**Prevalence and outcomes of Myomectomy in a tertiary hospital in Southern Nigeria from 2016 to 2020**


## ABSTRACT

**Background:** Uterine fibroids affect adversely various age groups especially the reproductive age. Abdominal myomectomy is the most common treatment in this environment. The aim of the study was to determine the prevalence of myomectomy, post-operative complications, duration of hospital stay and association between the patients' characteristics, clinical presentation and estimated blood loss at the Rivers State University Teaching Hospital (RSUTH).

**Methods:** A retrospective descriptive study on women who had abdominal myomectomy over a period of 5 years from 1st January, 2016 to 31st December, 2020 at RSUTH. A structured proforma was designed and used to extract data from gynaecology ward, operating theatre registers and the hospital medical records. Data was entered and analyzed using the statistical package for social sciences (SPSS) IBM version 25.0 (Armonk, NY). Continuous variables are expressed in means± standard deviations and categorical variables are recorded in frequencies and percentages. Chi square test was used for association between patients' characteristics, their clinical presentation and estimated blood loss with p value at <0.05.

**Results:** A total of 1682 gynaecological surgeries were done over the study period. Four hundred and six had abdominal myomectomy giving a prevalence of 24.1%. Of the 468 uterine fibroids surgeries done over the study period, 406 (86.7%) were abdominal myomectomies while 13.3% had abdominal hysterectomies. Mean age was 36.63 ± 5.09 years. Range of parity was Para 0–3. Most were married, aged 30-35 years, nulliparous and had tertiary level of education. Menorrhagia was the most common presenting symptom. Mean blood loss was 516.5± 245.05mls. Majority lost <500mls of blood and did not have any post-operative complication. The average length of hospital stay was 5-7 days. There was no association between patients' characteristics, their clinical presentation and estimated blood loss.

**Conclusion**: Abdominal myomectomy remains the most common treatment for uterine fibroids in our environment. Routine checkups is encouraged to detect and possibly treat it early with other less invasive methods.



**Keywords:** myomectomy, prevalence, post-operative, complications, hospital stay.




## 1. INTRODUCTION

Abdominal myomectomy is the surgical removal of fibroid tissue through the abdominal route and is said to be the commonest method of treating uterine fibroid.[1-3] It involves the enucleation of the myoma from the uterus leaving behind a potentially functioning organ capable of future reproduction and the surgeon should be satisfied with the operation designed to serve the objective.[4,5] It is a modality of treatment for large and symptomatic uterine fibroids in women under the age of 40 years, who are of low parity and desire to maintain their fertility or reproductive function, when the procedure is surgically feasible and there is a reasonably good chance of subsequent pregnancy.[6-8] Also myomectomies are more commonly performed than hysterectomies, due to the fact that our women desire to retain their uterus for psychological and cultural reasons even after completing their families.[5,9] Apart from reproductive concerns in women desirous of future fertility, the wish to preserve the menstrual function in parous women should be judiciously considered especially in this environment.[10,11] Indications for abdominal myomectomy include infertility secondary to uterine fibroids, recurrent pregnancy loss, dysmenorrhea, lower abdominal swelling, urinary frequency.[2,6,7] Others are persistent uterine bleeding despite medical therapy, excessive abdominal pain or pressure symptoms and sub serous pedunculated fibroids.[4,12,13]

Haemorrhage remains a very common complication during and after abdominal myomectomy and this explains the use of tourniquets during the procedure.[11,14,15] Other measures to minimize blood loss include; preoperative treatment with GnRH analogues, which reduces the vascularity of the tumour, use of synthetic vasopressin which causes vasoconstriction, use of Victor Bonney's specially designed clamp to reduce uterine artery blood flow, controlled hypotensive anaesthesia using sodium nitroprusside to reduce venous tone, use of uterotonic medications such as carbetocin, oxytocin, ergometrine, misoprostol, use of anti fibrinolytics, e. g. aprotinin, tranexamic acid.[4,16-18]

