEGF), basic fibroblast growth factor (bFGF), platelet derived growth factor, transforming growth factor- $\beta$  and adrenomedullin. These growth factors have been shown to play an important role in the mechanisms involved in myometrial patho-physiology<sup>7,8</sup>. Apart from comprising mainly of extracellular matrix, fibroid tissue is characterised by a low mitotic index and is usually slow growing<sup>9</sup>.

There is no evidence to show that low dose oral contraceptives cause benign fibroids to grow, thus uterine fibroids are not a contraindication to their use. They have been shown to be effective in reducing menstrual blood loss in the short term and may prevent the development of uterine fibroids<sup>10</sup>. Obesity and

hormone therapy use have been identified as important modifiable risk factors for uterine fibroids in postmenopausal women<sup>11</sup>.

Clinically, fibroids are largely asymptomatic. These tumours disrupt the functions of uterus and cause menorrhagia, anaemia, defective implantation of an embryo, recurrent pregnancy loss, and obstruction of labour, pelvic discomfort, constipation and urinary incontinence depending on their location<sup>6</sup>.

Uterine fibroids may be associated with infertility and some experts recommend that women with infertility be evaluated for fibroids with potential removal if the tumours have a submucosal component. However, there is no evidence from randomized controlled trails to support myomectomy to improve fertility<sup>1</sup>. The location and size of the fibroids in the uterus are critical determinants of its clinical manifestations<sup>6</sup>. The fibroids may be submucous, intramural, subserous creating the characteristic irregular feel of the myomatous uterus, or they may be pedunculated<sup>1,12</sup>. Pelvic pressure arises when the uterine size is increased. Very large fibroids can cause the uterus to enlarge to the size reached at 26 or 30 weeks of pregnancy<sup>6,12</sup>. When compared with other fibroid locations, the submucous fibroids that extend into the uterine cavity are the most disruptive to endometrial integrity, implantation and the capacity of the myometrium to contract and stop menstrual bleeding from the endometrial blood vessels<sup>6</sup>.

Expectant management is advocated for asymptomatic fibroids, especially those detected incidentally, as the risk of malignant transformation to a leiomyosarcoma is low with a prevalence of 0.26%<sup>10</sup>. Traditionally, uterine fibroids are frequently treated either by hysterectomy or myomectomy. About 200,000 hysterectomies, 30,000 myomectomies and thousands of selective uterine artery embolizations as well as high intensity focused ultrasound procedures are performed annually in the United State to remove or destroy uterine fibroids<sup>6</sup>.

Hysterectomy is the most effective treatment for symptomatic uterine fibroids. It is performed in women who have completed child bearing or when massive haemorrhage is encountered. The choice of hysterectomy, whether it is performed by abdominal, laparoscopic or vaginal route, should be based on the surgeon's training, experience, and comfort and on clinical guidelines. The least invasive approach feasible should be used<sup>10</sup>. Vaginal hysterectomy is the preferred technique because it offers several advantages of shorter hospital stay, shorter surgery time, decreased blood loss and shorter paralytic ileus time over even total laparoscopic hysterectomy or laparoscopically assisted vaginal hysterectomy. The only limitation to vaginal hysterectomy is the size of the myomatous uterus<sup>1</sup>.

Myomectomy could commonly be done via laparotomy, laparoscopy or hysteroscopy, especially for women who wish to retain their uterus, regardless of their fertility desires<sup>10</sup>. Hysteroscopic myomectomy has been employed for removal of small submucous fibroids less than 3cm when more than 50% of the tumour is intracavitary<sup>1</sup>.

Recently, the issue of morcellation during laparoscopic hysterectomy has come under scrutiny over concerns about iatrogenic dissemination of benign and malignant tissue. This has prompted recommendations from the United States Food and Drug Administration and the American College of Obstetricians and Gynecologists about case selection and informed consent<sup>1,10</sup>.

Other surgical options include uterine artery embolization, an interventional radiologic procedure in which occluding agents are injected into one or both of the uterine arteries, limiting blood supply to the uterus and fibroids<sup>1</sup>. Myolysis is another minimally invasive procedure targeting the destruction of fibroids via a energy delivery system such as heat, laser or magnetic resonance – guided focussed ultrasound surgery (MRgFUS)<sup>1</sup>.

Other novel ablation procedures include a transcervical device (VizAblate™) which combines real – time intrauterine sonography with radiofrequency (RF) ablation for the treatment of fibroids. Another new device (Access™) has also been developed which carries out laparoscopic ultrasound guided radiofrequency volumetric thermal ablation of uterine fibroids in symptomatic women<sup>2</sup>.

The outcome of surgical management of uterine fibroids is assessed in terms of intraoperative blood loss and such post-operative morbidities as pain, anaemia, pyrexia, wound infection, prolonged hospitalization, and the need for blood transfusion. Myomectomy is generally regarded as resulting in more blood loss, greater operative time, more post-operative anaemia and a greater requirement for blood transfusion<sup>1</sup>.

