

SURGICAL MANAGEMENT OF UTERINE FIBROIDS AT AMINU KANO TEACHING HOSPITAL, KANO, NIGERIA: A 5 YEAR REVIEW

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ABSTRACT

Background: Uterine fibroids are the most common pelvic tumors. They account for a significant number of gynecological consultations. Prevalence, presentation and outcome of treatment vary in different communities.

Objectives: To determine the prevalence and clinical presentation of uterine fibroids, and the morbidity associated with surgical management of uterine fibroids at Aminu Kano Teaching Hospital, Kano.

Study design: Retrospective study of all the cases of uterine fibroids that were surgically managed in Aminu Kano Teaching Hospital, Kano between 1st January 2006 and 31st December 2010.

Results: The period prevalence of uterine fibroids found in this study was 3.1%, 8.3% of gynecological operations were for fibroids. Main presentations were menstrual irregularities 75.9%, abdominal swelling 51.9%, lower abdominal pain 46.5%, dysmenorrhea 29.1%, infertility 20.3%. The postoperative complication of anemia occurred in 34.1% of patients who had myomectomy and 14.6% of those who had hysterectomy. Anemia was 3 times more likely to occur with myomectomy (OR 3.02, CI 1.69-3.56, P <0.05). Pyrexia occurred in 31.2% of patients who had myomectomy and 12.4% of those who had hysterectomy. It was 3 times more likely to occur following myomectomy than hysterectomy (OR 3.21, CI 1.74-5.93, P <0.05). Wound infection occurred in 13.8% and 12.4% of patients who had myomectomy and hysterectomy respectively, UTI in 6.5% and 5.6% of patients who had myomectomy and hysterectomy. They both showed no significant statistical difference between myomectomy and hysterectomy (for wound infection OR 1.13, CI 0.56-2.29, P >0.05 and for UTI OR 1.17, CI 0.42-3.23, P >0.05).

Conclusion: The prevalence and presentation of uterine fibroids found in this study is similar to the finding of other studies from Northern Nigeria. The most common presentations were menorrhagia and lower abdominal swelling, and not infertility. Myomectomy was associated with higher complication rates compared to hysterectomy.

Key words: Uterine fibroids, prevalence, presentation, postoperative morbidity.

INTRODUCTION

Uterine fibroid; also called leiomyoma, myoma, or fibromyoma; is a benign tumor that originates from the myometrium and the accompanying

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connective tissues of the uterus¹.

Uterine fibroid is the commonest tumor of the female genital tract, and the most common benign tumor in women of childbearing age². It is estimated that 20% - 45% of women above the age of 30 years have uterine fibroids³. They also account for 68.1% of hysterectomies⁴. An incidence of 17.9% - 26% has been found at laparoscopy in a Nigerian study⁵. Other studies in Nigeria have reported prevalence of 13.6% of all gynecological admissions in the south east⁶, 9.3% of all gynecological cases in the south west⁷, and 8.8% of gynecological surgeries in the North⁸. An incidence of 11% has been reported from Europe and United States⁹.

Fibroids are more common in black women than in Caucasian women¹⁰. Over expression of estrogen receptor (ER) alpha genotype and aromatase, which has been found to correlate with incidence and size of uterine fibroids, is particularly pronounced in Afro-American women and may explain why African American women are 2-5 times more at risk for fibroids than white women, and Negroes 3-9 times more at risk than Caucasians. Aromatase inhibitors are currently being considered for prevention and treatment of uterine fibroids¹¹. Also, the higher incidence among Negroes has been attributed to myometrial irritation caused by pelvic infections, which was found to be prevalent in black women¹².

