A new treatment for uterine fibroids:

Uterine artery embolization

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What are uterine fibroids?

Uterine fibroids are the most common tumors of the female genital tract. They occur in 20 - 25 percent of women of child-bearing age. The presence of uterine fibroids is the most common reason for a woman in this country to have a hysterectomy.

Fibroids are benign tumors of smooth muscle. They may appear in patients in their twenties, but most patients do not have symptoms until their late thirties or forties. African-American women are more likely to develop fibroids than Caucasian women.

The cause of fibroids is not known. They arise after menstruation begins and regress after menopause. This supports research that links the development of fibroids with the presence of hormones (primarily estrogen). Fibroid growth rate is also dependent on estrogen, progesterone and possibly other hormones.

What are the symptoms?

Most fibroids do not cause symptoms. While 25 percent of women develop fibroids during their lives, only 10 - 20 percent of these women have symptoms that require treatment.

The most common symptom associated with fibroids is abnormal bleeding. This typically presents as heavy menstrual bleeding, often with clot formation. Anemia is a common side effect.

Another common symptom is pelvic pain. Occasionally, a fibroid may suddenly shrink and scar due to a decrease in blood supply. This painful process may last several days or weeks. More commonly, fibroids cause a sensation of pressure in the pelvis and may press on adjacent structures causing pain in the back, flank or legs. Women also report increasingly severe menstrual cramps with the growth of fibroids.

What are current treatment options?

Uterine fibroids that are not causing symptoms do not require therapy, other than periodic examinations by a gynecologist. Usually the diagnosis is made by a physical exam, confirmed by an ultrasound or an MRI.

Once symptoms develop, medical management is usually the first therapy. This might include treatment with non-steroid anti-inflammatory agents (such as Motrin or Naprosyn), birth control pills or progesterone agents. If these fail to control the symptoms, further treatment depends on the patient's age, the size of the fibroids, the desire for future pregnancy and the severity of symptoms.

Hormone treatment is the next level of medical management. Drugs such as Lupron decrease estrogen levels causing fibroids to shrink. Possible side effects include hot flashes, mood changes and decreased bone density, which can lead to osteoporosis. For this reason, the use of Lupron is usually limited to six months. Unfortunately, fibroids usually re-grow after hormone treatment stops.

If the fibroids are sub-mucosal (inside the uterus, just below the lining and projecting into the uterine cavity), a hysteroscopic resection may be possible. This involves advancing a scope into the uterus through the vagina to remove (or partially remove) polyps or sub-mucosal fibroids. Hysteroscopy may be combined with techniques to ablate (destroy) or remove the lining of the uterus to control bleeding. Destruction of the uterine lining will prevent future pregnancy.

The two conventional surgical choices for fibroid treatment are myomectomy and hysterectomy. Hysterectomy is the complete or partial removal of the uterus. In myomectomy, just the fibroids are removed.

In recent years, less invasive techniques such as laparoscopy have been developed for performing myomectomy. These may represent alternatives to conventional surgery for some patients.

A new approach

What is uterine artery embolization?

Uterine artery embolization is basically a new approach to the treatment of fibroids. Embolization is a minimally invasive way to block the uterine arteries and stop blood supply to the fibroids. This is essentially the same technique used to control bleeding that occurs after child birth or pelvic fracture, or bleeding caused by malignant tumors.

The procedure typically takes 1 to 1½ hours. It is usually done in the hospital with an overnight stay after the procedure. The patient is sedated and very sleepy during the procedure.

Uterine arteries are most easily accessed from the femoral artery, which is at the crease at the top of the leg as shown in Figure 1. Initially, a needle is used to puncture and enter the artery to provide access for the catheter. The catheter is advanced over the branch of the aorta and into the uterine artery on the side opposite the puncture (Figure 1). A second catheter is then placed from the opposite femoral artery to the other uterine artery.

Once the catheters are in place, particles of polyvinyl alcohol (PVA) are injected slowly with X-ray guidance. These particles are about the same size as grains of sand. Because fibroids are very vascular, the particles flow to the fibroids first (Figure 2). The particles wedge in the vessels and cannot travel to any other parts of the body. The embolization continues until there is nearly complete blockage of blood flow. After the embolization, an arteriogram is performed to confirm the completion of the procedure. Arterial blood flow will still be present to some extent to the normal portions of the uterus, but not to the fibroids.