Other complications associated with abdominal myomectomy could be intraoperative or postoperative.[5,19] Intraoperative complications include; injury to adjacent organs (such as bowel, ureter, urinary bladder), and anaesthetic complications.[18,20] Intraoperative blood loss is variable, depending on the size and location of the uterine fibroid. In some cases, women who undergo the procedure for desire to bear children face the sad outcome of hysterectomy for uncontrollable haemorrhage.[11,19] Postoperative complications include; pyrexia, wound hematoma, infection, risk of recurrence and persistence of fibroid as seen in about 30-50% of cases, risk of persistence of menorrhagia in about 1-5% cases, risk of re-laparatomy in about 1-5% and subfertility.[16,19] Pregnancy following myomectomy should have a mandatory hospital delivery, although the chance of scar rupture is rare. This should be communicated to the patient post myomectomy.[17]

Contraindications of myomectomy include: infected fibroid, growth of myoma after menopause, suspected malignant change (sarcoma), parous women where hysterectomy is safer and is a definitive treatment, functionless fallopian tubes (bilateral hydrosalpinx, tubo-ovarian mass).[2,18] Uterine fibroids are the most common benign tumors in women of child bearing age,

especially in black women.[2,7] They account for 3.2-7.6% of new gynaecological cases and 68.1% of hysterectomies.[20] In the management of uterine fibroids, medical therapy though an option is very expensive, not curative and the side effects are not welcomed.[14] Radiological intervention is still in its infancy in the West African sub-region and though quite effective, is not readily available. Therefore, abdominal myomectomy is the commonest method of treating uterine fibroids. [1,4,11,12] Therefore we determined the prevalence of myomectomy, post-operative complications, duration of hospital stay and association between the patients characteristics, clinical presentation and estimated blood loss at the study centre.

## 2. METHODOLGY:

The study is a retrospective hospital-based descriptive study of 406 women with uterine fibroids who had abdominal myomectomy over a period of 5 years from 1st January, 2016 to 31st December, 2020 at Rivers State University Teaching Hospital, Port Harcourt. The hospital is a 256-bed tertiary health facility with 12 clinical departments, which offers in/out patient and emergency medical services. It is also a centre for training of undergraduate medical students and other medically related courses. The hospital trains postgraduate doctors in all medical fields. Situated in Port Harcourt, the capital of Rivers State, it is a referral centre of the State and its neighbouring States including Bayelsa, Akwa-Ibom, Abia and Imo States.

A structured proforma was designed and used to extract data from gynaecological ward and operating theatre registers and the hospital medical records. Permission was obtained from the Head of Department of Records for retrieval of the folders. Information included socio-demographic characteristics, clinical presentations, types of surgery done, type of surgical incision, estimated blood loss, post-operative complications and duration of hospital stay. Detailed information on operative procedures is further maintained in the operation theatre register. Data was entered and analyzed using the statistical package for social sciences (SPSS) IBM version 25.0 (Armonk, NY). Continuous variables are expressed in means$\pm$ standard deviations and categorical variables are recorded in frequencies and percentages. Chi square test was used for association between patients' characteristics, their clinical presentation and estimated blood loss with p value at $<0.05$. The study was approved by the Ethics Review Committee of the hospital.

## 3. RESULTS

A total of 1682 gynaecological surgeries were done over the study period. Four hundred and six had abdominal myomectomy giving a prevalence of 24.1%. Of the 468 uterine fibroids surgeries done over the study period, 406 (86.7%) were abdominal myomectomies while 13.3% had abdominal hysterectomies. Mean age was 36.63 $\pm$ 5.09 years. Range of parity was Para 0–3. Most (52%) were married, 291 (71.7%) were aged between 30-40 years, with age group 30-35 years (37.7%) slightly higher than age group 36-40 years (34.5%). Most of the women were nulliparous (81.8%), Christian (99.5%) and had tertiary level of education (70.2%). This is shown in table 1**.** Menorrhagia (69.7%) was the most common presenting symptom.