## **II. Aims and Objectives**

To determine the pattern of presentation and surgical modes of management of uterine fibroids.  
To appraise the intra-operative and post-operative morbidities in surgically managed patients.

## **III. Materials and Methods**

This was a retrospective hospital based study of uterine fibroids managed at the Department of Obstetrics and Gynaecology of the Federal Medical Centre, Makurdi from 1<sup>st</sup> September, 2002 to 31<sup>st</sup> August, 2007. This is a tertiary referral institution located in Makurdi, the Benue State capital. Apart from providing gynaecological care, it also accepts referrals from other health facilities within the North Central zone of Nigeria

as well as the neighbouring states of Enugu, Kogi, Nassarawa and Taraba. Data of all cases of histologically confirmed uterine fibroids were obtained from the medical records department, gynaecological admission registers and theatre registers and analysed. Data relating to age, parity, symptoms, type of surgery offered and postoperative complications were extracted and analysed. Ethical approval was obtained from the institution's ethics committee prior to commencement of the study.

Uterine sizes corresponding to 20 weeks gestation or more were regarded as due to "huge" fibroids. Anaemia was said to be present when the packed cell volume (PCV) was less than 30%. Pyrexia was defined as temperatures of 38.0 C and above occurring on two separate occasions 24 hours after surgery. Statistical analysis was performed using SPSS version 16 (SPSS Inc. Chicago, Illinois, USA). Descriptive statistics was used to summarise the data. Data was displayed in frequency tables using comparative percentages.

#### IV. Results

During the period under review, there were 1,563 new gynaecological admissions and 877 major gynaecological surgeries. One hundred and thirty one (131) cases of uterine fibroids were surgically managed during the study period. Uterine fibroids therefore accounted for 8.4% of all new gynaecological admissions and 14.9% of all major gynaecological surgeries.

The age of patients ranged between 19-54 years with a mean of 40.21 years. Table 1 showed the bimodal age groups at presentation as 30-34 years and 40-44 years respectively. The patients were predominantly of low parity that is para 0 – 2, 116 (88.5%) while there were 3 grand multipara accounting for 2.3%.

**Table no 1:** Distribution of patients by age

Age (yrs)	Frequency	Percentage (%)
<20	1	0.7
20-24	4	3.1
25-29	7	5.3
30-34	42	32.1
35-39	13	9.9
40-44	53	40.5
≥45	11	8.4
Total	131	100

Table 2 showed the various clinical presentations of patients with uterine fibroids prior to surgical management. Majority of them had abdominal swelling 77(58.8%) and menorrhagia 69(52.7%), with 93(70.9%) having uterine sizes of less than 20 weeks' gestation, while 38(29.1%) had uterine sizes that were considered as "huge" as they were greater than 20 weeks' cyesis.

**Table no 2:** Clinical presentation of patients with uterine fibroid

Symptoms/Signs	*Frequency	Percentage (%)
Menorrhagia	69	52.7
Abdominal swelling	77	58.8
Infertility	33	25.2
Abdominal pain	27	20.6
Recurrent abortions	1	0.8
Pressure symptoms (urinary & bowel)	7	5.3

\*Some patients had more than one presentation

The choice of surgical management was guided by the age and parity of the patient. Table 3 showed that myomectomy was the operation of choice in 110(84%) patients, while 21(16%) patients had abdominal hysterectomy. Caesarean myomectomy was done for 2(1.5%) patients during this period.

**Table no 3:** Distribution of patients by age and type of operation performed

Age(years)	Myomectomy N (%)	Hysterectomy N (%)
<35	52 (47.3)	5 (23.8)
≥35	58 (52.8)	16 (76.2)
<b>Total</b>	110 (100)	21 (100)

Table 4 clearly shows that hysterectomy was commoner among the parous women (para 1-4) than the grandmultiparous women. There were more myomectomies done among the nulliparous women.

**Table no 4:** Distribution of patients by parity and type of operations

Parity	Myomectomy N (%)	Hysterectomy N (%)
0	81(73.6)	2 (9.5)
1-4	28 (25.5)	17 (81)
≥5	1(0.9)	2 (9.5)
<b>Total</b>	<b>110 (100)</b>	<b>21(100)</b>

Intraoperatively, the range of estimated blood loss was between 100mls – 2,000mls with a mean of 801.16 ± 362.04mls and between 250mls – 1500mls with a mean of 302.74 ± 138.06mls for myomectomy and hysterectomy respectively. The postoperative complications in Table 5 showed that morbidities were worse in the myomectomy group than the hysterectomy group.

