

# Chapter 24

## Laparoscopic Surgery for Fibroids

### **Chapter 24: Laparoscopic Surgery for Fibroids**

There are several types of laparoscopic surgeries available for the treatment of fibroids namely

1. Laparoscopic myomectomy
2. Single Incision laparoscopic myomectomy
3. Total laparoscopic hysterectomy

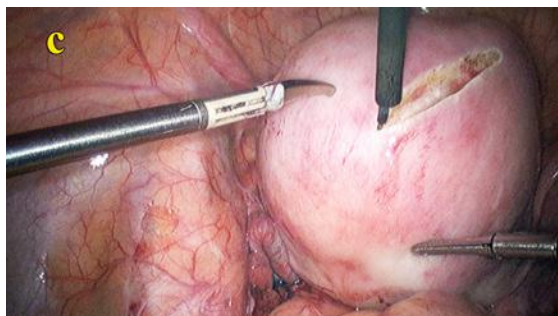
### 1) Laparoscopic myomectomy

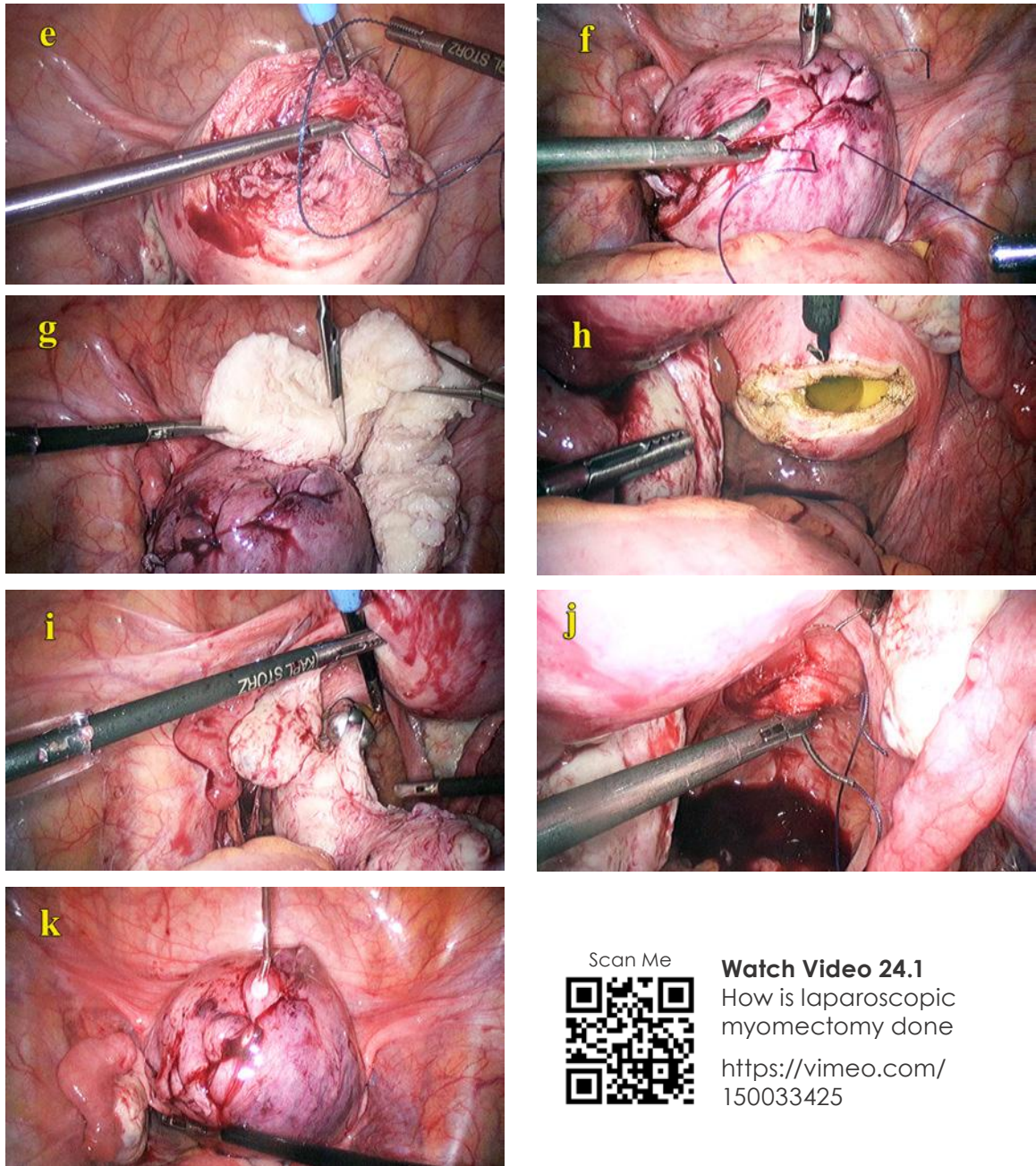
#### How is laparoscopic myomectomy performed?

