

# Indications and outcome of abdominal myomectomy in University of Maiduguri Teaching Hospital: Review of ten year

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## ABSTRACT

**Background:** Abdominal myomectomy is a common modality of treatment for large and symptomatic uterine fibroid in women who wish to retain their fertility. Though frequently performed the procedure may still be associated with complications. **Materials and Methods:** A retrospective review of all patients who had abdominal myomectomy from January 1999 to December 2008 at the University of Maiduguri Teaching Hospital. Information on the Sociodemographic characteristics, indication for the myomectomy, uterine size, pre and post operative packed cell volume (PCV), intraoperative findings, cadre of surgeon, duration of hospital stay and complications were obtained. **Results:** The rate of abdominal myomectomy was 3.34%. Majority of the patients (79.8%) aged 30–49 years, and most (58.9%) were nulliparas. Abdominal mass (63.7%), menorrhagia (57.7%), and subfertility 55.2% were the leading indications for abdominal myomectomy. Complications were seen in 10.9% of the cases, 55.5 % of which were wound infections. Clinical and intra operative factors associated with complications included menorrhagia ( $P=0.003$ ), estimated blood loss (EBL)  $\geq 500$ mls ( $P=0.005$ ) and post operative PCV of  $<30\%$  ( $P=0.081$ ). **Conclusion:** Complication rate after myomectomy was low with menorrhagia and EBL  $\geq 500$  mls being significantly associated with development of complication.

**Key words:** Abdominal myomectomy, complications, indications, University of Maiduguri Teaching Hospital

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## INTRODUCTION

Myomectomy is the surgical removal of the uterine fibroids. It is the commonest conservative surgical procedure which is offered to patients with symptomatic uterine fibroids<sup>1,2</sup> and as a fertility enhancing procedure to some women with uterine fibroid when no other cause for sub fertility is evident.<sup>3,4</sup> Myomectomy is commonly done through the abdominal route but it can also be performed laparoscopically, hysteroscopically, or via the vaginal.<sup>3</sup>

Recently, there has been a gradual increase in the number of abdominal myomectomy performed in the UK<sup>3,4</sup> and also in the USA.<sup>4,5</sup> In Nigeria, the abdominal route was commonly employed<sup>5-7</sup> because the procedure of abdominal

myomectomy remains the only option in the case of large multiple fibroids, which is the commonest presentation. In UMTH, myomectomy is the treatment modality for 64% of cases admitted with uterine fibroid<sup>8</sup> and all were done through the abdominal route.

Traditionally, abdominal myomectomy is a procedure in which a large surgical incision is made on the abdomen through which the pelvic cavity is entered to surgically remove myomas in the uterus but recently a mini laparotomy technique has been described using a self retaining atraumatic abdominal retractor.<sup>6</sup>

As with most surgical procedures myomectomy may be associated with intra-operative and postoperative complications, with hemorrhage, being the most common complication.<sup>3,4</sup> Pyrexia may occur. It is common if blood loss during the procedure is high or the number of myoma removed is multiple. Pyrexia may persist if there is underlying infection hence the need for prophylactic antibiotics and aseptic technique. Other complications associated with the procedure are wound infection and even burst abdomen, anesthetic

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complications, and delayed complications including adhesion formation, reoccurrence, and uterine rupture during pregnancy.

With advances in surgical control of intraoperative bleeding during myomectomy along with safe anesthesia and blood transfusion abdominal myomectomy had become a safer procedure nowadays,<sup>9,10</sup> but it can still be associated with complications.

The aim of this study is to determine the indications and factors associated with development of complication in patients that undergo abdominal myomectomy. This information will help in counseling and prevention.

## MATERIALS AND METHODS

This was a retrospective study of women who had abdominal myomectomy at the University of Maiduguri Teaching Hospital (UMTH) from 1999 to 2008. Information was obtained from the gynecological ward register, theatre records, anesthetist operation charts and retrieved patients case files. Data was collected on the demographic and pre operative characteristics of the patients including the age, parity, education, indication for the myomectomy, uterine size, pre operative PCV and cadre of surgeon. Peri operative data collected included the duration of operating time, number of myoma, location of myoma, estimated blood loss (EBL), intraoperative and postoperative complications, postoperative hematocrit and duration of hospital stay.

