

## **Tissue Extraction During Fibroid Surgery: Information for Patients**

Depending on your exam and test results, your surgeon might suggest that in order to remove your fibroids (during a laparoscopic myomectomy) or your uterus (during a laparoscopic or vaginal hysterectomy) a technique called “tissue extraction” might be used.

A preferred way to perform myomectomy and hysterectomy is via laparoscopy (surgery through small incisions) or vaginally because it benefits women by avoiding a large incision (which leads to fewer complications, less time in the operating room, and faster and safer recovery). However, surgeons then face a dilemma on how to remove large fibroids through very small incisions during laparoscopy.

One way to do so is via the incision made in the vagina during a hysterectomy, which involves removal of the cervix together with the uterus, but that is not always possible. Other than making a large incision to remove the fibroids (open surgery or laparotomy) or removing it vaginally, there are several options:

1. Laparoscopic intracorporeal tissue extraction: other term used to describe this technique is “electromechanical” or “power” tissue extraction. With this technique, a special instrument called a morcellator is introduced into the abdomen via small incision (1-2 cm) and it is used to fragment fibroids, in a way peeling the fibroid like an apple inside the abdomen. With this technique, fragments of the uterus and fibroids are exposed to the internal organs in the abdomen. There is also a risk of injury to internal organs related to the use of the instrument itself, but that risk is low in experienced hands.
2. Extracorporeal manual tissue extraction: other terms for this technique is “contained” and “in bag” tissue extraction. While there are multiple variations on this technique, one way to do it is to put fibroids a bag (called specimen retrieval bag) inside the abdomen during laparoscopy and then bring it out to the surface while still in the bag and to fragment it out of the bag by hand using surgical knife. This allows to avoid exposure of the fibroid fragments to the abdomen but it requires enlarging one of the incision from 1-2 cm (less than half an inch) to 3-4 cm (less than 1.5 inches). At this time there is no evidence to suggest that this option of removing fibroids is any better than laparoscopic

morcellation in terms of how patients do after surgery.

The reason why surgeons pay so much attention to how fibroids are removed and explain those techniques to patients is because in some cases cancer might be found unexpectedly after surgery is complete despite thorough evaluation beforehand. This potential risk of this rare undiagnosed cancer (called leiomyosarcoma and stromal sarcoma) is rare and difficult to estimate. At present time, estimates range from in 1 out of every 360 to 1 out of every 7400 surgeries for fibroids. Most importantly, this risk depends on your age (women over 50 and postmenopausal women are at higher risk). No imaging studies (such as ultrasound, MRI or CT scan) or laboratory testing is useful at this time at differentiating benign fibroids from cancer before surgery. Those rare cancers mimic fibroids and are often impossible to tell apart from benign fibroids until after the fibroids are removed and sent to the pathologist for analysis. MRI and LDH testing (blood work) results appear to be reassuring, but unfortunately normal results do not guarantee that final pathology report will be normal and vice versa, and abnormal results often occur in women without cancer.

The main problem is that if cancer is present in the uterus at the time of surgery, intracorporeal tissue extraction might increase the risk of cancer spread inside the abdomen, which may worsen cancer prognosis, make diagnosis (pathological exam) more difficult, and result in need for additional surgery and medical treatment such as chemotherapy and radiation or both. The information about worsening prognosis in case this rare cancer is morcellated is scant, but it thought to be that 21-42% of patients their prognosis might be worsened. The problem mainly is that unfortunately, leiomyosarcoma is an aggressive malignancy, and outcomes are suboptimal whether morcellation is used or not. The goal is to avoid removing cancer in fragments; it is best removed as a whole without any fragmentation. In those cases, the uterus needs to be removed through the open incision.

Another concern with intracorporeal tissue extraction is a possibility of seeding of fragmented tissue inside the abdomen. In other words, fragments of fibroids or uterus might behave like parasites, attach themselves to internal organs and grow over time, resulting in conditions called iatrogenic leiomyomatosis, adenomyosis, endometriosis and ovarian remnants. If those conditions cause pain or other symptoms, it may potentially require additional intervention such as surgical removal.

Alternatives to the use of intracorporeal morcellation are:

-Removal of intact tissue through mini-laparotomy (extended laparoscopy incision), laparotomy (large abdominal incision), and colpotomy (via vaginal incision during a hysterectomy) or

-In case of hysterectomy, via open, vaginal and laparoscopically assisted routes.

-Extracorporeal manual tissue extraction (in a specimen retrieval bag) as an option, which would require minilaprotomy (incision extended to 3-4 cm).

In some cases, based on fibroid size and patient anatomy, those routes were not a feasible option. In order to remove fibroids laparoscopically, some patients require electromechanical power morcellation if those alternatives do not apply.

If surgery performed is laparoscopically, multiple benefits would include faster recovery, lower incidence of wound infection and breakdown, less blood loss and risk of transfusion, lower incidence of venous thromboembolism, less pain and faster recovery, and lower incidence of adhesions. One model estimated that a patient's chance of dying from open hysterectomy was 0.085%, while the chance of dying from laparoscopic hysterectomy with laparoscopic power morcellation was 0.077%; based on those assumptions, combined chance of dying from laparoscopic hysterectomy and intracorporeal tissue extraction is less than the mortality from open hysterectomy.

Additional resources:

[http://www.hystersisters.com/vb2/article\\_557161.htm#.U7N3O41dVxs](http://www.hystersisters.com/vb2/article_557161.htm#.U7N3O41dVxs)

