

A 15-year Review (2001-2015) of Surgically-Treated Uterine Fibroids in a Gynecology Unit in Enugu, Southeast, Nigeria: A Descriptive Retrospective Study

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Abstract

Introduction: Uterine Fibroids remain a major cause of morbidity and mortality among women of various age groups. Many treatment options abound. The aim of this study was to determine the presentation and surgical treatment options offered in a private gynecology unit, in Enugu, Nigeria

Methodology: A retrospective review of surgically managed cases of Uterine Fibroids between January 2001 and December 2015. Data was obtained from outpatient, ward, operating and laboratory case records. Analysis of data was done using SPSS version 20 with descriptive statistics of frequency and percentage. Chi-square test at 95% confidence interval was used to test for association between the independent variables and treatment given, with p-value set at <0.05.

Results: Three hundred patients presented during the study period but only 228 case records (76%) were adequate for analysis. The mean age of the women was 38.05 +/- 7.49 years with a range of 20-60 years. Abdominal pain, heavy bleeding and abdominal swelling were the commonest symptoms in descending order. Duration of symptoms was 1-3 years in 67% of clients and uterine size was 32-40 weeks in 12% of patients reviewed. The significant determinants of surgical treatment of choice were age and parity, both at p-value <0.001.

Conclusion: Late presentation from ignorance and fear of surgery is a major problem in the management of uterine leiomyoma in our environment. Use of the tourniquet method at myomectomy helped to minimize blood loss despite the huge sizes of the myomas.

Keywords: Uterine fibroids; Surgical treatment; Myomectomy; Hysterectomy; Ovarian conservation; Oophorectomy; Tourniquet

Introduction

Uterine fibroids, correctly termed leiomyomata, are monoclonal tumors of the smooth muscle cells of the myometrium, and are the commonest pelvic tumors in women [1]. Although the precise aetiology is unknown, advances have been made in the understanding of the hormonal, genetic, growth, and molecular biology of these benign tumors [2]. It is thought to be estrogen dependent as majority atrophy after menopause [3].

Risk factors for uterine fibroid include race as it is 3-9 times commoner in Negroes compared to Caucasians, increasing age, delayed pregnancy, early menarche, low parity, caffeine, genetic alterations which may be familial, and others such as obesity and a diet rich in red meat [4,5].

Most leiomyomas are symptomless, ranging from tiny seedlings to huge sizes. Depending on the size (s), number, and location in the uterus, common presentations include abdominal swelling, menorrhagia, dysmenorrhea, abdominal pain or discomfort as well as pressure symptoms causing constipation, urinary retention and sometimes leg swelling [6].

Management options depend on age, parity, number(s), position, and size of fibroid, as well as desire to retain the uterus. While myomectomy is the commonest surgical treatment [7], hysterectomy provides the most effective cure [8]. Current less invasive strategies involve laparoscopic & hysteroscopic routes. Alternatives to surgical intervention include uterine artery embolization (UAE), high-frequency magnetic resonance-guided focused ultrasound surgery (MRgFUS) and vaginal occlusion of uterine arteries [9].

The aim of this study is to review the clinical features and management outcome of surgically-treated uterine fibroids in a private gynaecology unit in Enugu, Southeast Nigeria, in order to see how it compares with prevailing standard of care internationally and within the country.

Materials and Methods

This was a descriptive retrospective review of case-records of all clients who had surgical treatment of their fibroids between January 2001 and December 2015, from outpatient case notes, ward, laboratory, and theatre records. A total of 300 clients were noted, but only 228 records (76%) were complete for inclusion into the study. Data extracted included the demographics, clinical presentation, surgical interventions and complications. Written informed consent was obtained from patients for use of operation pictures. Confidentiality and removal of all identifiers were ensured.

Ethical Approval for the study was obtained from the Research Ethics Committee of University of Nigeria Teaching Hospital, Enugu, Nigeria.

Data analysis

Data was entered into the Statistical Package for Social Sciences software (SPSS) version 20 (Chicago Illinois, USA). Analysis was by descriptive statistics of simple frequency and percentage. The Chi-square test was used to test for association between demographic variables and treatment of choice, with a level of significance set at $p < 0.05$.

Results

Of 1680 gynaecological surgeries during the period of review, 300 were for uterine fibroids giving a point prevalence of 16.4%. The age range of the women was 20-60 years, with a mean of 38.05 (7.49 SD) and the commonest age group was 30-39 years (51.3%). 180 patients (78.9%) were nulliparous, increasing to 192(84.2%) at primiparity, while 81 (35.5%) were married (Table 1).

Table 1: Demographic characteristics.