The exact cause of uterine fibroid is unknown but there are several risk factors. These include Afro-American descent, nulliparity, obesity, polycystic ovary syndrome, diabetes and hypertension¹³. A positive family history of fibroids was also found to be common in patients who develop tumors and the presence

of a gene encoding for fibroid development has been suggested. First degree relatives have a 2-5 fold risk of developing fibroids¹⁴. Fibroid growth is strongly dependent on estrogen and progesterone, which are regarded as growth promoting¹⁵. 90% of fibroids cease to grow or regress after menopause following estrogen withdrawal. Paradoxically, fibroids will rarely grow during pregnancy despite very high steroid hormone levels. The mechanism(s) by which pregnancy exerts its protective effects is unclear, but may be mediated by an interaction of estrogen, prostaglandins and oxytocin¹⁶, although a study from Nigeria⁴ did not agree with this. Fibroids have also been associated with complications of pregnancy such as spontaneous abortions, preterm delivery, abnormal presentation, pelvic outlet obstruction, postpartum hemorrhage and puerperal and post abortal sepsis². In another study a high incidence of uterine fibroid among overweight women aged 26 – 30 years was noted and weight reduction appears to be a possible preventive measure against the disease¹⁷.

Uterine fibroids have been associated with infertility. They may be a consequence of the infertility, or a possible cause of the infertility². Infertility rates of 31.9%⁷ and 41.9%⁸ have been reported in Nigerian studies, while studies from Caucasians and more developed countries give lower rates of between 2.4% and 2.7%¹⁸. Pelvic inflammatory disease has been found to be frequently associated with uterine fibroids in this environment contributing significantly to the cause of infertility in our patients¹². Various studies have found rates of pelvic inflammatory disease associated with fibroids in this environment to range between 28.2% and 68%¹². Uterine fibroids are asymptomatic in many women and are discovered incidentally in

women undergoing evaluation for other reasons such as infertility. The highest prevalence has been found to be between 30-39years⁶⁻⁸. When symptoms occur they are usually menstrual abnormalities, which include irregular menstrual bleeding and menorrhagia. Other features of fibroids occur due to its pressure effect on surrounding tissues and organ². Studies in Nigeria found the most common presentation to be infertility in 22.9%, abdominal mass in 21.6%, and menstrual abnormality in 15.9% in the south east⁶, while in the south west it was menstrual abnormality in 47.7%, abdominal swelling in 39.1% and infertility in 31.9%⁷.

Some complications that could arise include torsion of pedunculated fibroids, heavy bleeding, infertility and degenerative changes. Sarcomatous change is very rare, about 0.1%-0.5%¹⁹. Uterine fibroids may be single or multiple, and of various sizes. Based on the location, they may be submucous, intramural, subserous, cervical, or parasitic, and diagnosis is usually made by ultrasound scan².

Treatment may be expectant for asymptomatic cases, medical or surgical. Factors that influence the management include age, parity, pregnancy status, associated symptoms and reproductive potentials of the patient²⁰. Hysterectomy is a major procedure that involves removal of the uterus, and is the definitive treatment for symptomatic fibroid². It has been noted that uterine fibroid form the bulk of indication for hysterectomy in most countries particularly among the premenopausal women⁴. Myomectomy involves removal of the fibroids alone leaving the rest of the uterus, and is usually reserved for women who have fibroids, who are under 40 and who desire to maintain their fertility, when there is a reasonably good chance of subsequent pregnancy and when the

procedure is surgically feasible. In our environment, there is a high association of pelvic inflammatory disease and tubal damage with uterine fibroids, the presentation is usually late with gross damage to the uterus but the average Nigerian woman cherishes her menstrual function and would not readily consent to hysterectomy. Hence myomectomy is often performed even when the chance of reproductive function is minimal or absent²¹. These factors are probably responsible for the varying rates for hysterectomy reported in the literature. In Nigeria, the rates for hysterectomy for fibroids vary between 10.0% and 45.3% while for myomectomy the rate is between 54.7% and 90.0%^{6,7}.