All the abdominal myomectomy were performed by consultant, senior registrar, or registrar using standard operative technique. Surgery was performed under general anesthesia or regional anesthesia in dorsal position. The abdomen was entered either through a pfannensteil or subumbilical midline incision depending on the uterine size. Pericervical tourniquet with Foleys catheter (size 14 G) was applied to reduce intraoperative blood loss and was released intermittently to prevent ischemia. Fibroid cavities were closed with delayed absorbable suture. Prophylactic antibiotics were administered to all patients and postoperative management was essentially in accordance with the established department guidelines.

Duration of operation was defined as the time between the skin incision and skin closure as indicated on the anesthetist operation charts. EBL was recorded from the operation notes as reported by the anaesthetic team. Hemorrhage was defined as bleeding that affect the hemodynamic status of the patient that occurs within 24 hours to 7 days after surgery. Wound infection is the discharge of pus from incision occurring 5–7 days after surgery and febrile morbidity was pyrexia of 38°C or above occurring 24 hours after surgery.

The data were analysed using SPSS version 13 (SPSS, Chicago Ill, USA) and presented as numbers and percentages. Chi square ( $\chi^2$ ) was used to determine clinical and intraoperative factors associated with development of complication in the group. *P* value of <0.05 was considered significant. Ethical clearance was obtained from the UMTH ethical committee.

## RESULTS

During the study period there were a total of 7412 patients admitted into the gynecology ward and a total of 259 women had abdominal myomectomy on account of uterine fibroid giving a rate of 3.34%. The case files of 248 women with complete data set were included in the analysis, a retrieval rate of 95.7%.

Majority of the women 198 (79.8%) were in the 30–49 years age group. Most (58.9%) of the women were nulliparae and majority, 162 (65.3%), are educated as shown in Table 1.

Table 2 shows the indication for the myomectomy. Abdominal mass was the leading indication (63.7%), followed by menorrhagia (57.7%) and subfertility (55.2%).

In Table 3, the clinical and intraoperative findings of the study group are shown. In majority of the cases, 215 (86.7%), the uterine size was 12–20 weeks of gestation and pre-operative PCV range was 30–35% in 121 (48.8%), although 37 (14.9%) had a pre-operative PCV of <30%. In 54 (21.8%) cases, the number of myoma was greater than 10 and in majority of the cases (73.4%) the location of the myoma was combined (both intramural, subserosal, and submucous). In 196 (79.0%) of the cases, the EBL is <500 mls and majority of the procedure (60.5%) were performed by consultant.

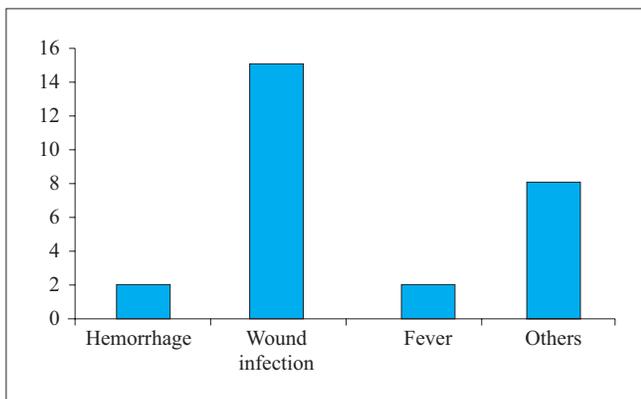
Figure 1 shows the complications of the myomectomy in the study population. Only 27 patients had complications

**Table 1: Socio demographic characteristics of the study group**

Characteristics	Frequency	Percentage
Age		
<30	46	18.5
30–49	198	79.8
>50	4	1.6
Total	248	100
Parity group		
0	146	58.9
1–5	89	35.9
>5	13	5.2
Total	248	100
Education		
Educated	162	65.3
Uneducated	86	34.7
Total	248	100

**Table 2: Indications of the myomectomy in the study group**

Indications	Frequency	Percentage
Abdominal mass		
Yes	158	63.7
No	90	36.3
Total	248	100
Subfertility		
Yes	137	55.2
No	111	44.8
Total	248	100
Menorrhagia		
Yes	143	57.7
No	105	42.3
Total	248	100
Others		
Yes	2	0.8
No	246	99.2
Total	248	100

**Figure 1:** Complications of the myomectomy in the study group ( $n=27$ )

giving a percentage of 10.9% and among the complications wound infection was the most frequent 15 (55.5%).