Variables	Frequency (%)
Age range (in years)	
20-29	24 (10.5)
30-39	117 (51.3)
40-49	66 (28.9)
50-59	18 (7.9)
>59	3 (1.3)
Total	228 (100)
Parity (0=180 (78.9))	
0-1	192 (84.2)
2-4	18 (7.9)
5-7	18 (7.9)
Total	228 (100)
Marital status	
Single	147 (64.5)

Married	81 (35.5)
Total	228 (100)

The commonest presenting symptoms were abdominal swelling (61.8%), abdominal pain (55.3%) and menorrhagia (46.1%) in descending order. Duration of symptoms prior to presentation ranged from 1mth to 11 years with an average of was 1-3Years (67.1%), citing fear of surgery (60.5%) and negative effects on fertility potential (34.2%) as reasons for late presentation (Table 2).



Figure 1: Huge Uterine Mass with multiple subserous, intramural and submucosal fibroid nodules.

Table 2: Presentation.*There were multiple symptoms per patient.

Presenting Symptoms*	Frequency (%)
Abdominal swelling	141 (61.8)
Abdominal pain	126 (55.3)
Menorrhagia	105 (46.1)
Dizziness	60 (26.3)
Dysmenorrhea	39 (17.1)
Infertility	39 (17.1)
Menstrual irregularity	27 (11.8)
Constipation/incomplete emptying	24 (10.5)
Recurrent fibroids	21 (9.2)
Bloody vaginal discharge	18 (7.9)
Urinary urgency	12 (5.3)
Recurrent Urinary tract infection	9 (3.9)
Urinary retention	3 (1.3)
Weight loss	3 (1.3)
Duration of symptoms (1month-11years)	
Less than 1 year	24 (10.5)
1-3 years	153 (67.1)
4-6 years	39 (17.1)
Greater than 6 years	12 (5.3)

Total	228 (100)
Uterine size	
Less than 12 weeks	9 (3.9)
12-20 weeks	123 (54.0)
22-30 weeks	69 (30.3)
32-40 weeks	27 (11.8)

Total	228 (100)
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Uterine size ranged from being non-palpable per abdomen to 40 weeks (**Figure 1**), commonest being 12-20 weeks (123, 53.9%). 18-20 weeks made up 26.3%. Surgical intervention was most commonly abdominal myomectomy (153, 67.1%), including >50% of older age group 40-49years (39/66). 9 (7.7%) of age group 30-39 requested for total abdominal hysterectomy (TAH) and bilateral salpingo-oophorectomy (BSO) (**Table 3**).

Table 3: Characteristics of surgical treatment.

Variables	Frequency/Percentage
Type of surgical treatment	
Abdominal Myomectomy	156 (68.4)
Simple Hysterectomy	18 (7.9)
Hysterectomy +BSO	54 (23.7)
Estimated blood loss	
Less than 500mls	143 (62.7)
500-1000mls	67 (29.4)
Greater than 1000mls	18 (7.9)
Blood transfusion (Units)	
0	159 (69.7)
1-2	54 (23.7)
3 or more	15 (6.6)
Length of hospital stay (in days)	
3-4	35 (15.4)
5-7	175 (76.7)
8 or more	18 (7.9)

Surgical incision was mainly sub-umbilical midline, with Pfannenstiel being (27, 11.8%) only. The masses were multi-compartment (192, 84.2%) with estimated nodular sizes of 2cm-40cm. Intraoperative blood loss was less than 500mls in (143) 62.7% of clients. Blood transfusion was not given to 70% of the

clients. The average length of hospital stay was 5-7 days and mild to moderate (19%-29%) post-operative anemia was the commonest complication in 60.5% of clients. Other complications include postoperative pyrexia (5.3%), prolonged hospital stay (6.6%), and wound infection (**Table 4**).

Table 4: Postoperative complications.

Complications	Frequency/Percentage
Postop anaemia (Packed cell volume 19-29%)	138 (60.5)
Postop pyrexia (>= 380C on 2 separate occasions 24 hours after surgery)	12 (5.3)
Prolonged hospital-stay (8 days or more)	15 (6.6)
Wound infection (local erythema or suppuration)	3 (1.3)

Those who were of younger age, and those with lower parity tended to opt for myomectomy, while those of older age and

higher parity tended to have hysterectomy (**Table 5**). The significant determinants for choice of surgical intervention were age and parity at p-value <0.001 (**Table 6**).

Table 5: Comparison of age, parity and blood loss between different surgical treatments.

