



Radiology Rounds

A Newsletter for Referring Physicians
Massachusetts General Hospital
Department of Radiology

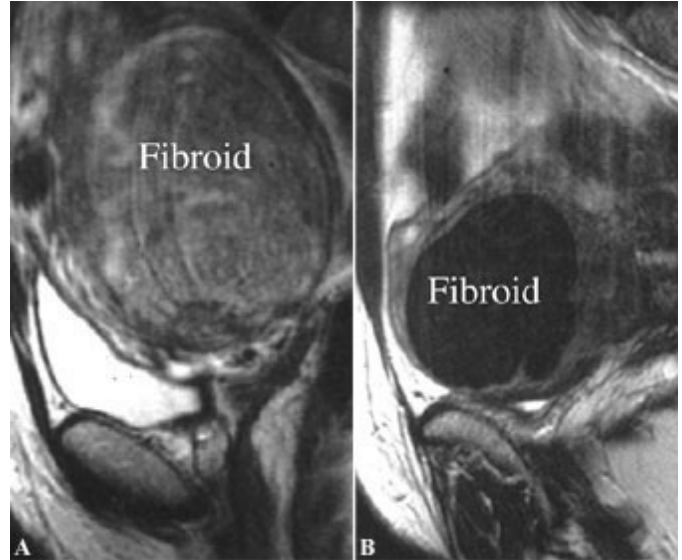


Uterine Fibroid Embolization

Uterine artery embolization was first introduced twenty years ago as a method to control post-partum bleeding but it was not until 1995 that the first report was published on its application as a primary treatment for symptomatic uterine fibroids. Since then, several studies have demonstrated that uterine artery embolization is a safe and effective treatment for fibroids of any size that compares favorably with the alternative treatments, hysterectomy or myomectomy.

Uterine fibroids are very common in women of reproductive age, with an estimated incidence of 20-25%. While the majority of these are not symptomatic, they may cause severe menstrual cramps, menorrhagia (which can result in anemia), and symptoms of pressure, such as urinary frequency, a feeling of heaviness or bloating, or pain due to nerve compression. Until recently, hysterectomy has been the treatment of choice for women who do not respond to hormonal treatment and no longer wish to conceive and myomectomy for those that wish to conceive. Both of these surgical treatments are effective in relieving the symptoms.

Uterine artery embolization offers an alternative to surgery that results in a more rapid recovery and a shorter period in which medications are necessary to control pain. Blocking the flow of blood to the fibroid results in necrosis and a gradual shrinkage of the abnormal tissue. In time, the blood flow to the normal uterine tissue fully recovers, whereas that to fibroid does not. Clinical studies have documented that uterine artery embolization alleviates symptoms of menorrhagia in 79-93% of treated women. Although relief from pressure symptoms is not immediate, various studies have documented relief in 64-93% of women 3 months after embolization and in 91-92% one year after. This time course corresponds to the



MRI Appearance

A) Pre-embolization

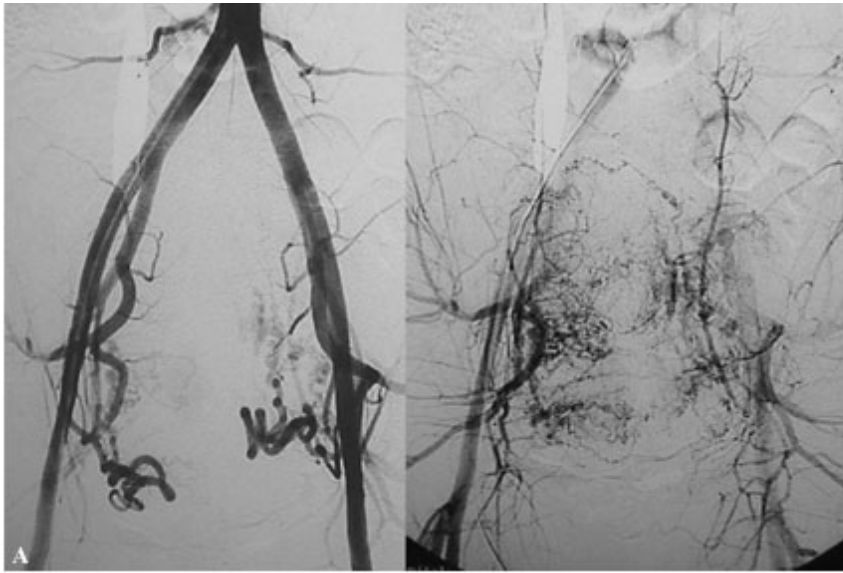
B) 1 Year Post-embolization

reduction in the volume of fibroids, which has been reported to be 23-33% after 3 months and 51-60% after one year.