Tables 4 and 5 show the clinical and intraoperative and postoperative factors which are associated with development of complications. Menorrhagia as an indication for myomectomy ( $P=0.003$ ) and EBL of  $\geq 500$  mls ( $P=0.005$ ) were found to be significantly associated with development of complication while having postoperative PCV  $<30\%$  is tending towards statistical significance ( $P=0.081$ ). On the other hand having abdominal mass ( $P=0.50$ ), dysmenorrhoea ( $P=0.199$ ) or subfertility ( $P=0.325$ ) as indication myomectomy were not associated with development of complication and so also pre-operative PCV ( $P=0.128$ ), uterine size ( $P=0.108$ ), number of myoma ( $P=0.57$ ), and cadre of surgeon ( $P=0.502$ ).

## DISCUSSION

The rate of abdominal myomectomy of 3.34% found in this study was higher than 1.55% seen at Ile Ife.<sup>11</sup> This could be attributed to the period of the Ile Ife study, which was shorter compared to this study and recently there has

**Table 3: Clinical and intraoperative findings in the study group**

Findings	Frequency( $n=248$ )	Percentage
Uterine size		
$<12$ weeks	11	4.4
$12-20$ weeks	215	86.7
$>20$ weeks	22	8.9
Pre OP PCV		
$<30$	37	14.9
$30-35$	121	48.8
$>35$	90	36.3
No. of myomas		
1	36	14.5
$2-10$	158	63.7
$>10$	54	21.8
Location of myoma		
Intramural	43	17.3
Subserous	8	3.2
Submucous	9	3.6
Combined	182	73.4
Others	6	2.4
Pelvic adhesion		
Yes	70	28.2
No	178	71.8
Duration of surgery		
$<60$ minutes	13	5.2
$60-120$ min	216	87.1
$>120$ min	19	7.7
EBL		
$<500$ ml	196	79.0
$\geq 500$ ml	52	21.0
Post Op PCV		
$<30$	37	14.9
$30-35$	121	48.8
$>35$	90	36.3
Cadre of surgeon		
Registrar	5	2.0
Senior registrar	93	37.5
Consultant	150	60.5
Duration of hospital stay		
$<7$	13	5.2
$>7$	235	94.8

EBL – Estimated blood loss; PCV – Packed cell volume

been an increase in number of patients seen at tertiary health center like ours. The study done at Ile Ife was done 5 years earlier.

Majority of the patients were within the age group of 30–49 years with a percentage of 78.4%. This is because leiomyoma is more prevalent in this group. Most of the patients (63.7%) presented with abdominal mass similar to the finding of the Ile Ife study.

Menorrhagia accounts for 57.3% and subfertility for 55% of the patients that had abdominal myomectomy in this study. The finding of menorrhagia in 57.3% was similar to 52.2% but lower than 60.25% reported Ile Ife<sup>11</sup> and Zaria<sup>12</sup> respectively. Menorrhagia is a common indication for abdominal myomectomy and it may occur as a result of increased vascularity of the uterus, congestion and dilatation of the endometrial venous plexus by fibroids impinging and obstructing

**Table 4: Clinical factors associated with development complication in the study group**

Factors	Complications			Chi-square	P value
	Yes (%)	No (%)	Total (%)		
Menorrhagia					
Yes	18 (17.1)	87 (82.9)	105 (100)	8.604	0.003
No	8 (5.6)	135 (94.4)	143 (100)		
Abdominal mass					
Yes	15 (9.5)	143 (90.5)	158 (100)	0.455	0.500
No	11 (12.2)	79 (87.8)	90 (100)		
Dysmenorrhea					
Yes	4 (6.3)	60 (93.8)	64 (100)	1.648	0.199
No	22 (12.0)	162 (88.0)	184 (100)		
Subfertility					
Yes	12 (8.8)	125 (91.2)	137 (100)	0.236	0.325
No	14 (12.6)	97 (87.4)	111 (100)		
PCV					
<30	2 (5.4)	35 (94.6)	37 (100)	4.119	0.128
30-35	10 (8.3)	111 (91.7)	121 (100)		
>35	149 (15.6)	76 (84.4)	90 (100)		
Uterine size					
<12 wks	0 (0)	11 (100.0)	11 (100)	4.458	0.108
12-20 wks	26 (12.1)	189 (87.9)	215 (100)		
>20 wks	0 (0)	22 (100)	22 (100)		

PCV – Packed cell volume

veins in the myometrium and increased anovulatory cycles. Menorrhagia as an indication for myomectomy was significantly associated with development of complication. This could be attributed to the increased blood loss pre-operatively leading to anemia and the anemia could lead to wound infection and subsequently poor wound healing.