Laparoscopic removal of fibroids is a technically demanding surgery. It will require advance laparoscopic surgical skills. There are several steps in performing this surgery.

- Step 1: To reduce bleeding during the surgery (devascularization). This may involve injection of vasopressin and /or ligation of the uterine arteries.
- Step 2: To make an incision on the uterus and removal (enucleation) of the fibroids. This may require one or more incisions on the uterus.
- Step 3: To suture all the incisions made on the uterus. Advance suturing skills is required because meticulous repair is necessary.
- Step 4: To remove the fibroids from the abdomen.

At the end of the surgery anti adhesion barriers are usually placed to reduce the chances of intestines and omentum to be adherent (g) to the incision sites. A drainage tube may be placed in the pelvis to drain out any blood that may collect after the surgery. This tube is removed after a few days.





Scan Me **Watch Video 24.1**  
 How is laparoscopic myomectomy done  
<https://vimeo.com/150033425>

Figures 24.1 (a – k) – series of photos showing how laparoscopic myomectomy is performed (a) fibroid uterus (b) vasopressin injected (c) incision made on the fibroid (d) fibroid enucleated (e) Inner defect sutured with barbed sutures (f) serosa sutured (g) fibroid cut into small pieces (h) colpotomy done (i) fibroid removed through the colpotomy (J) colpotomy defect sutures (k) defect covered with antiadhesion gel



### What steps are taken to reduce bleeding during surgery?

There are several strategies to reduce bleeding during laparoscopic myomectomy.

1. Vasopressin (a drug that shrinks (vasoconstricts) blood vessels) can be injected into the junction between the fibroid and the uterus so as to reduce bleeding during the surgery. Vasopressin usually works for about 1 hour and so enucleation of the fibroid and suturing of the defect must be done quickly before bleeding resumes.