Mean blood loss of participants was 516.5± 245.05mls. Majority (52.5%) lost <500mls of blood, 44.4% lost 500-1000mls of blood and 3.2% lost >1000mls of blood. This is shown in table 2. Two hundred and fifty five (62.8%) women had midline sub-umbilical skin incision while 151 (37.2%) had transverse supra-pubic incision. This is shown in figure 1. Post-operative complications is shown in table 3. More than half of the participants (58.4%) did not have any complications after the surgery. 25.6% had anaemia, 6.4% had pyrexia, 5.9% had prolonged hospital stay of more than 7 days, 2.2% had wound infection and 1.5% had paralytic ileus. There was no death from myomectomy.

The average length of hospital stay was 5-7 days and most (90.4 %) stay in the hospital was also for 5-7 days. This is shown in figure 2. There was no association between patients' characteristics, their clinical presentation and estimated blood loss as shown in tables 4 and 5.

**TABLE 1: Socio-demographic characteristics of participants**

| **Variable** | **Frequency** | **Percentage (%)** |
|---|---|---|
| **Age (years)** | | |
| <30 | 26 | 6.4 |
| 30-35 | 151 | 37.2 |
| 36-40 | 140 | 34.5 |
| >40 | 89 | 21.9 |
| **Total** | **406** | **100** |
| | | |
| **Parity** | | |
| 0 | 332 | 81.8 |
| 1 | 55 | 13.6 |
| 2 | 16 | 3.9 |
| >2 | 3 | 0.7 |
| **Total** | **406** | **100** |
| | | |
| **Marital status** | | |
| Married | 211 | 52.0 |
| Single | 195 | 48.0 |
| **Total** | **406** | **100** |
| | | |
| **Educational Status** | | |

| | | |
|---|---|---|
| Primary | 16 | 3.9 |
| Secondary | 105 | 25.9 |
| Tertiary | 285 | 70.2 |
| **Total** | **406** | **100** |
| | | |
| **Religion** | | |
| Christian | 404 | 99.5 |
| Moslem | 2 | 0.5 |
| **Total** | **406** | **100** |

**Table 2: Estimated blood loss (EBL) of participants**

| EBL (mls) | Frequency | Percentage (%) |
|---|---|---|
| <500 | 213 | 52.5 |
| 500-1000 | 180 | 44.4 |
| >1000 | 13 | 3.2 |
| **Total** | **406** | **100** |