Variable	Myomectomy	Simple hysterectomy	Hysterectomy + bso	Total
Age range (years)				
20-29	24(100%)	0	0	24 (100%)
30-39	93 (79.5%)	15 (12.8%)	9 (7.7%)	117 (100%)
40-49	39 (59.1%)	3 (4.5%)	24 (36.4%)	66 (100%)
50-59	0	0	18 (100%)	18 (100%)
>59	0	0	3 (100%)	3 (100%)
Total	156	18	54	228
Parity				
0-1	138 (71.8%)	18 (9.4%)	36 (18.8%)	192 (100%)
02-Apr	15 (83.3%)	0	3 (16.7%)	18 (100%)
05-Jul	3 (16.7%)	0	15 (83.3%)	18 (100%)
Total	156	18	54	228
Blood loss (ml)				
<500	104 (66.7%)	6	33 (61.1%)	143
500-1000	40 (25.6%)	12	15(27.8%)	67
>1000	12 (7.7%)	0	6 (11.1%)	18
Total	156 (100)	18	54 (100)	228

Table 6: Cross-tabulation and Pearson-Chi-square for age, parity and marital status versus surgical treatment given.

Age range (years)	Myomectomy	Hysterectomy	Total	
20-29	86	0	86	X ² =99.201
30-39	66	36	102	df=3
40-49	5	32	37	p= 0.000
50 and above	0	3	3	
Total	157	71	228	
Parity				
0-1	138	54	192	X ² =27.049
2-4	16	2	18	df=2
5-7	3	15	18	p=0.000
Total	157	71	228	
Marital status				
Single	99	48	147	X ² =0.442
Married	58	23	81	df=1
Total	157	71	228	p=0.552

Discussion

The prevalence of 16.4% in this study, of all gynecological surgeries during the period reviewed is greater than the 7% obtained by Okeke, et al. [10] in Enugu, but less than 27.4% by

Omole-Ohonsi, et al. [11] in Kano. This may be because most uterine fibroids are symptomless, and not all symptomatic patients seek care in hospitals, hence results depend on the population studied and diagnostic method used [12].

In the present study, uterine fibroid occurred most often in the 4th decade, which agrees with the findings from other studies in Eastern Nigeria [10,13], though differs from the study in Ilorin [14]. In addition, most clients were single, as documented by Novak and Woodruff [15]. The longer time a woman remains single or not having become pregnant, the more there is stimulation of the uterine muscles by the hormone estrogen during the menstrual cycle. This increases the risk of developing fibroids.

Nulliparous and primiparous women accounted for most of the cases in this review as in other studies [16,17]. Increased parity has been found to be protective from uterine fibroids [8]. However, the present finding differs from that in Northwestern Nigeria with predominant Muslim populations, where there is early girl marriage and childbearing [11].

Abdominal swelling as confirmed by other studies [7,13], was the commonest presenting symptom, though Adinma [18] documented menorrhagia as the commonest symptom in his series. Lower abdominal pain was the second commonest symptom in this study, probably resulting from large tumour size due to late presentation [19].

The notion that surgical treatment of fibroids prevents conception was the reason given by about one-third of our clients for late presentation and huge abdominal masses, as documented by other studies [13]. This usually leads to complications such as torsion, bleeding into the fibroid, pelvic infection and subsequently infertility [20,21]. Only 17.1% (39) presented with infertility in this review, probably because most of the women were single, but this was the commonest presentation in a study at Abakaliki, Southeast Nigeria [22]. It is not surprising that majority of patients in this study had abdominal myomectomy due to the value placed on childbearing in our clime, despite the huge sizes of the fibroid masses.

Laparoscopic and hysteroscopic myomectomy are less invasive most widely used surgical interventions for myomas in developed climes, though expensive equipments, cost, and size of myomas in our environment preclude their routine use. Alternatives to surgical intervention include uterine artery embolization (UAE), high-frequency magnetic resonance-guided focused ultrasound surgery (MRgFUS) and vaginal occlusion of uterine arteries. However, expertise and cost still hamper their use in this environment. None of the clients had these treatment options probably due to lack of equipment as well as requisite skills by the gynaecologists

The choice of conservative surgery in the present study was also related to age and parity as women of younger age and low parity tended to have myomectomy while those with higher parity had hysterectomy [23,24]. The myomectomy technique involved the placement of a tourniquet (Foley's catheter) at the cervico-isthmic junction (Figure 2), as it is known to minimize blood loss with better patient outcome [11,19]. It gives a mechanical vaso-occlusive effect on the ascending uterine artery bilaterally [25]. In addition to minimizing haemorrhage at surgery, it also reduces postoperative morbidity, shorter mean duration of operation and hospital stay. This may explain why

most of the clients had minimal blood loss at surgery with good outcome. Other techniques for minimizing blood loss include the use of Bonney's lamp, injection of vasopressin intra-myometrially, preoperative administration of GnRH analogues or misoprostol [26].