The effect of abdominal myomectomy on reproductive performance has been reviewed in many studies. Results not only suggested a significant improvement in women presenting with infertility but also in those presenting with pregnancy loss²². Reproductive outcome after surgery is however determined by age, presence or absence of tubal abnormality and the duration of infertility before surgery²². A study from Ibadan showed a pregnancy rate of 37.5% in patients who had myomectomy only for infertility with the rate dropping to 4.2% in those who had both myomectomy and tubal surgery⁵, while another study in UK found similar result with pregnancy rate of 35.7% following myomectomy²³. In one study, the life birth rate after myomectomy was found to be 48%²⁴. Morbidity associated with surgical management of uterine fibroids varies. Some studies report increase in complication rates with myomectomy², while another study found no significant difference in the perioperative morbidity between myomectomy and hysterectomy, and concluded that myomectomy

should be considered a safe alternative to hysterectomy²⁵. The study in south west Nigeria found the major postoperative complications to be pyrexia in 13.5%, anemia in 12.8%, and wound infection in 5.1%⁷.

Newer techniques include the use of laser vaporization, ultrasonic diathermy coagulation to burn the fibroid nodules, and laparoscopic myomectomy². Gonadotrophin releasing hormone analogs and Uterine Artery Embolization (UAE) reduce the blood supply to the uterus and fibroids, thus making them to shrink². These procedures would be popular in developing countries where culture often makes women to resent undergoing major surgery or losing their uterus²⁶. However, the expensive equipments and cost of the procedures make them often out of the reach of most developing countries²⁶.

It is evident that the determining factors in the management of uterine fibroids and the outcome of treatment vary widely in different communities. It is therefore the purpose of this study to analyze the presentation and management of uterine fibroids in our community, to find out the factors influencing management, and also determine the postoperative complications of the surgeries.

OBJECTIVES

The objective of this study is to determine the prevalence, presentation and morbidity associated with surgical management of uterine fibroids in Aminu Kano Teaching Hospital, Kano.

MATERIALS AND METHODS

It was a retrospective study of the cases of uterine fibroids that were managed at the Aminu Kano Teaching Hospital, Kano, Nigeria, between the 1st January 2006 and 31st December 2010. The patients' identification data were retrieved from the gynaecological ward admission and discharge record books and theatre's operation register. Their case notes were retrieved from the Medical Records Department, and analyzed for incidence, age, parity, clinical presentation, type of surgical treatment, intra operative findings and postoperative complications. During the study period, myomectomy was done using the tourniquet method, in which a tourniquet was applied round the lower uterine segment and below the fibroids, to achieve mechanical vasoconstriction on the ascending uterine artery bilaterally. A tourniquet time was kept and the tourniquet was released after 30 minutes and reapplied after 5 minutes to re-establish blood flow and prevent irreversible damage to the uterine muscle cells.

Post operatively, a packed cell volume of less than 30% was considered as anaemia, a temperature of 38°C or more on two consecutive days after the first postoperative day, was considered as pyrexia, dysuria and/or frequency of micturition with positive urine microbiology culture, was taken as urinary tract infection (UTI), and local erythema or suppuration was considered as wound infection.

The data obtained were recorded using tables. Statistical analysis was done with chi-square test using a commercial statistical package (SPSS/PC version 11.0, SPSS Inc., Chicago IL, USA.). The Odds Ratio (OR) and 95%

confidence interval (CI) were determined where appropriate. A P-value of less than 0.05 was considered significant.

RESULTS

During the period of study, there were 12,480 new patients at the gynecological clinic and uterine fibroid was diagnosed in 386 giving a period prevalence of 3.1%. Surgical operations for uterine fibroids were carried out on 319 patients out of 3821 gynecological operations, giving a period prevalence of 8.3% of gynecological operations. 316 folders were retrieved and analysed giving a retrieval rate of 99.1%. The Sociodemographic characteristics of the patients are shown in Table 1. The highest incidence (48.1%) was in the 30-39 years age group, and the lowest (4.4%) was in those 50 years and above. The age range was 21-54 years and the mean age was 36.6 years \pm 7.6 years. Twenty four (7.6%) were nulliparous, while 73 (23.1%) were grand multiparous. The mean parity was 3 \pm 1.5. Table 2 shows the presenting complaints of the patients. Menstrual abnormality, mainly menorrhagia, was the commonest symptom, occurring in 75.9% of the patients. 51.9% presented with abdominal swelling. Lower abdominal pain and dysmenorrhea were present in 146 (46.5%) and 92 (29.1%) patients respectively. 64 (20.3%) patients presented with infertility, of which 37.5% was primary and 62.5% secondary. 63 (19.9%) patients had anemia, 52 (16.5%) had spontaneous abortion, and 2 (0.63%) had a vaginal mass at presentation (fibroid polyp).