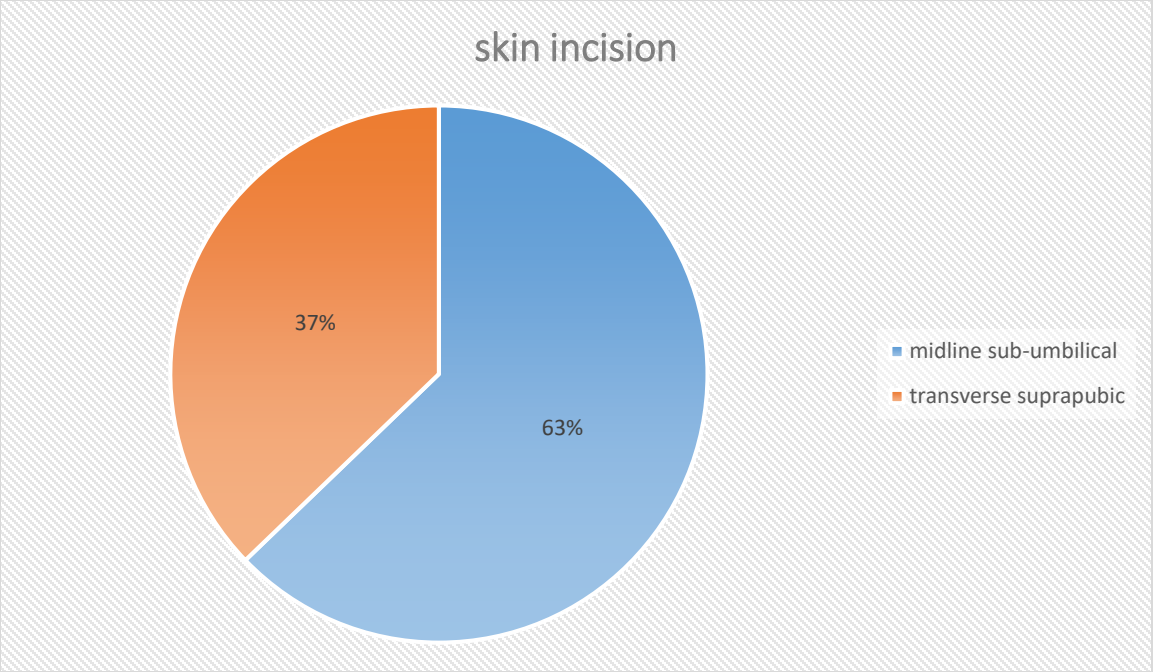


**Figure 1: Type of skin incision**

**Table 3: Post-operative complications of the participants**

| **Complications** | **Frequency** | **Percentage (%)** |
|---|---|---|
| None | 237 | 58.4 |
| Anaemia | 104 | 25.6 |
| Pyrexia $\geq 38^0$C | 26 | 6.4 |
| Prolonged hospital stay | 24 | 5.9 |
| Wound infection | 9 | 2.2 |
| Paralytic ileus | 6 | 1.5 |
| **Total** | **406** | **100** |