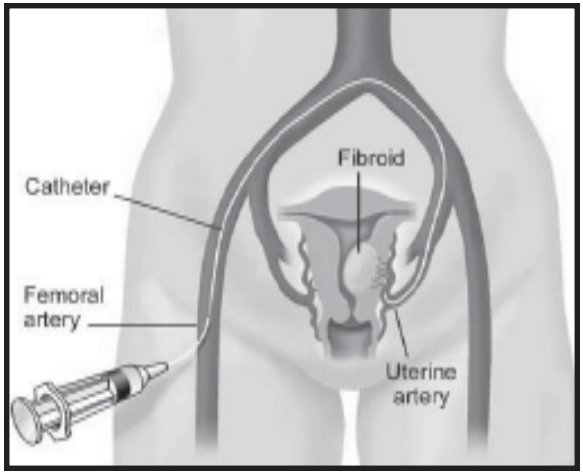

Figure 1

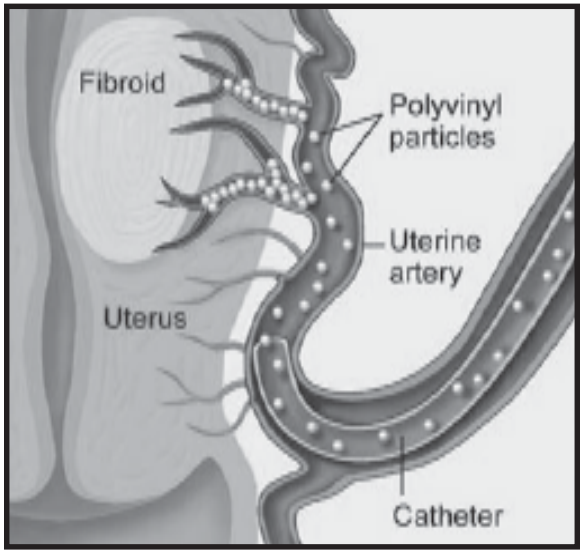

Figure 2

What can you expect during recovery?

Most patients experience several hours of moderate to severe pain after the procedure. Some also experience nausea and/or fever. The pain and nausea is controlled with intravenous medications, usually with a pump that allows self-administration.

After six-to-eight hours of bed rest, patients with mild to moderate symptoms may be discharged. Usually patients are hospitalized overnight. Most symptoms are substantially improved by the next morning allowing discharge from the hospital. Patients are given prescriptions for pain medication at the time of discharge to control any residual pain that may be present.

Residual pain or cramping decreases over the next several days. Patients can expect to return to work about seven days after the procedure.

What are the results?

At this time, between 1,500 and 2,000 patients worldwide have undergone uterine artery embolization. Initial data suggest that symptoms improve in 90 percent of patients.

Most patients have rated this procedure as very tolerable. The average reduction in the volume of the fibroids is 50 percent in three months, with reduction in overall uterine volume of about 40 percent. Since only short-term follow-up data is available, long-term outcomes are not known.

What are the side effects and complications?

Complications occur in less than 3 percent of patients. Serious, but rare complications include infection and injury to the uterus from decreased blood supply. Injuries to other pelvic organs is possible, but has not yet been reported. The chance of other significant complications is less than 1 percent.

Long-term complications are not expected, although several questions about potential side effects remain. In regard to questions about the effects of X-ray exposure, a study has shown that the level of exposure is not high enough to cause any harm to the patient or to future children.

What other issues should be considered?

It is still uncertain whether uterine embolization affects a woman's ability to become pregnant or to carry a pregnancy to term. Most women who have had this procedure are finished with childbearing. Only about a dozen patients worldwide have become pregnant after this procedure. It is known, however, that patients who have had this procedure for other reasons, such as bleeding after childbirth, have experienced successful pregnancies.

Another unresolved question is what effect, if any, this procedure has on the menstrual cycle. The overwhelming majority of women who have had embolization of fibroids have reported decreased bleeding with normal menstrual cycles. A few women (most of whom are near the age when menopause starts) have reported loss of their menstrual periods after uterine embolization. This issue requires further study.

If you would like to consider uterine artery embolization or would like more information about this procedure, please contact:

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