**Table no 5:** Post-operative morbidities

*Post-operative Morbidities	Total (131)		Myomectomy (110)		Hysterectomy (21)	
	N	%	N	%	N	%
Anaemia	23	17.6	15	11.5	8	6.1
Pyrexia	34	26.0	17	13.0	17	13.0
Prolonged hospital Stay > 8 days	24	18.3	11	8.4	13	9.9
Wound breakdown	4	3.1	3	2.3	1	0.8
Urinary tract infection	5	3.8	3	2.3	2	1.5

\*Some patients had more than one morbidity

## V. Discussion

The prevalence of 8.4% and 14.9% of all new gynaecological admissions and surgeries respectively obtained from this study makes uterine fibroids an important health issue in our environment. The gynaecological surgeries of 14.9% in this study lower than the 21.4 % obtained in a similar study in Aminu Kano Teaching Hospital (AKTH), Kano, Nigeria<sup>13</sup> but almost double the 8.3% obtained at Ahmadu Bello University Teaching Hospital, Zaria, Northern Nigeria<sup>14</sup>.

Uterine fibroids are rare before the age of 20 years and their occurrence in the reproductive years is supported by the fact that the tumour is dependent on reproductive hormones viz oestrogen and progesterone<sup>6</sup>.

Peak incidence was noted in the third and fourth decades of life and constituted a total of 108 (82.4%) of the patients managed surgically. This figure is higher than similar work done in South Western Nigeria<sup>15</sup>. There is, however, a bimodal peak in patients aged 30-34 years and those aged 40-44 years in this study. This is probably related to the option of surgical management in these groups of patients. Most of the patients were of either low parity between 0 - 2 or they were nulliparous 116 (88.5%).

Abdominal swelling and menorrhagia were the commonest presentations in this study, accounting for 58.8% and 52.7% of the presenting complaints respectively. The incidence of abnormal uterine bleeding was comparable to 52.2% reported in Ilesha<sup>16</sup>. Infertility was a presentation in 25.2% of patients this was comparable to 25.2% found by Fasubaa et al<sup>17</sup> and 26.3% in Kano<sup>13</sup> but lower than 37.1% reported in South Western Nigeria<sup>15</sup>. The relationship between uterine fibroids and infertility has been theorized to be either causal or casual<sup>18</sup>. It was observed that as many as 29.0% of the patients had huge fibroids defined as sizes greater than or equal to a 20 week gestation. Fasubaa et al<sup>17</sup> reported a finding of giant uterine fibroids ≥ 30 week size in 7.5% of their patients. Distorted and inaccurate health information among the populace especially in this era of social media may contribute to late presentation when complications have set in or the fibroids have become huge<sup>19</sup>.

Myomectomy was the operation of choice in 84.0% of the patients compared with 16.0% who had hysterectomy. This is in contrast to findings in Ilorin, Nigeria<sup>20</sup>. The possible explanation for this remains socio-cultural rather the medical. Most of our women have a strong aversion towards hysterectomy which they associate with infertility when they re-incarnate. Therefore peri- and post-menopausal women opt for myomectomy even when a hysterectomy would be a better option<sup>16</sup>. A lot of premium is placed on child bearing in our environment. If a woman should lose her uterus in the course of an operation, she may very well be abandoned by her husband. This may explain why 50 (38.2%) and 1 (0.85%) of the patients who were above 40 years and grandmultiparous respectively opted for myomectomy.

The incidence of post-operative morbidities associated with myomectomy when compared to hysterectomy is not in agreement with a similar study in Kano<sup>13</sup>. In this study, pyrexia was the commonest postoperative morbidity for both the myomectomy and hysterectomy groups accounting for 13% each in both groups. Anaemia was commoner in the myomectomy group when compared to the hysterectomy group at 11.5%

and 6.1% respectively. The reverse was the case for prolonged hospital stay for the two groups. Prolong hospital stay in this study mainly resulted from anaemia, concomitant bowel resection, injuries at surgery and prolonged bladder catheterisation.

A higher mean estimated blood loss was noted in the myomectomy group than those who had hysterectomy. However there is no consensus on this subject of blood loss at fibroid surgery, in the available literature<sup>18,24</sup>. The observed differences may be due to technical competence at surgeries or the methods used in estimating blood loss.

The limitation of this study was that it was hospital based and so the finding may not be extrapolated to the general population. Also being a retrospective study some data may have been missed in the course of retrieval. Due to advances and changes in health care, further studies would have to be carried out to assess the current situation in the Centre.

## VI. Conclusion

Uterine fibroids are a common gynaecological presentation in our environment. They have been found to occur in women of low parity usually in the third and fourth decades of life. Surgery remains the main mode of management, with abdominal myomectomy being the commoner surgical intervention rather than hysterectomy. The commonest postoperative morbidities in our study were pyrexia, anaemia and prolong hospitalization. Acquisition of minimally invasive surgical equipment and training of personnel in their use as well as retraining in surgical skills will greatly reduce the postoperative morbidities recorded in this study.

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Conflict of interest

There were no conflicts of interest

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