



You have been booked for a

VARICOCELE REPAIR



ROCKHAMPTON
Urology

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CARDIOLOGY**

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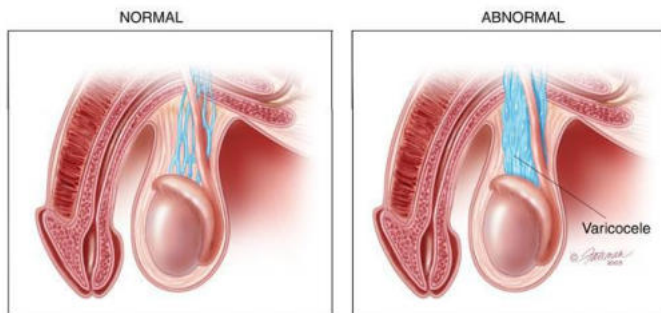
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INTRODUCTION

This leaflet will explain what will happen when you come to the hospital for your operation. It is important that you understand what to expect and feel able to take an active role in your treatment. If there are anything that you and your family are not sure about or don't understand then please ask your nurse or doctor.

WHAT IS A VARICOCELE?

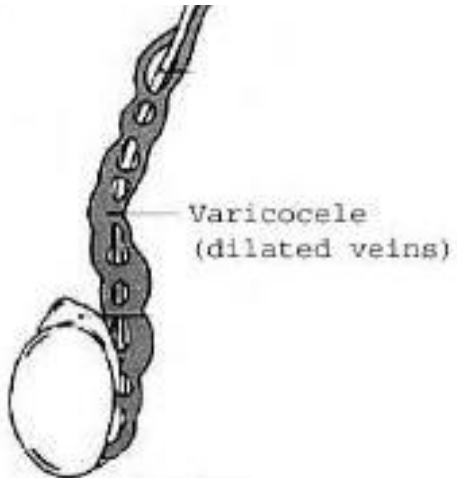
The spermatic cord is the structure that provides the blood supply to the testicle and contains the vas deferens which transports sperm from the testicle to the penis and urethra. The spermatic cord passes through the inguinal canal and continues into the scrotum. The pampiniform plexus is a group of interconnected veins, which drain the blood from the testicles and lies within the spermatic cord. The pampiniform plexus is believed to have an important functional role in maintaining testicular temperature in the appropriate range for sperm production. The pampiniform plexus cools blood in the testicular artery before it enters the testicles, helping to maintain ideal testicular temperature, essential for optimal sperm production.



A varicocele is a dilatation (swelling) of the veins that drain blood away from the testicle. It is usually found on the left side (96% of all cases), but occasionally the veins of both testicles are involved. The dilatation is due to incompetence of the valves in the veins, similar to varicose veins of the leg. The vein that drains the testicle becomes abnormally distended with pooled blood. Dilatation of these veins causes a rise in temperature of the testicles, and a subsequent decrease in semen quality.

ANATOMY/PHYSIOLOGY

By a complex mechanism of heat exchange, the blood going to the testicle is cooled from 37°C to 33°C. The varicocele appears to affect the blood cooling mechanism and creates higher temperatures in the scrotum. The increased temperature decreases sperm production. The varicocele may also affect hormonal balance in the testicle oxygen delivery. There are two types of cells in the testicle, those that make sperm and those that make testosterone. Both appear to be affected by the varicocele. In adolescents, the varicocele can affect testicular growth. The varicocele has no effect upon erections, penile size, libido, virility or pubertal development.



WHAT ARE THE SYMPTOMS.

Symptoms of varicocele may include:

-Swelling. The swelling is normally at the top of your scrotum. The patient is aware of lump, especially when standing, but notices that the swelling usually disappears when lying down. The lump, which may have a bluish appearance through the skin, is soft to feel, like a bunch of grapes or a “bag of worms”

-Discomfort or heaviness. The degree of discomfort or pain varies considerably from one person to another. There may be no discomfort, but others experience a most uncomfortable dragging pain, especially in hot weather or after exercise.

-Testicular atrophy and

-Fertility problems. Mainly low sperm count and decreased motility

Many men, however, experience no symptoms from varicoceles. A physician often discovers them during a routine physical examination or a fertility workup.

WHO USUALLY GETS VARICOCELE?

The incidence of varicocele in the male population is 15%-20%, mainly between the ages of 15 and 35, and is the main cause of infertility. Any male can be affected, although it is seen more frequently in tall, thin men, especially those from hot climates.