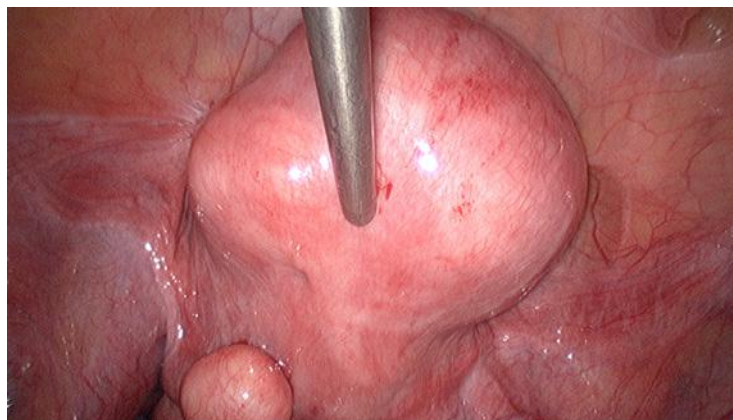


Figure 24.2 Fibroid before injection of vasopressin

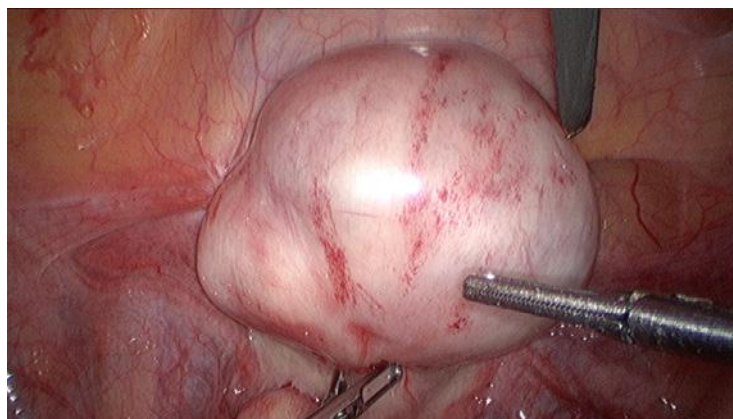


Figure 24.3 Fibroid has turned white after injection of vasopressin

2. The blood supply to the fibroids is believed to come directly from the uterine arteries. So ligation of the uterine arteries can be done temporarily with clips or permanently with clips or sutures. This can be done at 2 sites namely the ascending branch of the uterine artery or at the origin of the uterine arteries from the internal iliac artery. The ascending branch of the uterine arteries is usually sutured. The uterine arteries can be clipped or ligated at its origin from the internal iliac arteries. Since the blood supply of all fibroids is believed to come directly from the uterine arteries, ligation of the uterine arteries permanently, will cause shrinkage of any small fibroids that were not removed during the surgery. Ligation of the uterine arteries may even reduce the incidence of recurrence of fibroids. However there is a fear that permanent ligation of the uterine arteries may reduce the blood supply (vascularization) of the uterus and thus reduce the chances of future pregnancy. So, temporary ligation with clips is another option to prevent bleeding and the clips can be removed on completion of the myomectomy.

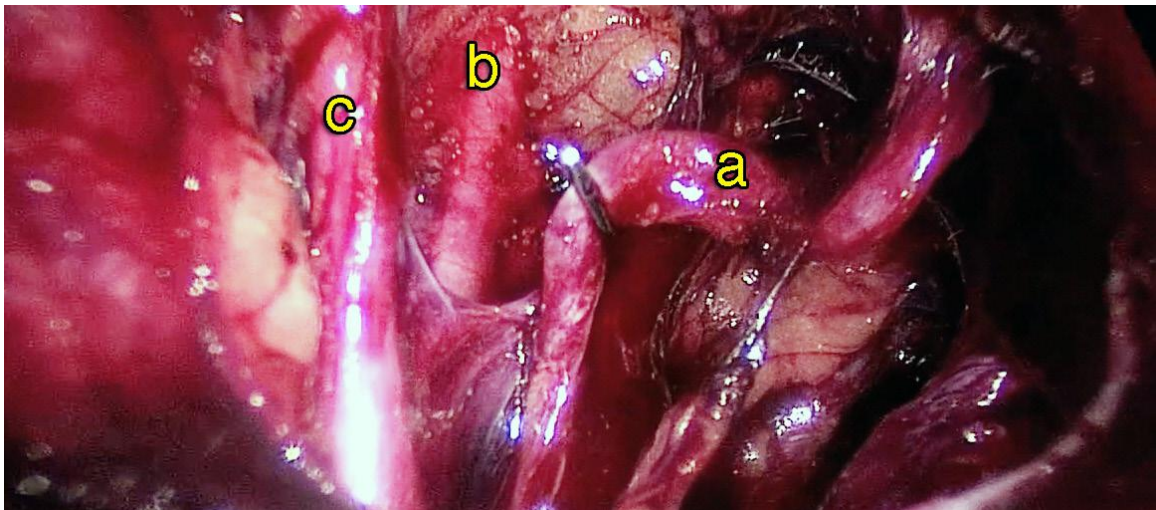


Figure 24.4 Clipping the left uterine artery at its origin (a) uterine artery, (b) ureter, (c) obliterated umbilical artery

