

Varicocele

What is it?

A varicocele is a collection of distended veins (“varicose veins”) in the scrotum. It occurs due to incompetence in the valves of the testicular veins. It nearly always occurs on the left side.

Background

Blood is pumped through arteries by the heart; carrying oxygen and nutrients to tissues and organs all over the body. Blood returns from these tissues via veins. Veins have low pressure, so contain valves to ensure the blood flows in the correct direction.

The blood supply to the testis comes from three different blood vessels: the testicular artery, the cremasteric artery, and the deferential artery. The blood returns through a network of veins called “the pampiniform plexus”, then through the testicular veins. On the left, the testicular vein joins to the left renal (kidney) vein. An absence or failure of valves, an abnormality of drainage, or the mechanics of the anatomy are thought to contribute to varicocele formation.

Why is it a problem?

It can be associated with reduction in growth of the testis in late childhood and during puberty.

In adults, it has been associated with reduced fertility in some men. The proposed mechanisms for this reduced fertility include:

- creation of an environment that is too warm
- increased pressure within testicular tissues
- reduced oxygen supply due to reduced effective blood flow

Who?

Minor grades of varicocele are common. They can be found in 6% of 10-year-old boys, and 15% of 13-year-old boys.

In adult males a rate of 8-23% is reported

How does it present?

Small varicoceles will not usually cause any symptoms. The patient may find them incidentally, or they may be noticed by the family doctor. If the varicoceles are larger, they can sometimes cause scrotal swelling or a dragging sensation in the scrotum.

Some men who are being assessed for infertility are identified to have a varicocele.

How is it diagnosed?

Assessment

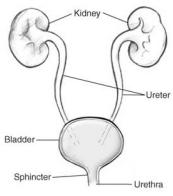
The doctor will ask about any symptoms the boy has, and will examine the boy’s scrotum both lying and standing. The doctor will ask the boy perform a ‘Valsalva’ manoeuvre (blowing as hard as he can against closed mouth and nose). The doctor will also examine the abdomen.

What tests are performed?

Ultrasound

Ultrasound examination can be used to measure and compare the size of the testes, and to look at the abdomen for any underlying abnormality.

Men being assessed for infertility will also undergo semen analysis.



What are the indications for treatment?

The indications for treatment differ between adolescents and adults. Active treatment of varicocele is rarely indicated in adolescents. Treatment is considered in men with both varicocele and subfertility.

Other less clear indications for treatment are:

- pain or discomfort
- large varicocele causing concern about appearance (cosmetic)
- moderate varicocele with oligospermia
- young men with a varicocele and abnormal semen parameters
- adolescents with a testis >20% smaller on the side of the varicocele

What are the treatment options?

When treatment is considered, there are several options:

Radiological embolization

An interventional radiologist selectively injects the dilated veins. This redirects the blood into non-dilated and competent pathways, so the blood returns to the heart.

Laparoscopic surgery

Surgeons use "key hole" surgery to access the long testicular vessels. These can be clipped and/or divided within the abdomen, to reduce the column of pressure distending the scrotal plexus.

Open surgery

The 'feeder' vessels can be accessed through an incision in the groin or upper scrotum and the dilated vessels selectively ligated (tied off). This is usually done under magnification with a microscope.

What are the complications from treatment?

The chance of complications depends on the type of treatment performed. The overall complication rate is:

- 5-30% for open surgery
- 8-12% for laparoscopic surgery
- 9-30% for radiological intervention

Types of complications

Hydrocele is the most common complication. This is a build-up of fluid around the testis. Sometimes it may be treated by needle drainage, sometimes further scrotal surgery is required.

Hydrocele is most common after open surgery (6-15%), in 2-3% after laparoscopic surgery, and is rare after radiological intervention (0%).

Recurrence of the varicocele may occur after treatment. This occurred in 10-45% after open surgery, 3-15% after laparoscopic surgery, and in 3-11 % after radiological intervention.

What are the outcomes?

Varicocele treatment has been shown to improve semen test results in men with subfertility.

It has not yet been shown that treatment of varicoceles increases the chances of these men fathering children normally.

It is unknown whether treatment of varicoceles in adolescents alters their chance of fertility problems.