VARICOCELE SIZE AND GRADING

Subclinical:

Varicocele not detected on physical exam; found by radiologic or other imaging study.

Grade I:

Varicocele only palpable during or after Valsalva manoeuvre or physical exam. (The Valsalva manoeuvre or Valsalva manoeuvre is performed by moderately forceful attempted exhalation against a closed airway, usually done by closing one's mouth, pinching one's nose shut while pressing out as if blowing up a balloon).



Grade II:

Varicocele palpable on routine physical exam without the need for Valsalva manoeuvre, can be felt but not seen.

Grade III:

Varicocele visible and palpable on physical exam. Large enough to be visible.

WHAT IS THE CAUSE?

The cause is a mechanical problem in the drainage of the testicular vein into the renal vein of the kidney. A faulty valve in the testicular vein leads to back pressure in the system and thus swollen varicose veins around the testicle.

There is no known reason why some men get it, although there is a tendency for varicoceles that run in families.

Another possible causes can be compression of the veins, e.g. pelvic or abdominal masses, mostly commonly renal carcinoma and Nutcracker syndrome with the superior mesenteric artery compressing the left renal vein.

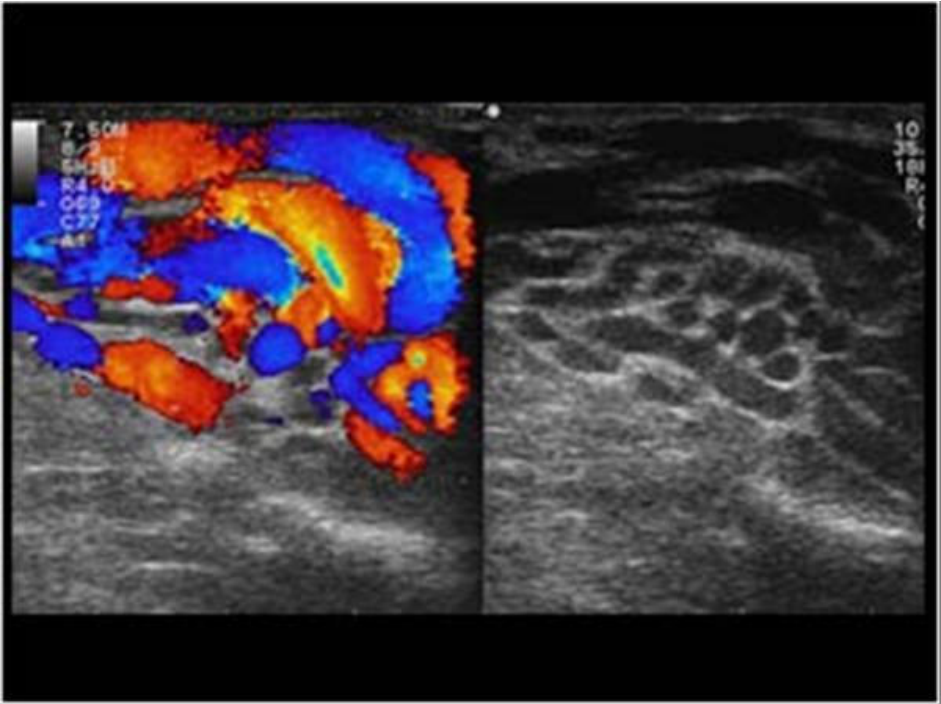
WHAT IS THE RISK

A primary varicocele is basically a relatively minor problem without serious consequences. However, in some men the discomfort is such that that surgical treatment is required, others can live with a very mild discomfort.

Varicoceles are thought to be associated with decreased fertility. It accounts for 40% of cases of primary infertility and 80% of cases of secondary male infertility.

DIAGNOSIS

To diagnose varicoceles, the physician will perform a physical examination, which includes examining the testicles. Typically, the physician can feel but not see the varicocele. In severe cases, the varicocele may be visible.



