

# THE SURGICAL TREATMENT OF SYMPTOMATIC UTERINE FIBROIDS AT THE UNIVERSITY OF MAIDUGURI TEACHING HOSPITAL, MAIDUGURI, NIGERIA

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## ABSTRACT

**Background:** Uterine fibroid is commonly seen in our practice and myomectomy and hysterectomy are regular procedures on every gynaecological surgery list in our centre. The only treatment offered for symptomatic uterine fibroids in our environment so far is surgery.

**Objective:** To compare the outcome of abdominal myomectomy and abdominal hysterectomy in the surgical management of uterine leiomyomas.

**Method:** This is a retrospective descriptive study of the outcome of myomectomy and hysterectomy for uterine fibroids at the university of Maiduguri teaching hospital. Hospital records of women with histologically confirmed uterine fibroid who had either abdominal myomectomy or abdominal hysterectomy between January 1, 2003 and December 31, 2007 were reviewed.

**Results:** A total of 221 myomectomies and 110 hysterectomies for uterine fibroids over the study period were reviewed. There was no significant difference in the blood transfusion rates (RR 0.8, 95% CI 0.43- 1.5), postoperative wound infection (RR 2.1 CI 0.6-7.4), wound dehiscence (RR 1.3 95% CI 0.2-6.5), intra operative haemorrhage (RR 0.6 95% CI 0.2-2.0), postoperative pyrexia (RR 1.3 95% CI 0.7- 2.7) and mean duration of hospital stay (myomectomy 8.3 days, hysterectomy 8.2 days P value 0.869) between the hysterectomy and myomectomy groups. Myomectomy was however associated with less mean estimated intraoperative blood loss (myomectomy 364.3ml, hysterectomy 423.6ml; P value 0.004) and decreased risk of intraoperative visceral injury (RR 3.1 95% CI 2.6- 3.6).

**Conclusion:** Myomectomy was associated with a decreased intraoperative blood loss and decreased risk of visceral injury compared with hysterectomy. It can therefore be considered a safe alternative to hysterectomy for symptomatic uterine fibroids. It also has the added advantage of preserving a woman's reproductive function.

**Keywords:** Uterine fibroid; Myomectomy; Hysterectomy; Outcome; Maiduguri

## INTRODUCTION

Uterine leiomyoma (fibroid) is a benign neoplasm composed primarily of smooth muscles with variable amount of connective tissue.<sup>1,2</sup> It is the commonest tumor of the female genital tract occurring in 20 – 50% of women in the reproductive age group.<sup>1,2</sup> Prevalence of 77 - 80% has been reported where detailed search for fibroid was made in postmortem specimen of women<sup>2,3</sup> with 70% occurring in women of reproductive age.<sup>4</sup> It is 3 – 9 times more common in black than in Caucasian women and as many as 50% of black women will have fibroid by the fifth decade.<sup>1,3</sup> It is also more common in women who are nulliparous or of low parity.<sup>2,3</sup> Obesity, consumption of red meat and positive family history are also risk factors. Smoking, prolonged use of oral contraceptives, increasing number of pregnancies carried to term and consumption of green vegetables are said to be protective.<sup>5,6</sup>

The aetiology of uterine fibroid is unknown, however, cytogenetic abnormalities have been observed in chromosomes 6,7,12 and 14. The growth of fibroid has also been observed to be partly dependent on ovarian steroids.<sup>2,5,6</sup>

Abnormal uterine bleeding, infertility and pressure

symptoms are the common presenting symptoms, however, majority of patients are asymptomatic.<sup>7,8,9</sup>

Choice of treatment depends on the age of the patient, parity, pregnancy status, desire for future pregnancy, general health of the patient and size and location of the tumour.<sup>1,3</sup> Treatment of uterine fibroid has historically been surgery, usually hysterectomy or myomectomy. Newer options include medical treatment such as GnRH analogues, minimally invasive therapies such as endometrial ablation, uterine artery embolisation (UAE), magnetic-resonance- guided focused ultrasound surgery (MRgFUS) and laparoscopic myomectomy.<sup>3,5,10</sup> Combination of GnRH analogues and aromatase inhibitors allows a sensible reduction of treatment time, reduction of hypoestrogenic period and lower cost.<sup>11</sup> Both UAE and MRg FUS have limited efficacy when used with really large and multiple fibroids.<sup>10</sup> Laparoscopic myomectomy is also limited by the size and number of fibroids and demands skill which is lacking in most parts of Sub-Saharan Africa. With the huge sizes of uterine fibroids seen in our practice, open laparotomy is still the most appropriate method of treatment of fibroids. Hysterectomy, a permanent solution to the