The types of surgical procedure performed on the patients are shown in Table 3. Abdominal myomectomy was performed in 138 (43.7%) patients. 178 (56.3%) patients had abdominal

hysterectomy while none had vaginal hysterectomy. Two of the patients initially planned for myomectomy eventually had total abdominal hysterectomy performed on them because of technical difficulty at surgery. Most of the nulliparous patients had abdominal myomectomy (83.3%), whereas hysterectomy was preferred in grandmultiparous patients and most of them (97.3%) had hysterectomy instead of myomectomy. Three out of 58 patients who had myomectomy for infertility conceived afterwards, giving a pregnancy rate of 5.2% within one-year follow-up. Table 4 shows the postoperative complications. Postoperative anemia (23.1%) was the most common complication, followed by pyrexia (20.6%), wound infection (13.0%), and UTI (6.0%). Postoperative anemia (OR = 3.02, CI = 1.69-3.56, $P < 0.05$), and pyrexia (OR = 3.21, CI = 1.74-5.93, $P < 0.05$) showed statistically significant association with myomectomy. Postoperative anemia and pyrexia occurred 3 times more among patients who had myomectomy compared to hysterectomy. There was no statistically significant difference ($P > 0.05$) in the frequency of urinary tract infection and wound infection. There was no mortality.

Table 1: Sociodemographic Characteristics of Patients

Characteristics	Number	%
Age distribution		
20 – 29	41	13.0
30 – 39	152	48.1
40 – 49	109	34.5
= 50	14	4.4
Total	316	100
Mean age = 36.6 years ± 7.6 years		
Parity distribution		
0	24	7.6
1	37	11.7
2	53	16.8
3	85	26.9
4	44	13.9
= 5	73	23.1
Total	316	100
Mean parity = 3 ± 1.5		

Table 2: Clinical Presentation Of Patients

Presentation	No	%
Menstrual abnormalities	240	75.9
Abdominal swelling	164	51.9
Lower Abdominal Pain	147	46.5
Dysmenorrhea	92	29.1
Infertility	64	20.3
• Primary	• 24	• 37.5
• Secondary	• 40	• 62.5
Anemia	63	19.9
Spontaneous abortion	52	16.5
Vaginal mass (fibroid polyp)	2	0.6

Table 3: Type Of Operation Performed

Operation	Number	%
Myomectomy	138	43.7
Abdominal hysterectomy	178	56.3

Table 4: Post Operative Complications

Complications	Myomectomy n= 138		Hysterectomy n= 178		OR	CI	P-value
	No	%	No	%			
Anemia	47	34.1	26	14.6	3.02	1.69-	<0.05*
Pyrexia	43	31.2	22	12.4	3.21	3.56	<0.05*
Wound infection	19	13.8	22	12.4	1.13	1.74-	>0.05
UTI	9	6.5	10	5.6	1.17	0.56-	>0.05
						2.29	
						0.42-	
						3.23	

* =statistically significant.

+ Anemia: PCV of <30%

++ Pyrexia: Temperature of 38 °C or more on at least 2 consecutive days excluding the first 24 hours post operatively.

+++ UTI: dysuria and/or increased frequency with positive urine microbiology culture.

++++ Wound infection: local wound erythema or suppuration.

DISCUSSION

The period prevalence of uterine fibroids found in this study was 3.1%. Surgery for uterine fibroid accounted for 8.3% of all gynecological operations. This is similar to the finding in Gombe in northern Nigeria (8.8%)⁸.

Uterine fibroids occurred most often in the age groups 30 and 39 years (48.1%). This figure is comparable with findings from other centres^{6-8, 27}, which may be because uterine fibroids are uncommon before the age of 30 years and after menopause⁹.

