



Ovarian Vein Embolization

Ovarian vein embolization is a minimally invasive treatment for pelvic congestion syndrome, a painful condition resulting from the presence of enlarged or varicose veins in the pelvis. It helps relieve pain by using imaging guidance and a catheter to close off faulty veins so they can no longer enlarge with blood. Embolization is a highly effectively way of controlling bleeding and much less invasive than open surgery.

Tell your doctor if there's a possibility you are pregnant and discuss any recent illnesses, medical conditions, allergies and medications you're taking, including herbal supplements and aspirin. You may be advised to stop taking aspirin, vitamin E, nonsteroidal anti-inflammatory drugs (NSAIDs) or blood thinners several days prior to your procedure.

You should have nothing to eat or drink after midnight the night before. Plan to be admitted to the hospital on the morning of your procedure, leave jewelry at home, and wear loose, comfortable clothing. You may be asked to wear a gown.



What is Ovarian Vein Embolization?

Ovarian vein embolization is a minimally invasive treatment for pelvic congestion syndrome that is used to close off faulty veins so they can no longer enlarge with blood, thus relieving the pain.

Pelvic congestion syndrome, also known as ovarian vein reflux, is a painful condition resulting from the presence of varicose veins in the pelvis. The condition is caused by valves in the veins that help return blood to the heart against gravity becoming weakened and not closing properly, allowing blood to flow backwards and pool in the vein causing pressure and bulging veins. Diagnosis of the condition is done through one of several methods: pelvic venography, magnetic resonance imaging and pelvic and transvaginal ultrasound.

During this procedure, an interventional radiologist inserts a catheter up the femoral vein and into the

faulty vein(s). Catheterization requires only a small nick in the skin for insertion and x-ray image guidance of the catheter to its target area. The catheter delivers Dacron filaments-bearing coils that clot the blood and seal the faulty vein. The use of the recently developed Sotradecol foam agent allows the radiologist to block even the smallest veins not previously accessible.

How should I prepare?

Stop taking aspirin and vitamin E at least five days before the procedure.

Do not eat or drink anything after midnight prior to the procedure.

In general, you should not eat or drink anything after midnight the day of your procedure. However, you may take your routine medications with sips of water. If you are diabetic and take insulin, you should talk to your doctor as your usual insulin dose may need to be adjusted.

Prior to your procedure, your blood may be tested to determine how well your kidneys are functioning and whether your blood clots normally.

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.

Also inform your doctor about recent illnesses or other medical conditions.

Women should always inform their physician and x-ray technologist if there is any possibility that they are pregnant. Many imaging tests are not performed during pregnancy so as not to expose the fetus to radiation. If an x-ray is necessary, precautions will be taken to minimize radiation exposure to the baby. See the Safety page for more information about pregnancy and x-rays.

You will be admitted to the hospital on the morning of your procedure and be assessed by the interventional radiologist before the procedure begins.

You should wear comfortable, loose-fitting clothing to your exam. You may be given a gown to wear during the procedure.

What does the equipment look like?

X-ray equipment, a catheter and a variety of synthetic materials and medications, called embolic agents, are used in this procedure.

The equipment typically used for this examination consists of a radiographic table, one or two x-ray tubes and a television-like monitor that is located in the examining room. Fluoroscopy, which converts x-rays into video images, is used to watch and guide progress of the procedure. The video is produced by the x-ray machine and a detector that is suspended over a table on which the patient lies.

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

Your physician will select an embolic agent depending on the size of the blood vessel or malformation and whether the treatment is intended to be permanent or temporary. These include:

- Gelfoam™, a gelatin sponge material, which is cut into small pieces that are injected into an artery and float downstream until they can go no further. After a period ranging from a few days to two weeks, the material dissolves. Gelfoam is used to control bleeding until the cause can be identified and fixed, or until it has time to heal on its own.
- particulate agents, including Polyvinyl alcohol (PVA) and gelatin-impregnated acrylic polymer spheres, which are suspended in liquid and injected into the bloodstream to block small vessels. These agents are used to block, or occlude, vessels permanently.
- various sized metal coils made of stainless steel or platinum are used to block large arteries.
- liquid sclerosing agents, which are used to destroy blood vessels and vessel malformations. Filling a vessel or a vessel malformation such as a fistula with this liquid agent causes blood clots to form, closing up the abnormal vascular channels.
- liquid glue, which can be inserted into a fistula or arteriovenous malformation (AVM) where it hardens, filling in this unnecessary passageway between artery and vein.

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 does the procedure work?

Using x-ray imaging and a contrast material to visualize the blood vessel, the interventional radiologist inserts a catheter through the skin into a blood vessel and advances it to the treatment site. A synthetic material or medication called an embolic agent is then inserted through the catheter and positioned within the blood vessel or malformation where it will remain either permanently or temporarily.

Temporary embolic agents block blood vessels long enough to allow the body to heal on its own. Permanent embolic agents physically plug-up blood vessels and cause scar tissue to form in the vessel. This is important in treating conditions such as arteriovenous malformations and tumors, which would recur if the embolic agent dissolved.

How is the procedure performed?

Image-guided, minimally invasive procedures such as embolization for pelvic congestion syndrome should be performed by a specially trained interventional radiologist in an interventional radiology suite or occasionally in the operating room.

Prior to your procedure, ultrasound, computed tomography (CT) or magnetic resonance imaging (MRI) may be performed.

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.

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 to the treatment site.

A contrast material then is injected through your IV and a series of x-rays are taken to locate the exact site of bleeding or abnormality. The medication or embolic agent is then injected through the catheter. Additional angiograms are taken to ensure the embolic agent is correctly positioned and that any bleeding is controlled.

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.

Your intravenous line will be removed.

You can expect to stay in bed for six to eight hours after your procedure.

The length of the procedure varies from 30 minutes to several hours depending on the complexity of the condition.

What will I experience during and after 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.

Most patients experience some side effects after embolization. Pain is the most common and can be

controlled by medication given by mouth or through your IV.

Most patients leave the hospital within 24 hours of the procedure, but those who have considerable pain may have to stay longer.

You should be able to resume your normal activities within a week.

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.

In cases of bleeding, it may take 24 hours to know whether it has stopped. It may be one to three months after embolization before it is clear whether symptoms have been controlled or eliminated.

Your interventional radiologist may recommend a follow-up visit after your procedure or treatment is complete.

The visit may include a physical check-up, imaging procedure(s) and blood or other lab tests. During your follow-up visit, you may discuss with your doctor any changes or side effects you have experienced since your procedure or treatment.

What are the benefits vs. risks?

Benefits

- Embolization is a highly effective way of controlling bleeding, especially in an emergency situation.
- Worldwide success rates of 85 percent and higher have been reported in women treated with embolization.
- Embolization is much less invasive than conventional open surgery. As a result, there are fewer complications and the hospital stay is relatively brief—often only the night after the procedure. Blood loss is less than with traditional surgical treatment, and there is no obvious surgical incision.
- This method can be used to treat tumors and vascular malformations that either cannot be removed surgically or would involve great risk if surgery was attempted.
- No surgical incision is needed—only a small nick in the skin that does not have to be stitched.

Risks

- 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 a risk of infection after embolization, even if an antibiotic has been given.

What are the limitations of Ovarian Vein Embolization?

Successful embolization without injuring normal tissue requires that the catheter be placed in a precise position. This means that the catheter tip is situated so that embolic material can be deposited only in vessels serving the abnormal area. In a small percentage of cases, the procedure is not technically possible because the catheter cannot be positioned appropriately.

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