Recurrent Uterine Fibroids: An Analysis of Surgically Managed Cases

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Abstract
Context: Uterine fibroids are common tumours especially in the black race. Recurrence of uterine fibroids after myomectomy is not unusual. Repeat laparotomy for recurrent fibroid has been associated with various difficulties for the surgeon and complications in the patient.
Objective: The aim of this study was to determine the indications for repeat surgery in patients with recurrent uterine fibroids, intra-operative findings, type of surgery performed and complications encountered.
Methods: A descriptive study of patients who had undergone repeat surgery on account of recurrence of uterine fibroids between July 1995 and June 2005 based on information from their clinical records.
Results: Of the thirty nine patients analyzed, thirty three patients had one previous myomectomy, five had two previous myomectomies and one patient had previously undergone myomectomy thrice! Multiple uterine fibroids were encountered in 79.5% of patients while 20.5% had solitary fibroids. At surgery, there were pelvic adhesions in 94.9% of the patients, and multiple site adhesions to the uterus were most common. Total abdominal hysterectomy with or without salpingo-oophorectomy was the commonest surgical procedure performed, closely followed by repeat myomectomy. Haemorrhage with blood transfusion was the commonest morbidity. One death, due to complications of inadvertent enterotomy, was recorded.
Conclusion: Pelvic adhesion formation is a huge problem at surgery for recurrent uterine fibroid. This usually translates to haemorrhage and blood transfusion as a major complication. Use of adhesion prevention barrier at myomectomy may minimise or prevent adhesion formation.

Key Words: Recurrent, Leiomyoma, Uterine Fibroids, Myomectomy. [Trop J Obstet Gynaecol, 2006, 23:110-113]

Introduction

Uterine fibroids are benign tumors that arise from myometrial smooth muscle cells; they are composed of smooth muscles with variable amount of connective tissue. Uterine fibroid is the commonest tumor of the female pelvic organ [1], it amounts for 7.8% of gynaecological admission in Zaria, Nigeria [2]. Seventy five percent of fibroids are symptomatic [3].

Myomectomy is the operative procedure of choice in patients who want to retain their fertility [4]. However, recurrence of uterine fibroids is common, reaching about 51% in five years, although it is less frequent in patients that had myomectomy for a solitary fibroid [5]. It is estimated that 20% to 25% of patients might ultimately require another surgical procedure for recurrent uterine fibroids [6]. Myomectomy is associated with complications, blood transfusion [7] and pelvic adhesion formation [8] being the major ones.

The objective of this descriptive study was to evaluate the intra-operative findings, difficulty encountered at surgery, type of surgery done and complications in patients that had surgery for recurrent uterine fibroids.

Materials and Methods

The medical records of thirty nine patients that had surgery for recurrent uterine fibroids between July 2005 and June 2006 were reviewed. During the period, thirty nine medical records out of the forty six patients that had surgery for recurrent uterine fibroid(s) were available for evaluation and review. The patients' characteristics, intra-operative findings, type of surgery done and complications encountered were analyzed. The complications were intra-operative and post-operative complications.

The patients were managed in a tertiary health facility; Ahmadu Bello University Teaching Hospital, Kaduna. All the patients had initial evaluation, which included hysterosalpingography for those patients that still desired to conceive. The index surgeries were through laparotomy and under general anaesthesia. Prophylactic antibiotics were administered post operatively. Gonadotropin-releasing hormone analogue was not administered before or after the surgery in any of the patients.

Results

Twenty three patients had their previous myomectomy in a private health facility, twelve patients in a secondary or tertiary hospital and the record of four patients did not specify where the previous myomectomy was done. The presenting complaints were mainly menorrhagia and infertility (fifteen patients), infertility alone (eleven patients),

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menorrhagia alone (nine patients) and chronic pelvic pain (four patients).

The mean age of the patients was 36.7 years with a range of 29 to 67 years. Thirteen (33.3%) patients were single, twenty (51.3%) were married, four (10.3%) were either separated or divorced and two (5.1%) were widows. Of the thirty nine patients, twenty seven (69.2%) fell within the age group of thirty one to fifty years. Thirty three (84.6%) patients had had myomectomy once, five (12.8%) patients twice and one (2.6%) patient thrice. The median time interval from the last myomectomy to the index surgery was 8.9 years with a range of two years to twenty nine years.