Seven point six percent (7.6%) of the patients were nulliparous, and 23.1% were grandmultiparous. The Study from Gombe in north Eastern Nigeria, where early girl marriage

is also common, similarly recorded a low frequency of nulliparity among their patients⁸. Studies from the southern parts of Nigeria recorded high frequency of nulliparity among the patients^{6, 7}, and this may be because prolonged periods of voluntary infertility from delayed age of marriage, are usually associated with development of uterine fibroids and primary infertility². The major presenting symptoms were menorrhagia, abdominal swelling, lower abdominal pain and infertility. This agrees with the findings from other studies^{6, 8, 27}.

The most common surgical management for uterine fibroids was hysterectomy, done for 56.3% of the patients, while 43.7% had myomectomy. None had vaginal hysterectomy, or other forms of surgical treatment. The two patients that presented with vaginal masses had additional multiple uterine nodules and had hysterectomy done. The high association of uterine fibroids with pelvic inflammatory disease and pelvic adhesions, and the large size of most fibroids in developing countries²⁶, has been found to be the reason why vaginal hysterectomy is not commonly employed in the management of uterine fibroids, because of the technical difficulties that may be involved²⁶. This may explain why vaginal hysterectomy was not employed in the management of uterine fibroids in this study. This is different from the findings in southern Nigeria where myomectomy was the major surgical method of treatment, due to the high frequency of nulliparity among their patients^{6, 7}. Most of the patients who had low parity had myomectomy whereas those with high parity mostly had hysterectomy. Three patients in this study had hysterectomy even though they were

nulliparous. These patients presented with both symptoms of infertility and disturbing menorrhagia, were also perimenopausal and were found to have giant uterine fibroids making myomectomy either unsuitable or technically difficult.

Postoperative anaemia and pyrexia were the commonest postoperative morbidity, which agrees with other studies^{2, 7}. Postoperative anaemia and pyrexia occurred more with myomectomy than hysterectomy, which may probably be due to bleeding into the fibroid cavities and peritoneum, with resultant reactionary pyrexia following myomectomy², so effort must be made to obliterate all dead spaces at surgery². The higher frequency of complications with myomectomy compared to hysterectomy in this study, agree with other studies^{2, 7}, though another study found no significant difference between the complication rates for myomectomy and hysterectomy, and concluded that myomectomy is a safe alternative to hysterectomy²⁵. Reduction of morbidity associated with myomectomy can be achieved by using endoscopic methods like da Vinci Myomectomy, which is a new category of minimally invasive myomectomy, and the latest evolution in robotics technology, which combines the best of open and laparoscopic surgery²⁸. With minimally invasive myomectomy using endoscopic methods, surgeons can remove uterine fibroids through small incisions with unmatched precision and control, and carry out comprehensive reconstruction of the uterine wall, regardless of the size or location of the fibroids. Among the potential benefits of minimally invasive myomectomy using endoscopic methods as compared to traditional open abdominal surgery

are: better opportunity for future pregnancy, significantly less pain, less blood loss, fewer complications with less scarring and possibility of uterine rupture during future pregnancies, a shorter hospital stay, and a faster return to normal daily activities²⁸.

Wound infection and urinary tract infection which did not show statistically significant difference between myomectomy and hysterectomy cases, may be a result of poor environmental and personal hygiene in our community in a developing country, and urethral catheterization, which has been known to predispose to postoperative patients to urinary tract infection²⁶. The uterine tourniquet which was applied round the lower uterine segment and below the fibroids during myomectomy in this study is a mechanical vaso-occlusive technique to achieve mechanical vasoconstriction on the ascending uterine artery bilaterally. It has been found to be associated with low risk of haemorrhage and difficulty with securing haemostasis, as well as post-operative morbidity, shorter mean duration of operation and hospital stay²⁹.

There was no mortality, probably because of meticulous care and the surgeries were done with consultant gynecologist's participation.

CONCLUSION

Surgical operations for uterine fibroids are common gynaecological operations in Aminu Kano Teaching Hospital. Menorrhagia and abdominal swelling were most common presentations. Myomectomy and hysterectomy were the only two modalities for surgical management of uterine fibroids used during the study period. Myomectomy was associated with higher postoperative morbidity than hysterectomy.

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