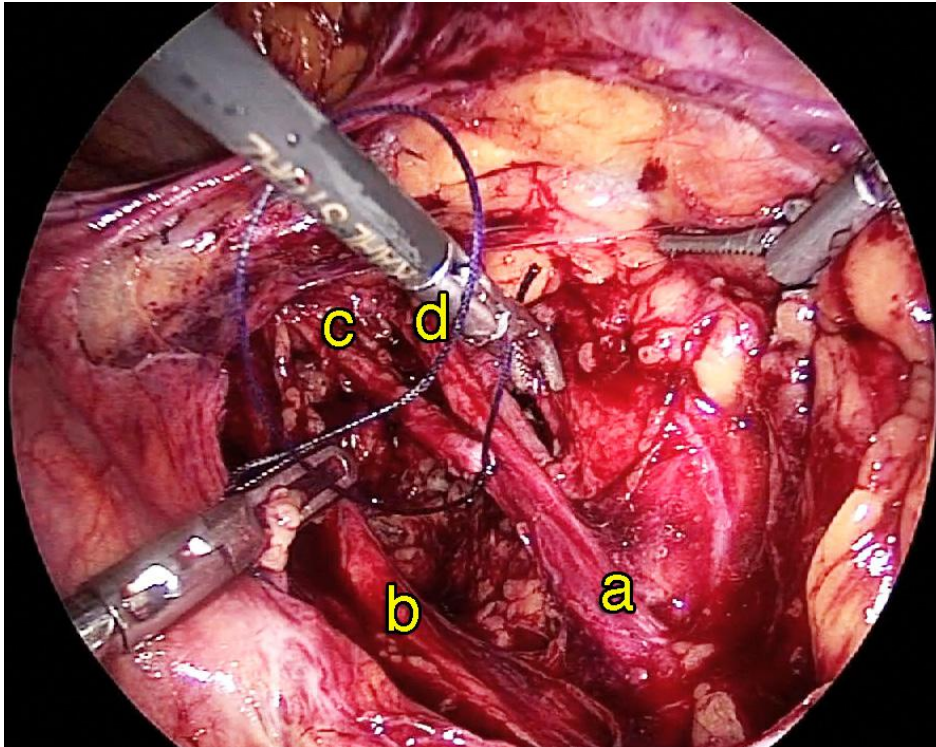


Figure 24.5 Tying the right uterine artery at its origin (a) internal iliac artery, (b) ureter, (c) uterine artery, (d) obliterated umbilical artery

#### Case 24.1 Spontaneous pregnancy after Laparoscopic Myomectomy

DSCA is a 28 year old lady who consulted me in March 2013. She had a miscarriage in December 2012 at 15 weeks of pregnancy. Examination revealed a 16 gestational week size (g) uterus. Ultrasound done showed a large uterine fibroid measuring 9.5 x 11.65 cm. There was a cystic lesion within the fibroid indicating degeneration of the fibroid. She underwent a laparoscopic myomectomy. Postoperatively, she was well. She was advised not to conceive for 1 year. She conceived spontaneously in June 2014 after trying for a few months. She delivered a healthy baby boy by Caesarean section in February 2015.

### How are the fibroids removed from the abdomen?

Removal of fibroids from the abdomen and pelvis can be tedious and time consuming. Fibroids are usually removed using an electric morcellator or through an incision on the upper part of the vagina behind the cervix (culdotomy). This is described in detail in chapter 18.

### What are the advantages of laparoscopic myomectomy?

All the advantages of laparoscopic surgery described in chapter 15 applies to laparoscopic myomectomy. However many of the patients with fibroids are also sub fertile. Laparoscopic surgery, will reduce the incidence of postoperative pelvic adhesions, thus the chances of spontaneous pregnancy is perhaps higher in laparoscopic myomectomy compared to conventional myomectomy performed by laparotomy.

What are the disadvantages of laparoscopic myomectomy compared to myomectomy by laparotomy?

