



## Varicocele Embolization

A varicocele is an enlarged vein in a man's scrotum that may cause pain, swelling or infertility. Varicocele embolization uses imaging guidance and a catheter to place a tiny coil and/or embolic fluid in a blood vessel to divert blood flow away from a varicocele. It's less invasive than conventional surgery, can safely relieve pain and swelling, and may improve sperm quality.



Tell your doctor about any recent illnesses, medical conditions, allergies and medications you're taking, including herbal supplements and aspirin. You may be advised to stop taking aspirin, nonsteroidal anti-inflammatory drugs (NSAIDs), or blood thinners several days prior to your procedure. Leave jewelry at home and wear loose, comfortable clothing. You may be asked to wear a gown. If you are to be sedated, you may be told not to eat or drink anything four to eight hours before your procedure. If so, plan to have someone drive you home afterward.

## What is Varicocele Embolization?

Varicocele embolization is an image-guided procedure that uses a catheter to place a tiny coil and/or embolic fluid in a blood vessel to divert blood flow away from a varicocele.

A varicocele is an enlarged and lengthened vein in a man's scrotum. It can cause pain, swelling and infertility. A clinical examination can confirm the presence of a varicocele and an ultrasound examination may allow further evaluation of the findings.

Varicocele embolization safely relieves that pain and swelling and may improve sperm quality for infertile couples.

## How should I prepare?

You should report to your doctor all medications that you are taking, including herbal supplements, and if

you have any allergies, especially to local anesthetic medications, general anesthesia or to contrast materials containing iodine (sometimes referred to as "dye" or "x-ray dye"). Your physician may advise you to stop taking aspirin, nonsteroidal anti-inflammatory drugs (NSAIDs) or blood thinners for a specified period of time before your procedure.

You will receive specific instructions on how to prepare, including any changes that need to be made to your regular medication schedule.

If you are going to be given a sedative during the procedure, you may be asked not to eat or drink anything for four to eight hours before your exam. If so, you should have a relative or friend accompany you and drive you home afterward.

You will be given a gown to wear during the procedure.

## What does the equipment look like?

In this procedure, a catheter will be used.

A catheter is a long, thin plastic tube that is considerably smaller than a "pencil lead", or approximately 1/8 inch in diameter.

Varicocele embolizations are typically performed with x-ray guidance.

Other equipment that may be used during the procedure includes an intravenous line (IV), ultrasound machine and devices that monitor your heart beat and blood pressure.

## How is the procedure performed?

Image-guided, minimally invasive procedures such as varicocele embolization are most often performed by a specially trained interventional radiologist in an interventional radiology suite or occasionally in the operating room.

This procedure is often done on an outpatient basis. However, some patients may require admission following the procedure. Please consult with your physician as to whether or not you will be admitted.

You will be positioned on the examining table.

You may be connected to monitors that track your heart rate, blood pressure and pulse during the procedure.

A nurse or technologist will insert an intravenous (IV) line into a vein in your hand or arm so that sedative medication can be given intravenously. Moderate sedation may be used. As an alternative, you may receive general anesthesia.

Your physician will numb the area, usually the groin, with a local anesthetic.

The area of your body where the catheter is to be inserted will be sterilized and covered with a surgical

drape.

A very small skin incision is made at the site.

Using image-guidance, a catheter (a long, thin, hollow plastic tube) is inserted through the skin into the femoral vein, a large blood vessel in the groin, and maneuvered to the treatment site.

Small amounts of x-ray dye (contrast) are injected so that the interventional radiologist can clearly see the veins on the x-ray in order to pinpoint where the problem is and where to embolize, or block, the vein.

Tiny coils made of stainless steel or platinum or other materials, such as liquids, which directly close a vessel, are then inserted in the vein to block it. By blocking the diseased draining vein, backflow into the testicle is stopped and the blood is diverted to healthy veins to exit the testicle through normal pathways. Swelling and pressure within the testicle will be reduced if the blood flow is successfully diverted.

At the end of the procedure, the catheter will be removed and pressure will be applied to stop any bleeding. The opening in the skin is then covered with a dressing. No sutures are needed.

This procedure is usually completed within one hour.

## **What will I experience during and after the procedure?**

The interventional radiologist cleanses your skin above the insertion point for the catheter and applies a local anesthetic. Intravenous sedation is typically given so you will not experience much pain. Normally, you will not feel the catheter during the procedure.

Devices to monitor your heart rate and blood pressure will be attached to your body.

You will feel a slight pin prick when the needle is inserted into your vein for the intravenous line (IV) and when the local anesthetic is injected. Most of the sensation is at the skin incision site, which is numbed using local anesthetic. You may feel pressure when the catheter is inserted into the vein or artery.

If the procedure is done with sedation, the intravenous (IV) sedative will make you feel relaxed, sleepy and comfortable for the procedure. You may or may not remain awake, depending on how deeply you are sedated.

You may feel slight pressure when the catheter is inserted, but no serious discomfort.

As the contrast material passes through your body, you may experience a warm feeling which quickly subsides.

You will remain in the recovery room until you are completely awake and ready to return home.

You should be able to resume your normal activities within 24 hours.

## **Who interprets the results and how do I get them?**

The interventional radiologist can advise you as to whether the procedure was a technical success when it is completed.

## What are the benefits vs. risks?

### Benefits

- No surgical incision is needed—only a small nick in the skin that does not have to be stitched.
- The recovery time is shorter with embolization than with surgery.
- There is a 90% success rate with embolization, which are the same results as those achieved with more invasive surgical techniques.

### Risks

- Any procedure where the skin is penetrated carries a risk of infection. The chance of infection requiring antibiotic treatment appears to be less than one in 1,000.
- There is a very slight risk of an allergic reaction if contrast material is injected.
- Any procedure that involves placement of a catheter inside a blood vessel carries certain risks. These risks include damage to the blood vessel, bruising or bleeding at the puncture site, and infection. However precaution is taken to mitigate these risks.
- There is always a chance that an embolic agent can lodge in the wrong place and deprive normal tissue of its oxygen supply.
- There is always a slight chance of cancer from exposure to radiation. However, the benefit of this treatment outweighs the risk.
- Other possible complications include lower back pain, inflammation within the scrotum (epididymitis) and phlebitis.

## What are the limitations of Varicocele Embolization?

In approximately five to 10 percent of patients who undergo varicocele embolization, the varicoceles return. This rate of varicocele recurrence is similar to the rate reported for more invasive surgical procedures.

In less than five percent of patients who undergo varicocele embolization, the interventional radiologist will not be able to position the catheter adequately to allow blocking of the diseased draining vein.

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