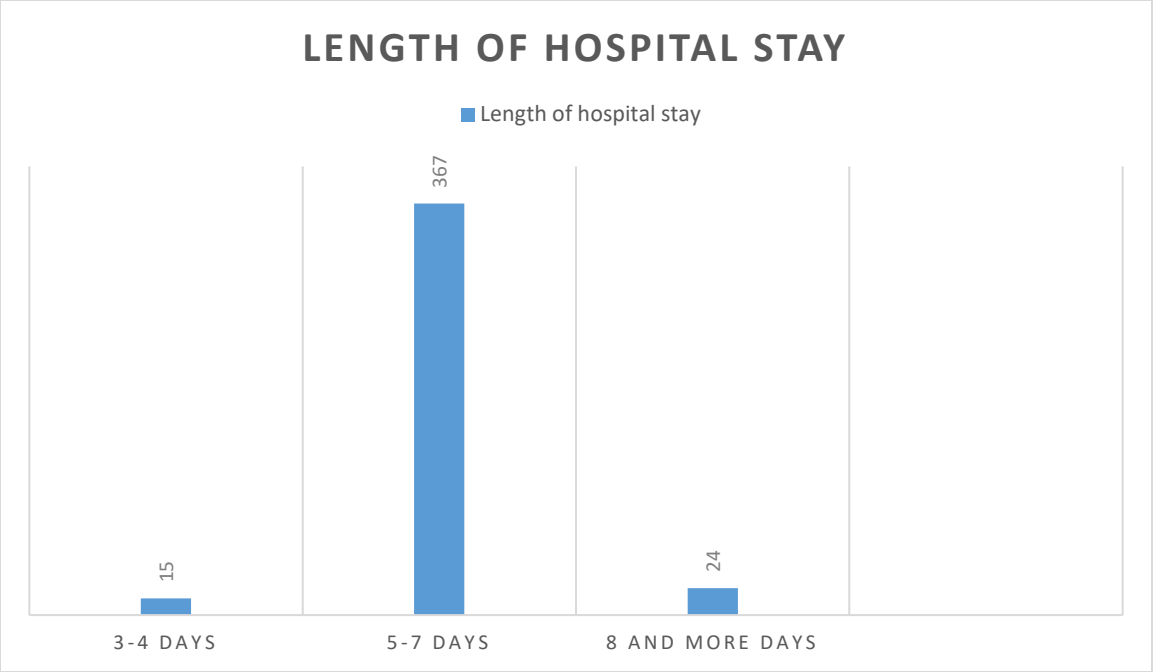


**Figure 2: Length of hospital stay**

**Table 4: Association between the age and parity of the participants and their clinical presentations**

| **Age (years)** | **Clinical presentation (%)** | | | | **Total** | | | |
|---|---|---|---|---|---|---|---|---|
| | **Abdominal swelling** | **Infertility** | **Menorrhagia** | **Menorrhagia/Abdominal swelling** | | ***X²*** | **Df** | **p-value** |
| <30 | 10(38.5) | 0 | 14(53.8) | 2(7.7) | 26 (100) | 15.92 | 9 | **0.068** |
| 30-35 | 28 (18.5) | 11(7.3) | 111(73.5) | 1(0.7) | 151(100) | | | |
| 36-40 | 29(20.7) | 12(8.6) | 95(67.9) | 4(2.9) | 140(100) | | | |
| >40 | 13(14.6) | 10(11.2) | 63(70.8) | 3(3.4) | 89(100) | | | |
| **Total** | **80(19.7)** | **33(8.1)** | **283(69.7)** | **10(2.5)** | **406(100)** | | | |
| **Parity** | | | | | | | | |
| 0 | 71(21.4) | 30(9.0) | 224(67.5) | 7(2.1) | 332(100) | 9.88 | 9 | **0.361** |
| 1 | 6(10.9) | 3(5.5) | 43(78.1) | 3(5.5) | 55(100) | | | |
| 2 | 2(12.5) | 0 | 14(87.5) | 0 | 16(100) | | | |
| >2 | 1(33.3) | 0 | 2(66.7) | 0 | 3(100) | | | |
| **Total** | **80(19.7)** | **33(8.1)** | **283(69.7)** | **10(2.5)** | **406(100)** | | | |

**Table 5: Association between the age and parity of the participants and the estimated blood loss**

| Age(years) | Estimated blood loss | | | | | | |
|---|---|---|---|---|---|---|---|
| | **<500ms** | **500-1000mls** | **>1000 mls** | **Total** | $X^2$ | **Df** | **p-value** |
| <30 | 14(53.8) | 12(46.2) | 0 | 26(100) | 12.36 | 6 | **0.054** |
| 30-35 | 79(52.3) | 68(45.5) | 4(2.6) | 151(100) | | | |
| 36-40 | 65(46.4) | 72(51.4) | 3(2.1) | 140(100) | | | |
| >40 | 55(61.8) | 28(31.5) | 6(6.7) | 89(100) | | | |
| **Total** | **213(52.5)** | **180(44.3)** | **13(3.2)** | **406(100)** | | | |
| **Parity** | | | | | | | |
| 0 | 176(53) | 145(43.7) | 11(3.3) | 332(100) | 5.49 | 6 | **0.48** |
| 1 | 24(43.6) | 29(52.7) | 2(3.6) | 55(100) | | | |
| 2 | 10(62.5) | 6(37.5) | 0 | 16(100) | | | |
| >2 | 3(100) | 0 | 0 | 3(100) | | | |
| **Total** | **213 (52.5)** | **180(44.3)** | **13(3.2)** | **406(100)** | | | |

## 4. DISCUSSION

Abdominal myomectomy is the most common surgical method of treating uterine fibroids which has remained a major gynaecological problem.[2,13] It is said to be the main stay of treatment for those women who want to preserve their reproductive function.[1,10] The prevalence of abdominal myomectomy varies by location, patient race and other factors.[11] In the study centre, 1682 gynaecological surgeries were done over the study period. Four hundred and six had abdominal myomectomy giving a prevalence of 24.1%. This is less than 63.1% and 60.4% from studies done in Ibadan and Ilorin respectively.[15,20] but much higher than 3.34% from Maiduguri, north eastern Nigeria.[1] These differences could come from where and how the calculations were done. Some studies calculated from total gynaecological surgeries as was done in this study while others may have calculated from total uterine fibroid surgeries.