1. Technically demanding  
Laparoscopic myomectomy is a difficult operation compared to myomectomy by laparotomy. It requires advance laparoscopic skills and the learning curve is very steep.
2. Takes longer time to perform  
Laparoscopic myomectomy can take from 2 to 3 times longer than open myomectomy because of all the different steps that are necessary.
3. May miss small fibroids  
When myomectomy is performed by laparotomy, the uterus can be felt with the hands and small fibroids can be felt by tactile stimulation (felt by touch). So small fibroids can be detected and removed. However during laparoscopic myomectomy, only fibroids that are seen can be removed. Sometimes an ultrasound is performed during the operation to determine the location of fibroids that are located deep in the myometrium so that an incision can be made at the appropriate part of the uterus to remove these fibroids.
4. When using an electric morcellator (g) to remove the fibroids, fragments of fibroids may be accidentally left behind in the abdomen and pelvis. These fragments may attach to abdominal and/or pelvic structures and may grow. Such fibroids are called parasitic fibroids. To avoid this occurrence, fibroids are morcellated within a bag (see chapter 18 and Figures 18.8 and 18.9).



### What are the risks of laparoscopic myomectomy and open myomectomy?

When performing myomectomy by laparoscopy or laparotomy, considerable blood loss may occur which may require blood transfusion. There is also a small risk that if bleeding is excessive, a hysterectomy may be necessary.

### Which patients are not suitable for laparoscopic myomectomy?

Laparoscopic myomectomy can be difficult in some patients.

#### 1) Large fibroids

When the fibroid is large, surgery can be difficult. This is because there will not be much space in the abdomen to manipulate the fibroid. Sometimes these large fibroids can be “shrunk” with the use of GnRH agonist injections for several months before performing the myomectomy laparoscopically. However, the disadvantage of giving GnRH agonist is that fibroids can become soft and adherent to the uterus and removal (enucleation) may be difficult. The injection can also cause small fibroids to shrink and “disappear” and these fibroids may reappear after that surgery.



Figure 24.6 A patient with a large uterine fibroid. This was after the patient had received GnRH analogue to shrink the fibroid



Figure 24.7 Laparoscopic view of the large uterine fibroid of the patient shown in Figure 24.6. Laparoscopic myomectomy was performed. See Figure 18.10 for the morcellated fibroid tissues.





Scan Me

### Watch Video 24,2

Laparoscopic myomectomy  
for a large uterine fibroid

<http://vimeo.com/150296714>



### Case 24.2 Laparoscopic Myomectomy for large uterine fibroids

Another colleague referred KR to me. She was noted to have an abdominal mass of 30 gestational weeks size (g). She was single and virgo intacta. She was asymptomatic. Her menses were regular with normal flow. Examination and ultrasound done showed a large subserous fundal fibroid measuring 18.2 x 12.5cm and another posterior fibroid measuring 8.3 x 10.4 cm. She was keen on a laparoscopic myomectomy. Due to the large size of the fibroid I advised her to receive GnRH (Gonadotrophin releasing hormone) agonist injection for 6 months to shrink the fibroid before embarking on the surgery. She received a depot injection which lasted for 3 months and was seen again 3 months later. The fibroids had reduced in size. They were 15.5 x 10.2 and 7.7 x 9.2 cm respectively. She was advised to take a second dose of the depot injection but due to side effects she refused. She underwent laparoscopic myomectomy. It was a slightly difficult surgery but was successful. The total weight of all the fibroids removed was 1.5kg (Figure 18.11). Postoperatively, she has been well.

### Discussion

Laparoscopic myomectomy can be performed on women who are virgo intacta, without the assistance of a uterine manipulator. Performing laparoscopic myomectomy to remove large uterine fibroids is challenging. Giving GnRH agonist to shrink the fibroid have 2 benefits namely (1) the uterus and fibroids will be smaller and so there will be more space to perform the surgery (2) the injection will make the fibroid less vascular and so there will be less bleeding during the surgery. The disadvantage is that due to the shrinkage of the fibroid, enucleation (g) of the fibroid will be slightly more difficult.