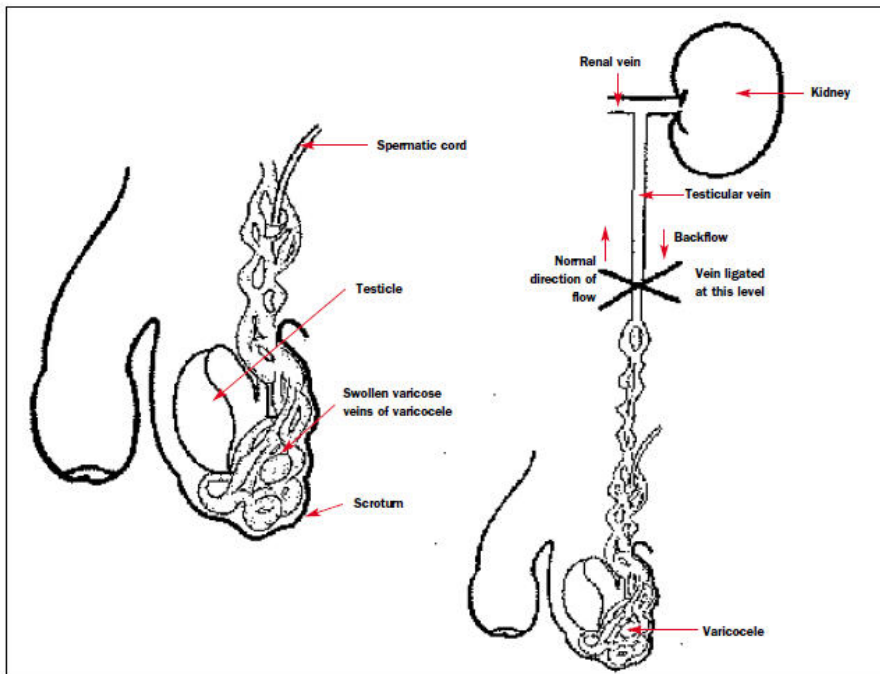
After the physical examination, the physician will perform one or more of the following tests: Doppler ultrasound or venography.

TYPES OF TREATMENT

There are multiple techniques for correcting a varicocele. All the methods involve ligating the testicular veins. The operation is a straightforward but delicate procedure in which the vein draining the varicose veins is ligated. This causes the veins to collapse without affecting the testicle's function. Results from surgery are very good, with at least 80% success rate.

Patients are not admitted and go home the day of the operation. The operation will be performed under a general anaesthetic. Patients must arrange to be driven home.

Patients should not eat or drink anything after midnight prior to the operation.



WHAT ARE THE ALTERNATIVES TO THIS PROCEDURE?

The two most common surgical approaches are **retroperitoneal** (abdominal using laparoscopic surgery), **infrainguinal/subinguinal** (below the groin) and **inguinal** (groin using percutaneous embolization).

SURGICAL REPAIR

OPEN RETROPERITONEAL

The retroperitoneal approach involves incision at the level of the internal inguinal ring, splitting of the external and internal oblique muscles, and exposure of the internal spermatic artery and vein retroperitoneally near the ureter. The approach has the advantage of isolating the internal spermatic vein proximally, at a level where only one or two large veins are present. In addition, the testicular artery has not yet branched at this level and is distinctly separate from the internal spermatic veins. The major disadvantage of the retroperitoneal approach is the high incidence of varicocele recurrence secondary to the presence of parallel inguinal and retroperitoneal collateral vessels that may bypass area of ligation and rejoin the internal spermatic vein proximal to the site of ligation. It may be difficult to identify and, therefore, preserve the testicular artery and lymphatics because they cannot be delivered into the wound at this level.

Varicocele- Treatment



INGUINAL APPROACH

The inguinal approach involves a 5 to 10 cm incision over the inguinal canal, opening of the external oblique aponeurosis, delivery of the spermatic cord and ligation of all dilated internal spermatic veins. The vas deferens and vasal vessels are preserved. An attempt is made to preserve the testicular artery and, as many lymphatic channels as possible. In addition, the cord is elevated and any external spermatic veins that are running parallel to the spermatic cord or perforating the floor of the inguinal canal are identified and ligated. Inguinal approach lowers the incidence of varicocele recurrence but do not alter the incidence of hydrocele formation (4 - 15% with an average incidence of 7%). or testicular artery injury. The incidence of testicular artery injury after inguinal varicocelectomy is unknown but may be more than is generally realized.

SUBINGUINAL APPROACH

The major advantage of this approach is more direct approach to the spermatic cord, external spermatic veins. The small incision (corresponding to the length of the testis) is more comfortable for the patient with less postoperative pain since there is no incision of aponeurosis. The delivery of the testis is recommended to isolate and divide gubernacular veins and external spermatic perforators. Gubernacular veins have been demonstrated radiographically to be the cause of up to 10% of varicocele recurrences. After the testis is returned to the scrotum, spermatic cord is elevated on the Penrose drain and ligation and division of dilated internal spermatic veins is performed under the operating microscope with 8-15 power magnification.

LAPAROSCOPIC

Under general anaesthesia, three small incisions (5mm each) are made in the abdomen. Varicoceles on the right or left or both can be approached. The abnormal veins are identified and clipped and divided.