At surgery, the uterine size was less than twenty weeks pregnancy size in twenty seven (69.2%) patients and twenty weeks size and above in twelve (30.8%) patients. Multiple uterine fibroid was the commonest in thirty one (79.5%) patients and solitary in eight (20.5%) patients. Thirty seven of the thirty nine patients had documented evidence of pelvic adhesions. Multiple site adhesions to the uterus was the commonest, occurring in twenty seven (73.0%) of the thirty seven patients. The structures mostly involved in the adhesion were omentum (86.5%), ovary (59.5%), fallopian tubes (48.6%) and small intestine (35.1%).

Total abdominal hysterectomy with or without salpingoophorectomy was the most common surgery performed in 46.2% of patients, this was closely followed by repeat myomectomy in 38.5% of patients. Four (10.3%) patients had subtotal hysterectomy on account of dense pelvic adhesions from previous myomectomy. Two (5.1%) patient had frozen pelvis which made their case inoperable; they are from the group that had three or two previous myomectomy. Ventrosuspension was done by shortening the round ligament in eight of the sixteen patients that had repeat myomectomy.

The leading morbidity was haemorrhage with blood transfusion in twenty one (53.8%) patients, this was followed by prolong hospital stay in nine (23.1%) patients. Prolong hospital stay was defined as hospital stay beyond seven days post operation. Mortality was recorded in a patient that developed post myomectomy pelvic abscess; she belonged to the group that had two previous myomectomy. She had inadvertent enterotomy at laparotomic drainage of the abscess; this was repaired twice due to anastomotic dehiscence. She died of electrolyte imbalance and renal failure.

Discussion

Myomectomy is a surgical alternative for women who wish to preserve their fertility [9] while myomectomy is quite successful in reducing or eliminating fibroid related symptoms, it does not ensure permanent resolution of fibroids [7]. Myomectomy is associated with complications regardless of the technique employed [10]. A major concern is post operative adhesion formation, as encountered in a significant percentage of patient's in this study. All patients in this study had abdominal myomectomy, and laparotomy has been found to be associated with post operative adhesion formation in 60% to 100% of women after major gynaecological surgery [11]. Laparoscopic myomectomy is associated with less adhesion formation than myomectomy via laparotomy due to lower likelihood of infection and absence of surgical knots which is a potent initiator of adhesion formation [12].

Myomectomy is the most adhesiogenic gynaecological operation [12] and the uterus is the third most adhesiogenic organ of the female genital tract, after ovary and fallopian tube [13]. Supporting this finding, ovary and fallopian tube were the most involved structures in adhesion to the uterus after the omentum in this study. The inevitable end result of any surgery on living tissue is trauma [12], which is one of the factors in the initiation of adhesion formation. Other factors are ischaemia and inflammation or infection. Efforts should therefore be made towards minimizing these three factors, in order to decrease or prevent adhesion formation.

Table 1: Characteristics Of Patients

Age	N = 39	%
21- 30	2	5.1
31- 40	16	41.0
41- 50	11	28.2
51- 60	7	717.9
61-70	3	7.7
Marital Status		
Single	13	33.3
Married	20	51.3
Separated / Divorced	4	10.3
Widow	2	5.1
Previous Myomectomy		
Once	33	84.6
Twice	5	12.8
Thrice	1	2.6
Interval From Last		
Myomectomy To Index Surgery		
1-5 years	5	12.8
6- 10 years	18	46.1
11- 15 years	9	23.1
> 15 years	7	17.9

Table 2:
Intra-operative Findings

Uterine Size		
	N = 39	**%**
< 20 Weeks	27	69.2
> 20 Weeks	12	30.8
Type of Fibroid		
Solitary fibroid	8	20.5
Multiple fibroid	31	79.5
Presence of Pelvic Adhesions		
Yes	37	94.9
No	2	5.1
Site of Pelvic Adhesions to the Uterus		
	N = 37	**%**
Anterior	2	5.4
Posterior	5	13.5
Fundal	3	8.1
Multiple	27	73.0
Frequency of Structure Involved in Adhesion to the Uterus		
	N = 37	**%**
Ovary	22	59.5
Fallopian tube	18	48.6
Omentum	32	86.5
Small intestine	13	35.1
Large intestine	8	21.6
Urinary bladder	5	13.5
Not specified	3	8.1

