ORIGIN OF VARICOCELE DISEASE

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Annotation: A varicocele (VAR-ih-koe-seel) is an enlargement of the veins within the loose bag of skin that holds the testicles (scrotum). These veins transport oxygen-depleted blood from the testicles. A varicocele occurs when blood pools in the veins rather than circulating efficiently out of the scrotum.

Key words: varicocele, causes, treatment, drug, male, female.

Varicoceles usually form during puberty and develop over time. They may cause some discomfort or pain, but they often result in no symptoms or complications.

A varicocele may cause poor development of a testicle, low sperm production or other problems that may lead to infertility. Surgery to treat varicocele may be recommended to address these complications.

A varicocele usually occurs on the left side of the scrotum and often produces no signs or symptoms. Possible signs and symptoms may include:

- Pain. A dull, aching pain or discomfort is more likely when standing or late in the day. Lying down often relieves pain.
- A mass in the scrotum. If a varicocele is large enough, a mass like a "bag of worms" may be visible above the testicle. A smaller varicocele may be too small to see but noticeable by touch.
- Differently sized testicles. The affected testicle may be noticeably smaller than the other testicle.
- Infertility. A varicocele may lead to difficulty fathering a child, but not all varicoceles cause infertility.

Annual wellness visits for boys are important for monitoring the development and health of testicles. It's important to schedule and keep these appointments.

A number of conditions could contribute to pain, swelling or a mass in the scrotum. If you experience any of these, see your health care provider to get a timely and accurate diagnosis.

The testicles receive oxygen-rich blood from two testicular arteries — one artery for each side of the scrotum. Similarly, there are also two testicular veins that transport oxygen-depleted blood back toward the heart. Within each side of the scrotum, a network of small veins (pampiniform plexus) transport the oxygen-depleted blood from the testicle to the main testicular vein. A varicocele is the enlargement of the pampiniform plexus.

The exact cause of a varicocele is unknown. One contributing factor may be the malfunction of valves inside the veins that are intended to keep blood moving in the right direction. Also, the left testicular vein follows a slightly different path than the right vein — a path that makes a problem with blood flow more likely on the left.

When the oxygen-depleted blood gets backed up in the network of veins, they widen (dilate), creating the varicocele.

There don't appear to be any significant risk factors for developing a varicocele.

Having a varicocele can make it difficult for your body to regulate the temperature of the testicles. Oxidative stress and the buildup of toxins can result. These factors may contribute to the following complications:

- Poor testicular health. For boys going through puberty, a varicocele may inhibit testicle growth, hormone production, and other factors related to the health and function of the testicle. For men, a varicocele may result in gradual shrinkage due to tissue loss.
- Infertility. A varicocele doesn't necessarily cause infertility. An estimated 10% to 20% of men diagnosed with a varicocele experience difficulty fathering a child. Among men with fertility problems, about 40% have a varicocele.

Your health care provider can diagnose a varicocele by visual inspection of the scrotum and by touch. You'll likely be examined while lying down and standing up.

When you're standing, your health care provider may ask you to take a deep breath, hold it and bear down, similar to the pressure during a bowel movement. This technique (Valsalva maneuver) can make a varicocele easier to examine.

Imaging test

Your health care provider may want you to have an ultrasound exam. Ultrasound uses high-frequency sound waves to create images of structures inside your body. These images may be used to:

- Confirm the diagnosis or characterize the varicocele
- Eliminate another condition as a possible cause of signs or symptoms
- Detect a lesion or other factor obstructing blood flow

A varicocele often doesn't need to be treated. For a man experiencing infertility, surgery to correct the varicocele may be a part of the fertility treatment plan.

For teenagers or young adults — generally those not seeking fertility treatment — a health care provider may suggest annual checkups to monitor any changes. Surgery might be recommended in the following situations:

- A testicle that shows delayed development
- Low sperm count or other sperm irregularities (usually only tested in adults)
- Chronic pain not managed by pain medication

Surgery

The purpose of surgery is to seal off the affected vein to redirect the blood flow into healthy veins. This is possible because two other artery-and-vein systems supply blood circulation to and from the scrotum.

Treatment outcomes may include the following:

- The affected testicle eventually may return to its expected size. In the case of a teenager, the testicle may "catch up" in development.
- Sperm counts may improve, and sperm irregularities may be corrected.
- Surgery may improve fertility or improve semen quality for in vitro fertilization.

Risks of surgery

Varicocele repair presents relatively few risks, which might include:

- Buildup of fluid around the testicles (hydrocele)
- Recurrence of varicoceles
- Infection
- Damage to an artery
- Chronic testicular pain
- Collection of blood around the testicle (hematoma)

The balance between the benefits and risks of surgery shifts if the treatment is only for pain management. While varicoceles may cause pain, most do not. A person with a varicocele may have testicular pain, but the pain may be caused by something else — an unknown or not yet identified cause. When varicocele surgery is done primarily to treat pain, there is a risk that the pain may worsen, or the nature of the pain may change.

Surgical procedures

Your surgeon can stop the flow of blood through the testicular vein by stitching or clipping the vein shut (ligation). Two approaches are commonly used today. Both require general anesthesia and are outpatient procedures that usually allow you to go home the same day. The procedures include:

- Microscopic varicocelectomy. The surgeon makes a tiny incision low in the groin. Using a powerful microscope, the surgeon identifies and ligates several small veins. The procedure usually lasts 2 to 3 hours.
- Laparoscopic varicocelectomy. The surgeon performs the procedure using a video camera and surgical tools attached to tubes that pass through a few very small incisions in the lower abdomen. Because the network of veins are less complex above the groin, there are fewer veins to ligate. The procedure usually last 30 to 40 minutes.

Recovery

Pain from this surgery generally is mild but might continue for several days or weeks. Your doctor might prescribe pain medication for a limited period after surgery. After that, your doctor might advise you to take nonprescription pain medicine, such as acetaminophen (Tylenol, others) or ibuprofen (Advil, Motrin IB, others) to relieve discomfort.

You'll likely be able to return to work about a week after surgery and resume exercise about two weeks after surgery. Ask your surgeon about when you can safely return to daily activities or when you can have sex.

Alternative to surgery: Embolization

In this procedure, a vein is blocked by essentially creating a tiny dam. A doctor specializing in imaging (radiologist) inserts a tiny tube into a vein in your groin or neck. A local anesthetic is used at the insertion site, and you may be given a sedative to reduce discomfort and help you relax.

Using imaging on a monitor, the tube is guided to the treatment site in the groin. The radiologist releases coils or a solution that causes scarring to create a blockage in the testicular veins. The procedure lasts about an hour.

Recovery time is short with only mild pain. You'll likely be able to return to work in 1 to 2 days and resume exercise after about a week. Ask your radiologist when you can resume all activities.

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