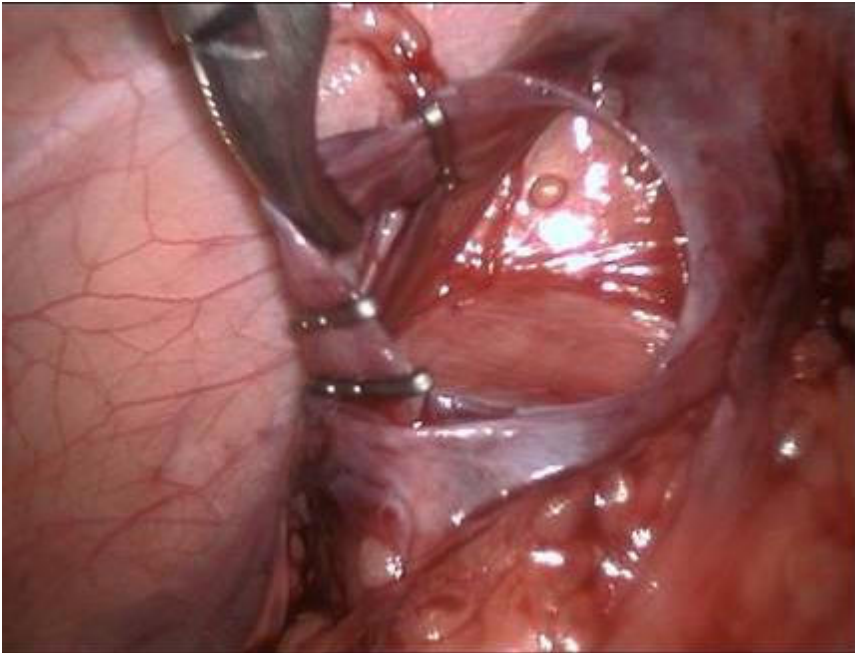
Advantages of laparoscopic varicocele surgery over other techniques include:

- 1.** Accurate identification of all the veins and avoiding injury to the artery and lymphatic vessels as the surgery is done under magnification during laparoscopy.
- 2.** Varicoceles from both sides of the body can be corrected at the same time without needs for further surgical incisions.

3. Rapid recovery from surgery with minimal pain as the small 5mm wounds causes minimal trauma to tissue.

Surgery is completed within 45 minutes, even in the case of varicoceles occurring on both sides. Patient can be discharged a few hours after surgery and return to work is within 48 to 72 hours.

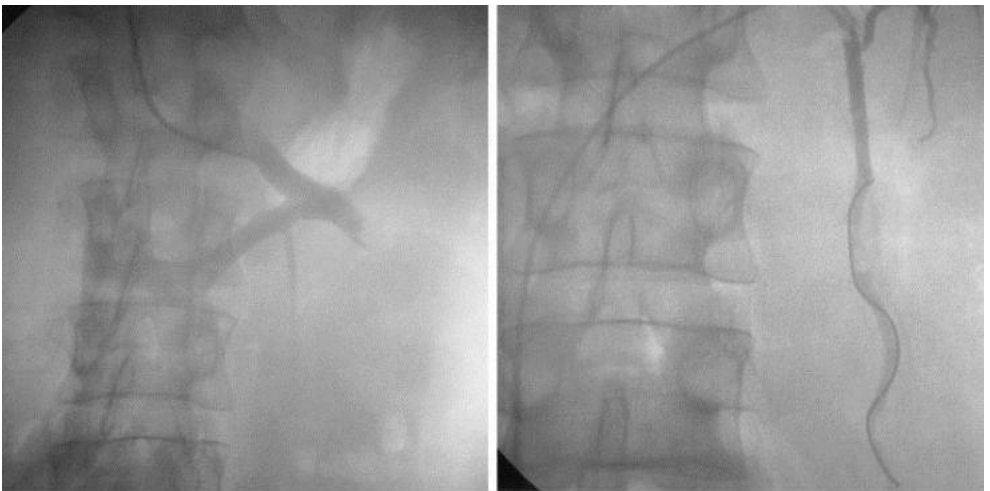
Complications are rare. Injury to abdominal organs can occur in less than 1% of cases. Testicular artery injury (1%) and hydrocele formation (1-5%) is not common.



Improvement in sperm counts can be expected in 50%-70% of patients within 3 months. Overall pregnancy rates are between 10-20%.