Majority of the patient's pre-operative PCV was between 30–35%. This could be because most patients are stabilized before being taken to the theatre for surgery. Intraoperatively, majority of the patients had multiple fibroids and their location combined, as was seen in 63.7% and 73.4% of the patients, respectively. This might result to an unfavorable outcome of abdominal myomectomy because the surgeon spends more time if there are multiple uterine fibroids resulting to more blood loss and the patients spends more time under anesthesia, though in this study the duration of time spent was between 60–120 minutes in majority of patients (87.1%) indicating that operation period was not prolonged. In fact, duration of operation was found not to be a significant factor for development of complication in this study ( $P=0.446$ ).

Complication was seen in 10.9% of patients which was lower than what was seen at Ile Ife (14.6%)<sup>11</sup> and Nnewi (23.7%).<sup>13</sup> This may be because most of the operation (60.5%) was performed by a consultant.

The estimated blood loss was less than 500 ml in 79% of the cases and with a mean of 313 ml. This was similar to

the finding of the Nnewi study, which showed the average blood loss during operation was 480 ml. This may be as a result of the use of tourniquet to occlude the uterine blood vessels in order to reduce blood loss during surgery. Estimated blood loss of  $\geq 500$  ml was shown to be significant determinant of development of complication ( $P=0.005$ ). EBL  $> 500$  ml could result in postoperative anemia and therefore risk of infection as wound infection constituted majority of the complication seen in 6.1% of the cases in this study, similar to the finding at Nnewi 13 of 7% and Ile Ife of 6.8%. Postoperative pyrexia was seen in 0.8% of patients. This may indicate that there was no much blood loss into the peritoneal cavity during the operation and no dead space was left in the myoma beds, as these are the most important cause of post operative pyrexia. Hemorrhage as a complication was minimal with a percentage of 0.8%. This was less than 1.6%<sup>8</sup> that was seen in this centre in a previous study.<sup>8</sup> Use of tourniquet in all procedure allow a clean field for proper suturing of the myoma beds thereby reducing chances of hemorrhage. No mortality was recorded in this study.

## CONCLUSION

Complications after myomectomy was found to be low in this study and menorrhagia as an indication of the myomectomy, EBL  $\geq 500$  ml and postoperative  $< 30\%$  were found to be significantly associated with development of complication. It is recommended that cases of uterine with menorrhagia should be optimized before myomectomy

**Table 5: Operative factors associated with development complication in the study group**

Factors	Complications			Chi-square	P value
	Yes (%)	No (%)	Total (%)		
No. of myoma group					
1	3 (8.3)	33 (91.7)	36 (100)		
2-10	19 (12.0)	139 (88.0)	158 (100)		
>10	4 (7.4)	50 (92.6)	54 (100)	1.1229	0.571
Location of myoma					
Intramural	4 (9.3)	39 (90.7)	43 (100)		
Subserous	19 (12.5)	7 (87.5)	8 (100)		
Submucous	1 (11.1)	8 (88.9)	9 (100)		
Combined	18 (9.9)	164 (90.9)	182 (100)		
Others	2 (33.3)	4 (66.7)	6 (100)	3.509	0.477
Pelvic adhesions					
Yes	8 (11.4)	62 (88.6)	70 (100)		
No	18 (10.1)	160 (89.9)	178 (100)	0.093	0.761
Duration of opt					
<60 min	0 (0)	13 (100)	13 (100)		
60-120 min	24 (11.1)	192 (88.9)	216 (100)		
>120 min	2 (10.5)	17 (89.5)	19 (100)	1.6139	0.446
Cadre of surgeon					
Registrar	0 (0)	5 (100)	5 (100)		
SR	12 (12.9)	81 (87.1)	93 (100)		
Consultant	14 (9.3)	136 (90.7)	150 (100)	1.377	0.502
EBL					
<500 mls	15 (7.7)	181 (92.3)	190 (100)		
≥500 mls	11 (21.2)	41 (78.8)	52 (100)	7.982	0.005
Duration hospital stay					
<7	2 (15.4)	11 (84.6)	13 (100)		
≥7	24 (10.2)	211 (89.8)	235 (100)	0.351	0.553
Post op PCV					
<30	10 (16.4)	51 (83.6)	61 (100)		
≥30	16 (8.6)	71 (91.4)	187 (100)	3.010	0.083

PCV – Packed cell volume; EBL – Estimated blood loss; SR

and effort should be made at reducing blood loss during the procedure to prevent development of complications.

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