Table 3:
Type of Surgery Performed

	N = 39	**%**
Repeat myomectomy	15	38.5
Total abdominal hysterectomy with or without salpingoophorectomy	18	46.2
Subtotal hysterectomy	4	10.3

Table 4:
Intra-Operative and Post Operative Complications

	N=39	**%**
Frozen pelvis	2	5.1
Large intestinal injury	1	2.6
Small intestinal injury	1	2.6
Colostomy	1	2.6
Bladder injury	5	12.8
Hemorrhage with blood transfusion	21	53.8
Pelvic abscess	2	5.1
Paralytic ileus	3	7.7
Prolong admission	9	23.1

At myomectomy, trauma to the uterus in the form of uterine incisions should be effectively reduced to the minimal number, because uterine incisions are the likely site of adhesion formation as documented at post myomectomy laparoscopy [14]. As was found in this study, multiple uterine fibroids are commoner than solitary uterine fibroids, which explain the high percentage of multiple site adhesion to the uterus found in this study. In multiple uterine fibroid, multiple uterine incisions will most likely be used to remove the fibroids. Site of uterine incision is also important; anterior uterine incision and elliptical transverse incision at the fudus to form Bonney's hood in cases of large fundal fibroid are preferred because they are associated with less adhesions [15].

Limiting blood loss during abdominal myomectomy is also important in the prevention of adhesion formation. This will allow for proper repair of the myometrium and serosa, thus decreasing the trauma size and prevent bleeding from incision sites, with less likelihood of superimposed inflammation and infection. The tourniquet method using tightly secured Foley's catheter at the base of the broad ligament is commonly used in our setting and the method employed in this study for repeat myomectomy. Other methods like injection of diluted vasopressin into the myoma before making the uterine incision and the use of Bonney's myomectomy clamp have been reported in various studies, but there are conflicting result as to which is better [10]. Repair of the serosa with subserous suture is reported to be associated with significantly less adhesion formation at second look laparoscopy [16]. There was no adhesion prevention barrier used in our patients, as against recommendation by Sutton that gynaecologists must adopt the habit of using adhesion barriers regardless of the added cost [12].

Fertility is of paramount importance to most of these patients who are still in the reproductive age group and the desperation for fertility is further expressed by the sizeable number of patients who has had two or three previous myomectomy in this study. It is therefore not alarming that repeat myomectomy was the second most common surgery performed in this study, closely following total hysterectomy.

For the surgeons, difficult and dangerous operation due to pelvic adhesion is the greatest problem of repeat surgery [12]. This explains why subtotal hysterectomy was resorted to in four patients hitherto scheduled to have total hysterectomy. The surgeries that were tagged "inoperative" in this study were due to frozen pelvis with dense adhesions, and 75% of patients in this category had had more than one previous myomectomy. It can be deduced from these findings, that adhesion formation and difficult operations increases with the number of previous surgeries. However, this needs to be substantiated by studies with large number of patients.

Haemorrhage and blood transfusion were the leading morbidity in this study. The percentage recorded in this study is higher than 8% to 18% quoted for hysterectomy and myomectomy in other studies [7, 17]. This may be due to post operative anemia secondary to menorrhagia, which has been reported to make the risk of blood transfusion higher [18]. Inadvertent enterotomy was one of the complications in our series; it is a dreaded complication of repeat surgery [12]. Adhesion in the lower abdomen or pelvis and three or more previous laparotomies are some of the risk factors [19].

The difficulty encountered by the surgeon and the prolongation of operating time due to adhesions could not be determined in this retrospective analysis. However, Coleman *et al* [20] reported a prolongation in operating time due to adhesion formation. The contribution of pelvic inflammatory disease to the extent and process of adhesion formation in this category of patients needs to be researched into also.

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