PERCUTANEOUS EMBOLIZATION

This procedure is performed by radiologists using a special tube that is inserted into a vein in either the groin or neck. After radiographic visualization of the enlarged veins of the pampiniform plexus, coils or balloons are released to create an obstruction (blockage) in the veins. This obstruction then typically leads to interruption of blood flow within the pampiniform plexus vessels and disappearance of the varicocele. Percutaneous embolization is typically performed with intravenous sedation anaesthesia and usually takes several hours to complete. Complications may include varicocele persistence/recurrence, coil migration and complications at the venous access site.



WHAT ARE THE RISKS OF THE OPERATION

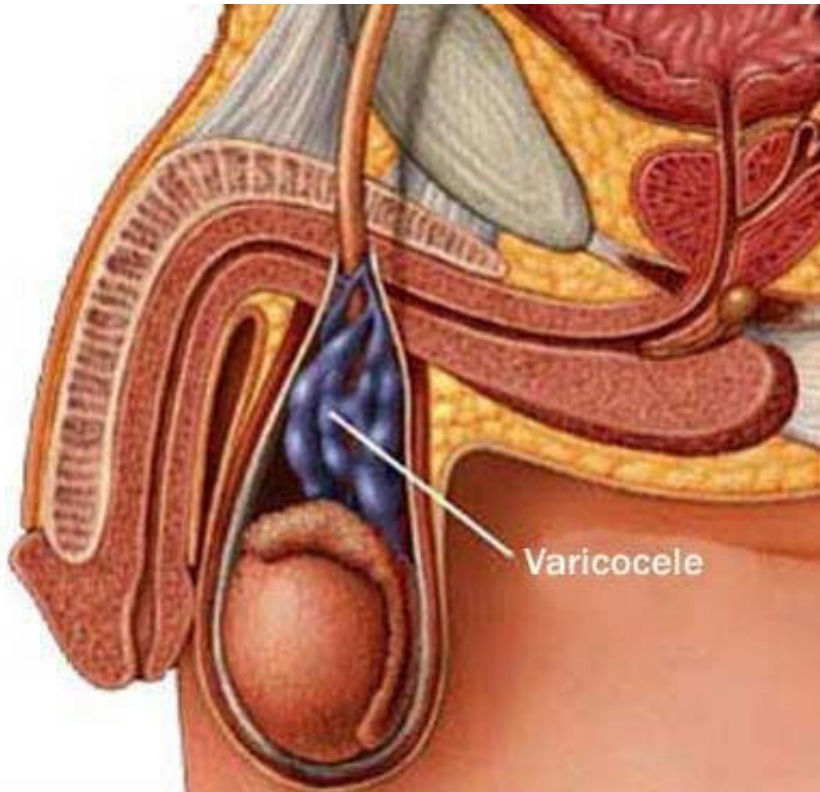
Both varicocelectomy and embolization have pre-operative, intra-operative, and post-operative risks.

Possible complications of this procedure include **hematoma** (bleeding into tissues), **hydrocele** (accumulation of fluid around the affected testicle), **infection**, or injury to the scrotal tissue or structures. In addition, injury to the artery that supplies the testicle may occur, resulting in a loss of a testicle.

Whether having varicocele surgery or embolization improves male fertility is controversial, as good clinical data are lacking. There is tentative evidence that varicocelectomy may improve fertility in those with obvious findings and abnormal sperm; however, this has a number needed to treat of 7 for varicocelectomy and 17 for embolization. There are also studies showing that regular surgery has no significant effect on infertility.

WHAT SHOULD I EXPECT BEFORE THE PROCEDURE?

You will usually be admitted just for the surgery on the day of the surgery. You go home the day of the operation. You will be asked not to eat or drink for 6 hours before surgery and, immediately before the operation. You need to continue taking your regular medication except for blood thinners the day of the surgery with a small sip of water. The operation will be performed under a general anaesthetic. Patients must arrange to be driven home.



WHAT HAPPENDS IMMEDIATELY AFTER THE PROCEDURE?

Patients are requested to rest for several days. An analgesic (pain killer), such as Paracetamol, or something stronger if needed will be prescribed. Patients will be seen in Follow-up approximately 2 weeks after surgery

You should wait at least 24 hours before driving or returning to work after your operation, if you feel well enough to do so.

IN CASE OF PROBLEMS

Most people have no problems after a cystoscopy, but you should contact your GP if you develop any of the following symptoms

Persistent, severe pain

A high temperature

Haematoma

NOTIFY THE UROLOGIST OR ATTEND TO THE EMERGENCY DEPARTMENT



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