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problem of fibroids has been found to be more cost effective than myomectomy and UAE but it is not an option for women who wish to enhance or preserve their fertility.<sup>10,12</sup> Potential fertility after UAE is uncertain. Though pregnancies have been reported, it is associated with a high incidence of abortions and placental abnormalities.<sup>13,14,15</sup> It is therefore evident that conventional abdominal myomectomy still has a place in the management of symptomatic fibroid. It is not limited by the size and number of fibroids and improved reproductive outcome has been reported following myomectomy.<sup>1,10</sup> In the developed world the newer treatment options have become the main stay of treatment while conventional myomectomy and abdominal hysterectomy are still the main stay of treatment in our environment. On going studies, however, suggest that uterine artery ligation through the vaginal route may be an effective low cost alternative to UAE.<sup>16</sup>

Currently, abdominal myomectomy and hysterectomy are the surgical methods of treatment of uterine fibroids at the university of Maiduguri teaching Hospital. To date medical treatment has not been attempted due to the cost and non-availability of GnRH analogues. This paper examines the outcome of treatment of uterine fibroids by myomectomy and hysterectomy in our centre. Most available data comparing the morbidity of abdominal myomectomy and hysterectomy are from developed countries which have improved facilities and expertise. There is therefore the need to compare the relative morbidity of abdominal myomectomy and hysterectomy in this environment.

## MATERIALS AND METHODS

A 5 year retrospective review of patients with histologically confirmed uterine fibroid who had either abdominal myomectomy or total abdominal hysterectomy between January 1, 2003 and December 31, 2007 at the university of Maiduguri teaching hospital was carried out. Relevant information was obtained from the patients' case notes, surgeons' operative notes and histopathology report.

The parameters used to assess perioperative morbidity include estimated intraoperative blood loss (using volumetric method), visceral injury at the time of surgery, post operative febrile morbidity (defined as a temperature of 38°C or more after the first 24 hours following surgery after excluding transfusion reaction, malaria, urinary and upper respiratory tract infection), requirement for blood transfusion during or after the surgery and post operative wound infection (defined as fever associated with pain, erythema, induration, purulosanguinous or frank pus discharge at the operation site from the 3<sup>rd</sup> postoperative day) and dehiscence.

Women in whom uterine fibroid were incidentally identified at the time of surgery for other conditions or on histology were excluded from the study.

All patients were given intravenous amoxicillin-clavulanate 1.2g and metronidazole 500mg

intraoperatively. The antibiotics were continued 8 hourly thereafter and then changed to oral tablets when the patient commences oral feeding for a total duration of five days. This is routine for all major gynaecological procedures in the department. The procedures were carried out by senior registrars or consultants. During myomectomy, intraoperative blood loss was minimized by tying Foley's catheter at the lower uterine segment.

Information retrieved was coded and entered on a profoma. Statistical analysis was performed with SPSS version 14.0. Chi square test was used to measure the association between two or more variables and statistically significant differences required a P value of < 0.05. Risk ratios were calculated for categorical variables along with their 95% confidence intervals.

## RESULTS

During the 5 years study period, 331 patients who underwent either abdominal myomectomy (n=221) or total abdominal hysterectomy (n=110) for symptomatic uterine fibroid and were confirmed to have leiomyoma on histology were available for review. Their ages ranged between 22 years and 62 years with majority (44.7%) of the women in their 4th decade. About 50.5% of the study groups were nulliparous and majority married (80.7%) as shown in table 1.

Table 2 shows the symptomatology of uterine fibroid in the study population. Menorrhagia was the most common presenting complaint n=170(50.5%) followed by abdominal swelling n=148(43.9%). Infertility was an associated feature in 39.3% of the patients. Majority n=167(50.5%) of the patients had uterine size ≤ 16 weeks.