**2) Multiple fibroids:**

In patients with many uterine fibroids, it may be difficult to remove all the fibroids laparoscopically. As described earlier, during laparoscopy, the surgeon does not have the advantage of using his hands to feel the uterus for all the fibroids and as such, may miss some of the fibroids



Figure 24.8 multiple large uterine fibroids seen at a laparotomy

**3) Multiple previous surgeries:**

Patients who have had multiple previous surgeries especially laparotomies may have adhesions of the bowel to the abdomen and the pelvic organs. This may be a relative contraindication for laparoscopic myomectomy. An experienced surgeon however will still be able to and can still perform laparoscopic surgery in such patients.



### Case 24.3 Laparoscopic myomectomy for a large submucous fibroid

Madam MM a 32 year old lady, with 3 children, came to see me in 2009 for a gynecological examination and Pap smear. Examination and ultrasound did not reveal any abnormalities. She saw me again in 2015 at 38 years of age with a 1 year history of heavy menses. She was also suffering from bleeding in between her menses. She did not complain of dysmenorrhea. Examination and ultrasound showed a 14 gestational week size (g) uterus. There was a large submucous fibroid measuring 4.82 x 5.09 cm. The different options for surgery namely transcervical resection of the fibroid or laparoscopic myomectomy were discussed. She was keen on a tubal ligation and so she preferred a laparoscopic myomectomy and a tubal ligation. She underwent the surgery (watch video 24.3). Post operatively, she has been well.

#### Discussion

Transcervical resection of the fibroid would have been the optimal surgery for this patient. As the fibroid was large and type 1 (see Figure 41.2), she would have been asked to take gonadotrophin releasing hormone agonist for several months to shrink the fibroid before undergoing surgery. As she had already decided to undergo a laparoscopic tubal ligation, she opted for a laparoscopic myomectomy. The only disadvantage of undergoing a laparoscopic myomectomy is that since she would have a scar in the uterus, which would extend into the uterine cavity, if she conceives again, she would have to undergo an elective Caesarean section.

Scan Me



#### Watch Video 24,3

Laparoscopic myomectomy for a large submucous fibroid

<http://vimeo.com/150158638>

### 2) Single incision Laparoscopic Myomectomy

Laparoscopic myomectomy can be performed through a single incision. Single incision laparoscopic surgery has been described in chapter 18. Single incision laparoscopic myomectomy is usually performed in patients with few small fibroids. It is technically more demanding than traditional 3 or 4 port laparoscopic myomectomy.



#### Watch Video 19.7

Single incision laparoscopic myomectomy

<https://vimeo.com/149741721>

### 3) Total Laparoscopic Hysterectomy

In patients who have completed their family (g) and are over 40 years old, hysterectomy is an option. If the uterus is not too large, this procedure can be performed laparoscopically. This surgery can be performed either by traditional 4 port laparoscopic surgery or by single incision laparoscopic surgery. For details on how laparoscopic hysterectomy is performed please read chapter 33 and for single incision laparoscopic hysterectomy see chapter 19.



### Summary

Several types of laparoscopic surgeries can be performed for uterine fibroids. This includes laparoscopic myomectomy (removal of fibroids), single incision laparoscopic myomectomy, total laparoscopic hysterectomy and single incision laparoscopic hysterectomy. Laparoscopic myomectomy has many advantages over myomectomy by laparotomy. However, it is a technically demanding surgery.



### Fact 24.1

**Can laparoscopic myomectomy be performed in women who have never had sexual intercourse before (virgo intacta) ?**

There is a misconception that it is difficult to perform laparoscopic myomectomy in a virgo intacta woman. Laparoscopic surgery is usually performed with the assistance of a uterine manipulator. A uterine manipulator is an instrument placed into the uterine cavity via the vagina so that the uterus can be moved vaginally during surgery. However this is not absolutely necessary during a laparoscopic surgery. The uterus can be manipulated with instruments placed through the trocars abdominally, with no manipulation of the vagina and so no injury to the hymen.