Although women have become pregnant after uterine fibroid embolization, it is not yet clear what impact this procedure has on fertility. However, it is known that uterine artery embolization can precipitate menopause. This is most likely to occur in women over 45, possibly because some embolization particles block the flow of blood to the ovaries, and that the flow is less likely to be restored in older women. For this reason, women treated by this method at MGH are generally over child-bearing age.

Comparison of Some Secondary Endpoints of Fibroid Treatment

	Hysterectomy	Myomectomy	Embolization
Median hospital stay	2 days	2 days	Over night
Duration of post-procedural pain medication	NA	9 days	5 days
Time until resumption of normal activity	6-8 weeks	4-5 weeks	1-2 weeks
Incidence of amenorrhea			
age > 45	100%	NA	8%
age < 45	100%		2%



Angiographic Appearance

A) Pre-embolization

B) Post-embolization

The Procedure

A vascular radiologist is responsible for all aspects of the patient's care including the initial evaluation, conducting the embolization, overseeing the patient's stay in hospital, and follow-up care. Patients need a consultation referral to make an initial appointment with a vascular radiologist, who will evaluate the patient and schedule an initial MRI to accurately size and locate the fibroids. Immediately before the embolization procedure, the patient is given conscious sedation and local anesthetic at the site of catheterization. A catheter is introduced into the femoral artery and threaded into a uterine artery with the guidance of iodinated contrast agent and fluoroscopy. When the correct position of the catheter has been confirmed, embolization particles are slowly injected into the uterine artery, where they wedge in the smaller vessels blocking the flow of blood. Fluoroscopy is used to confirm that blood flow to the fibroids has been eliminated before the catheter is withdrawn from one uterine artery and rethreaded into the other, where more embolization particles are injected to block the blood flow to the other side of the uterus.

After the procedure, the patient is kept in hospital overnight with a patient controlled analgesia pump to allow the patient to control her own pain with narcotics. The pain is similar to bad menstrual cramps, and is well controlled with medication. The patients usually require oral pain medication for a few more days but are back to their normal routine activities in about one week. After two weeks, the

patient returns to the vascular radiologist for follow-up and it is recommended that she see her gynecologist after 4-6 weeks. Follow-up MRI, to check the shrinkage of the fibroids, is recommended after 6 months.

Approximately 5-8% of patients, especially those whose fibroids were sub-mucosal, will experience the detachment and elimination of the fibroid via the vagina, which may be unpleasant and distressing to some patients. In addition, there are some risks that are associated with any form of angiographic procedure, such as bleeding or infection at the puncture site, adverse reactions to the contrast agents used ([see October issue of Radiology Rounds](#)), and damage to blood vessels. Since the fibroid tissue dies during the procedure, there is some risk of infection (<0.1%) until scar tissue forms, and all patients must be carefully watched for signs of infection. There is also some risk of the induction of menopause, especially in women over 45 years.

Since the fibroids are not surgically removed, it is not possible to confirm that the tissue is benign and not a leiomyosarcoma. However, the incidence of leiomyosarcoma is very low, occurring in less than 0.001% of cases of apparent fibroids. In addition, the presence of malignant tissue may be recognized during follow-up imaging as unevenly growing residual tissue seen after a technically successful procedure.

Scheduling

Uterine fibroid embolization is performed in an angiography suite and is, therefore, only performed at the main MGH campus. Patients who are undergoing this procedure need to have a consultation referral to Vascular Interventional Radiology from a gynecologist who can admit patients to MGH. This requirement ensures that if complications do arise following embolization, the patients will have the best available care. Please call the MGH Department of Radiology, Division of Vascular Radiology, 617-726-8314 to arrange an appointment.

References

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Further Information

For further questions on uterine artery embolization, please contact [Dr. Chieh-Min Fan](#), MGH Department of Radiology, at 617-726-8314. A brochure for patients is also available in print and on the MGH Department of Radiology website ([download .pdf brochure](#)). If you would like copies of the printed brochure, please contact Kristen Dean at 617-724-4902.

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[Janet Cochrane Miller, D. Phil., Author](#)
[Susanna I. Lee, M.D., Ph.D., Editor](#)