Two thirds of the patients (66.8%) had abdominal myomectomy while the remaining underwent total abdominal hysterectomy. Compared with hysterectomy, younger, nulliparous and unmarried women were more likely to be treated with myomectomy than the older, parous women. Uterine size had no influence on the choice of procedure. This is illustrated in Table 3.

The overall complication rates for myomectomy and hysterectomy were 22.6% and 20% respectively. Although the mean estimated intraoperative blood loss was significantly less with the myomectomy group (P 0.004), the risks of intraoperative haemorrhage (RR 0.6 CI 0.2-2.0), proportion of patients transfused intra/postoperatively (RR 0.79 CI 0.4-1.5) and mean duration of hospital stay (P 0.869) did not differ significantly between the two groups. Patients who had myomectomy were 1.3 times more likely to have postoperative pyrexia compared to the hysterectomy group. However, the risk for wound infection (RR 2.1 CI 0.6-7.4) and dehiscence (RR 1.3 CI 0.2-6.6) were not significantly different between the two groups. Hysterectomy was associated with 3 times risk of visceral injury compared with myomectomy. There were 3 cases of visceral injury and all occurred in the hysterectomy group (table 4).

**Table 1: Socio-demographic characteristics of patients in the study**

VARIABLE	NO OF PATIENTS	PROPORTION (%)
<b>Age group</b>		
21–30	76	23.00
31–40	148	44.70
41–50	89	26.90
51–60	17	5.10
≥61	1	0.3
Total	331	100
<b>Parity</b>		
0	167	50.50
1–4	126	38.10
≥5	38	11.50
Total	331	100
<b>Marital status</b>		
Married	267	80.70
Single	54	16.30
Divorced	5	1.50
Widowed	5	1.50
Total	331	100

**Table 2: Clinical presentation of patients**

VARIABLE	NO OF PATIENTS	PROPORTION (%)
<b>Symptoms</b>		
Menorrhagia	170	50.5
Abdominal swelling	148	43.9
Inability to conceive	130	39.3
Abdominal pain	123	36.5
Irregular menses	78	23.2
Recurrent abortion	46	13.7
Others	21	6.2
Pressure symptoms	8	2.4
<b>Uterine size (weeks)</b>		
≤ 16	167	50.5
18–20	109	32.9
22–24	34	10.3
26–28	7	2.1
≥ 30	14	4.2
Total	331	100

**Table 3: preoperative characteristics of patients according to type of surgery**

Variable	Myomectomy n=221(%)	Hysterectomy n=110(%)	RR (95 CI) or P value
Mean age(yrs)(SD)	33.55(5.273)	45.45(6.629)	0.001(0.000-0.002)
<b>Marital status</b>			
Married	170(76.9)	97(88.2)	
Unmarried	51(23.1)	13(11.8)	0.447(0.231-0.863)
<b>Parity</b>			
Nulliparous	130(58.8)	37(33.6)	
Parous	91(41.2)	73(66.4)	2.819(1.748-4.545)
<b>Uterine size(weeks)</b>			
≤16	111(50.2)	56(50.9)	
18-20	75(33.9)	34(30.9)	
22-24	23(10.4)	11(10.0)	
26-28	4(1.8)	3(2.7)	
≥30	8(3.6)	6(5.5)	
Total	221	110	0.894(0.132-1.436)

**Table 4: complications associated with myomectomy and hysterectomy**

Surgical complication	Myomectomy n=221	Hysterectomy n=110	RR (95% CI) or P- value
Estimated mean intraoperative blood loss(ml)	364.3	423.6	0.004(0.002-0.007)
Mean duration of hospital stay in days(S.D)	8.3(2.70)	8.2(2.80)	0.869(0.641-1.63)
Intra/postoperative blood transfusion (%)	33(14.9)	20(18.1)	0.79(0.4-1.5)
Wound infection (%)	12(5.4)	3(2.7)	2.1(0.6- 7.4)
Wound dehiscence (%)	5(2.3)	2(1.7)	1.3(0.2-6.6)
Haemorrhage (%)	6(2.7)	5(4.5)	0.6(0.2-2.0)
Postoperative pyrexia (%)	31(14.0)	12(10.9)	1.3(0.7-2.7)
Intraoperative visceral injury (%)	0(0.0)	3(2.7)	3.1(2.6-3.6)

