

## What is varicocele?

A varicocele is a varicose vein of the testicle and scrotum that may cause pain, testicular atrophy (shrinkage), or fertility problems. Veins contain one-way valves that work to allow blood to flow from the testicles and scrotum back to the heart. When these valves fail, the blood pools and enlarges the veins around the testicle in the scrotum to cause a varicocele.

Approximately 10 percent of all men have varicoceles – among infertile couples the incidence of varicoceles increases to 30 percent. The highest occurrence is in men aged 15-35. As many as 70-80,000 men in America may undergo surgical correction of a varicocele annually.\*

*\*Society of Interventional Radiology*

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★ Locations offering varicocele embolization

## Varicocele Embolization

*Non-surgical treatment  
for varicoceles*



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## Treatment

Varicocele embolization is a nonsurgical, outpatient treatment performed by an ARA interventional radiologist using imaging to guide catheters or other instruments inside the body. IV sedation and local anesthesia are used during the approximately one-hour procedure to ensure that patients are relaxed.

During the procedure, an ARA interventional radiologist makes a small nick in the skin at the groin using local anesthesia, through which a thin catheter is passed into the femoral vein, directly to the testicular vein. The physician then injects contrast dye to provide direct visualization of the veins so he/she can map out exactly where the problem is and where to embolize (block) the vein. By placing embolization coils, the ARA interventional radiologist blocks the blood flow in the vein which reduces pressure on the varicocele. By embolizing the vein, blood flow is redirected to other healthy pathways.

Open surgical ligation is the most common treatment for symptomatic varicoceles. Varicocele embolization, a non-surgical treatment performed by an interventional radiologist, is a highly effective, widely available technique for treating symptomatic varicoceles that is underutilized in this country.

Embolization and surgical ligation are equally effective in improving male infertility and cost about the same. Pregnancy rates and recurrence rates are comparable to those following surgical ligation.

Approximately 40 percent of cases of primary male infertility are believed to be due to varicoceles.\* Patients who underwent both embolization and surgical ligation procedures expressed a strong preference for embolization.

## Benefits of embolization

- Less recovery time – An average of 1 to 2 days for complete recovery compared to 2 to 3 weeks for surgery. You will be able to return to normal daily activities immediately and without hospital admittance.
- 24 percent of surgical ligation patients required overnight hospital stay, compared to none for embolization.
- No surgical incision in the scrotal area.
- As effective as surgery, as measured by improvement in semen analysis and pregnancy rate.
- A patient with varicoceles on both sides can have them fixed simultaneously through one vein puncture site compared to surgery which requires two separate open incisions.
- No general anesthesia and no sutures.

## Varicocele symptoms

- **Pain:** Aching testicular pain when an individual has been standing or sitting for long periods and pressure builds up on the affected veins. Typically, painful varicoceles are prominent in size.
- **Fertility problems:** There is an association between varicoceles and infertility. The incidence of varicocele increases to 30 percent in infertile couples.
- **Testicular atrophy:** Shrinking of the testicles is another sign of varicoceles. Often, once the testicle is repaired it will return to normal size.

## Diagnosis

- Typically, varicoceles appear on the left side of the scrotum.
- Varicoceles look like a “bag of worms” by ultrasound or venogram.
- Abnormal blood flow can often be detected with a noninvasive imaging exam called color flow ultrasound or through a venogram – an X-ray in which a special dye is injected into the veins to highlight blood vessel abnormalities.

*\*Society of Interventional Radiology*

## About interventional radiologists

Interventional radiologists are doctors who specialize in minimally invasive, targeted treatments performed using imaging guidance. They use their expertise in reading x-rays, ultrasound, MRI, and other diagnostic imaging to guide tiny instruments, such as catheters, through blood vessels or through the skin to treat diseases without surgery.

Interventional radiologists are board-certified and fellowship-trained in nonsurgical interventions using imaging guidance. The American Board of Medical Specialties certifies their training.

## Interventional radiology procedures

- Endovenous laser therapy (EVLT) for varicose veins
- Ankle-brachial index screening for peripheral arterial disease (PAD)
- Angioplasty and stenting for PAD
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- Varicocele embolization
- Chemoembolization
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- And many more.

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