The higher prevalence of abdominal myomectomy could be explained by the fact that our women desire to retain their uterus for psychological, reproductive and cultural reasons even after

completing their family size. Lack of menses from hysterectomy is unacceptable to an average Nigerian woman. Also this could be attributed to the non-wide spread use of newer modalities for surgical and non-surgical management of uterine fibroids in Nigeria and the usual late presentation of our women with huge uterine fibroids not amenable to these newer modalities of treatment.

The mean blood loss of participants was 516mls. This is less than 630.88mls from another study.[11] Most of the women lost less than 500 mls of blood. This is similar to findings by Ezeome [21] but dissimilar to studies done in other parts of Nigeria.[1,11,14] This could be explained by the proactive efforts made by the gynaecologists in the study centre to minimize blood loss by the use of cautery and tourniquet during surgery and also the use of intravenous tranexamic acid post-operatively; hence reducing the need for blood transfusion. Foleys catheter placed at cervico-isthmic junction during myomectomy reduces blood loss, post-operative morbidity and causes shorter hospital stay as seen in this study.

The commoner skin incision which also assisted in the reduction of blood loss was midline sub-umbilical which accounted for 62.8% of the incisions. This finding is similar to others [21] and also depicts the late presentation of our women with abdominal swelling. More than half of the participants in our study did not have any post-operative complication indicating a good surgical practice. However, the commonest post-operative complication was anaemia, which is expected of, following a bloody operation like myomectomy. This finding is similar to findings from other studies [21,22,23] but Ezeama et al[6] recorded prolonged abdominal pain (49.5%) as the commonest post-operative complication. Some of the participants (6.4%) had pyrexia post operatively. This figure is slightly higher than that got by Ezeome [21] who got 5.3% occurrence of pyrexia in her study. Post-operative pyrexia may be due to surgical site infection, tissue inflammation from the surgery itself (considered as normal response) and haematoma formed in the dead spaces created during uterine repair. The use of uterine artery embolization can reduce this risk.[23]

Most of our women in this study was on admission for 5-7 days. The practice in the hospital is that those who had midline sub-umbilical incisions are discharged 7 days after the surgery in order to remove the non-absorbable sutures used on the skin while those who had transverse supra-pubic incisions are discharged 5 days after because absorbable sutures are commonly used here. Those discharged earlier could be on request or due to bed constraints in the wards. Those that had prolonged hospital stay could be due to one complication or the other following the surgery that needed to be treated before the patient was discharged in good clinical condition. The study showed that there was no significant association between the age, parity and estimated blood loss. There was also no significant association between age, parity and clinical presentation of the participants.

Laparoscopic and hysteroscopic myomectomy are less invasive and widely used in developed countries than developing countries because they are expensive;[24] also the size of the uterine fibroids seen in our environment rules out their routine use. Uterine artery embolization, high frequency magnetic resonance-guided focused ultrasound surgery (MRgFUS) and vaginal

occlusion of the uterine arteries are also done but the expertise and high cost prevent their use in this environment.[21] None of these was used for our participants.

## 5. CONCLUSION AND RECOMMENDATIONS

Myomectomy is the commonest surgical treatment for uterine fibroids in our environment. Anaemia was the commonest complication following myomectomy among others. Use of Foleys catheter as tourniquet markedly reduced blood loss and the need for blood transfusion. The use of minimal invasive procedures for the treatment of uterine fibroids will reduce these complications therefore training of doctors in this field is highly encouraged. Our women should be sensitized to present early to the clinic.

**Study limitations:** The study is retrospective and sample size is small. It is also a single centre/hospital-based study and results cannot be generalized to the whole population.

**Ethical approval**: The study was approved by the hospital's Ethics Review Committee.

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**Disclaimer (Artificial intelligence)**

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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