**DISCUSSION**

Hysterectomy is second only to caesarean section as the most frequently performed major operation in the United States. The commonest indication for hysterectomy being abnormal uterine bleeding; usually due to uterine fibroids. Uterine fibroid has also been described as the leading cause of hysterectomy in premenopausal women in the United Kingdom.<sup>17,18</sup> About 63.3% of hysterectomies performed in the University of Maiduguri Teaching Hospital were due to uterine fibroids.<sup>19</sup> Hysterectomy, though a permanent solution to the problem of uterine fibroid is associated with increased risk of visceral damage and intraoperative bleeding.<sup>20</sup> Long term effects of hysterectomy include psychosexual dysfunction, early ovarian failure, increased risk of cardiovascular disease and osteoporosis.<sup>17</sup>

Current trend in clinical practice is geared towards uterine preservation. This is especially important in black Africa where the prevalence of uterine fibroid is high and child birth is an important part of our culture and so most women will like to keep their uterus.<sup>2</sup> In this study, the intraoperative blood loss, postoperative pyrexia, wound infection, blood transfusion and duration of hospital stay associated with myomectomy were compared with those who had hysterectomy. The average age and parity of women undergoing myomectomy was significantly lower than that of the hysterectomy group as was also observed by

Hackethal A et al, Rouzi AA et al and Mohammed et al.<sup>21,22,23</sup>

This may not be unrelated to the fact that myomectomy is usually done as a fertility enhancing procedure. In this study, 39.3% of the patients had associated infertility. This is similar to what was reported by Mohammed et al from Zaria<sup>24</sup> but more than that reported by Aboyeji et al from Ilorin.<sup>25</sup>

The risk of postoperative pyrexia is difficult to compare because of variations in definition. Axillary temperature of  $\geq 38^{\circ}\text{C}$  after the first 24 hours postoperatively after excluding malaria, transfusion reaction, urinary and respiratory tract infections was regarded as pyrexia in this study. This is to give room for the transient elevation of body temperature that may occur due to tissue necrosis in the uterus or intraperitoneal blood which resolves spontaneously. The risk of postoperative pyrexia was observed to be slightly greater in the myomectomy group. This is in contrast to what was observed by Nuruddin BM et al and Shumshad et al<sup>9,25</sup> who used a similar definition of postoperative pyrexia. Iverson RE et al considered pyrexia in the first 48 hours and reported a higher risk (3.2 times) of postoperative pyrexia in the myomectomy group compared to the hysterectomy group.<sup>27</sup>

Myomectomy was associated with decreased average blood loss as was also reported by Iverson RE et al.<sup>26</sup>

Hackethal A et al and Rouzi AA et al reported no significant difference in the estimated blood loss between the myomectomy and hysterectomy groups.<sup>22,23</sup>

The clinical presentation of the patient will affect the intraoperative blood loss by either method. In our environment, patients present with huge fibroids sometimes greater than 30 weeks gestational size as seen in this study. To perform abdominal hysterectomy in such patients, clamping the pedicles are more difficult, the pelvis is highly vascularized by the tumour and sometimes fibroids need to be debulked to gain access into the pelvis. Hysterectomy will inevitably lead to more blood loss in such cases. In developed countries, the patients present earlier and the relatively smaller uteri are easier to operate.

No visceral injury was observed in the myomectomy group while hysterectomy was associated with a 3 times increased risk of visceral injury. Iverson et al reported the

same finding, however Nuruddin et al found no significant difference in the risk of visceral injury between the two groups.<sup>9,26</sup> During myomectomy, the uterus is delivered per abdomen and thereby shielding the bowels from injury. In hysterectomy, the ureters which course under the uterine arteries are susceptible to injury. Where there are pelvic adhesions, the bowels may also be injured.

There was no significant difference in the risk of wound infection/ dehiscence, bleeding, blood transfusion and duration of hospital stay as was reported by Rouzi AA et al, Iverson et al and Sawin SW et al.<sup>22,26,27</sup>

In conclusion, given the low risk of visceral injury and decreased blood loss at surgery, myomectomy, though has a slight risk of postoperative pyrexia may be considered a safer procedure than hysterectomy in our environment. However, a clinical trial may be needed to verify this finding.

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