Hysterectomy remains the definitive treatment for uterine fibroids, as it prevents recurrence which may be as high as 59% after an interval of 4–5 years [27] for women of African origin. However, more than 50% of our clients in the older age group opted for myomectomy because the lack of menses associated with hysterectomy is unacceptable to the average Nigerian woman [28].

Oophorectomy with hysterectomy for benign disease has long been debated [29]. In a study by Chukwuali and Okezie [30], more than 80% of Nigerian gynaecologists would carry out bilateral oophorectomy during hysterectomy for benign diseases in (pre-menopausal) women aged 50 years and above, and in postmenopausal women irrespective of age. Pre- and postmenopausal oophorectomies, with its resulting estrogen deficiency, have been associated with higher risks of coronary heart disease (CHD) and osteoporosis, and the generally poor compliance with long-term estrogen replacement are strong arguments against pre-menopausal bilateral oophorectomy [31].

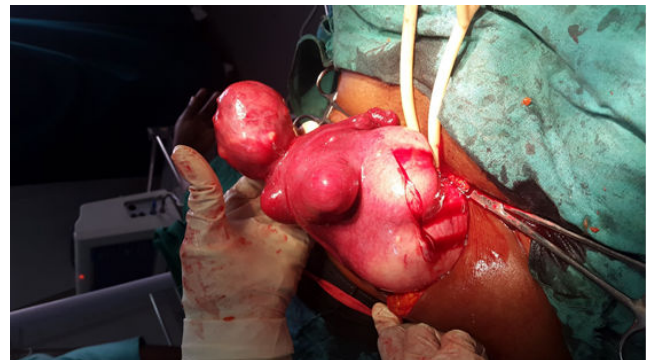


Figure 2: Tourniquet (Foley's urethral catheter size 22) application to the cervico-isthmic junction of the uterus).

Life expectancy may be reduced by up to 1.4 years following bilateral oophorectomy in pre-menopausal women, if estrogen replacement is inadequate [32]. It is pertinent to note that nine of our clients aged 36-39 years opted for oophorectomy, citing fear from ovarian cancer as reason despite counseling. The high mortality rate associated with the latter, the lack of a recognizable pre-invasive stage, and the absence of a satisfactory screening protocol are strong arguments against ovarian conservation by opponents [33], more so in our environment where attitude to regular health checks is very poor. Predominant practice reflects the principle that prophylactic oophorectomy in women at low risk for ovarian cancer should be avoided under age 40 years, routinely performed over age 55 years, and individualized in the interval between 40 and 55 years [34]. Postmenopausal ovaries continue to produce significant amounts of the androgens, testosterone and androstenedione, which are converted to estrogen peripherally. These levels are consistently produced and have

been documented up to the age of 80 years [35]. Ovarian conservation until age 65 may benefit long-term survival and it would be advisable to offer prophylactic oophorectomy only to women above 65 years undergoing hysterectomy for benign disease [29].

The commonest postoperative complication in this review was mild to moderate anaemia with packed cell volume of 19-29%, followed by postoperative pyrexia. There was however no significant difference in the complication rate between myomectomy and hysterectomy in our series which differs from other studies [9,11,36] The anaemia may have resulted because most patients with fibroids usually go into surgery with borderline haemoglobin levels as a result of menorrhagia [18]). The minimal postoperative pyrexia among our clients may be due to thorough obliteration of all dead spaces at myomectomy thus avoiding bleeding into the fibroid cavities and peritoneum, with resultant reactionary pyrexia following myomectomy [9].

Conclusion

Late presentation with huge fibroid masses is common in our study population due to ignorance. Myomectomy remain the commonest surgical treatment for uterine fibroids in our environment. Use of the tourniquet at the cervical isthmus during myomectomy markedly limits blood loss resulting in no blood transfusion. The surgical treatment and outcome of fibroid in our study centre is comparable with the standard in the country.

Awareness programs educating women on the benefits of early presentation is advocated. Skill acquisition by gynaecologists to enable centers offer current non-surgical techniques such as Uterine Artery Embolization (UAE) to patients is encouraged. Caution is called for in performing prophylactic oophorectomy. It should be individualized and only undertaken after adequate patient information, comprehension and voluntary consent.

Limitation of the Study

This is a retrospective study and so some of the case records may have been unavailable, hence does not cover all clients presenting to the centre with uterine fibroids. The estimation of the blood loss is imprecise.

Conflict of Interest

There is no conflict of interest whatsoever.

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