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Varicocele

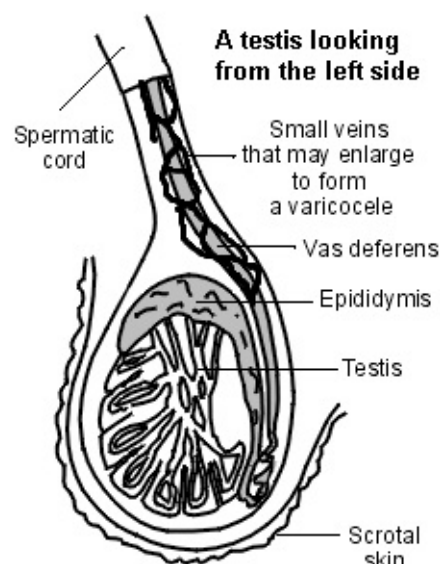
A varicocele is like varicose veins of the small veins (blood vessels) next to one testicle (testis) or both testicles (testes). It usually causes no symptoms. It may cause discomfort in a small number of cases. Having a varicocele is thought to increase the chance of being infertile but most men with a varicocele are not infertile. Treatment is not usually needed, as most men do not have any symptoms or problems caused by the varicocele. If required, an operation can clear a varicocele. There is no agreement among experts as to whether treatment of a varicocele will cure infertility. If you are infertile and have a varicocele, it is best to discuss this with a specialist who will be up to date on current research and thinking in this area.

What is a varicocele?

A varicocele is a collection of enlarged (dilated) veins (blood vessels) in the scrotum. It occurs next to and above one testicle (testis) or both **testes (testicles)**.

The affected veins are those that travel in the spermatic cord. The spermatic cord is like a tube that goes from each testis up towards the lower tummy (abdomen). You can feel the spermatic cord above each testis in the upper part of the scrotum. The spermatic cord contains the tube that carries sperm from the testes to the penis (the vas deferens), blood vessels, lymphatic vessels and nerves.

Normally, you cannot see or feel the veins in the spermatic cord that carry the blood from the testes. If you have a varicocele, the veins become bigger (they dilate) and this makes them more noticeable. It is similar to varicose veins of the legs. The size of a varicocele can vary. A large varicocele is sometimes said to look and feel like a bag of worms in the scrotum.



Who gets a varicocele?

Varicoceles are common. About 1 in 7 men develops a varicocele - usually between the ages of 15 and 25. In about half of cases the varicocele is on the left-hand side. In just under half of cases there is one on both sides. In a small number of cases it is just on the right side. The reason why most occur on the left side is because of the different route the left veins take out of the scrotum compared with the right.

What are the symptoms of a varicocele?

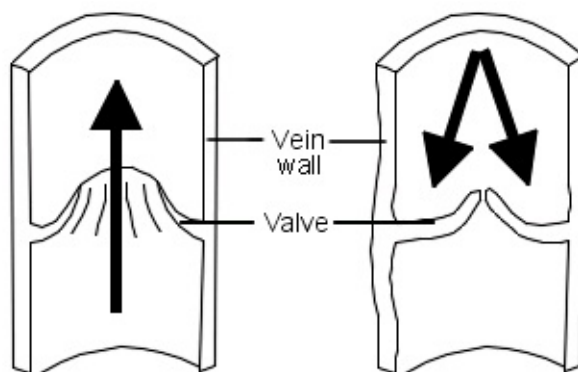
Varicoceles are usually painless and usually cause no symptoms. A small number of affected men notice a dragging feeling or slight discomfort from their varicocele. This may only occur at the end of a day, especially if you are on your feet all day. The size of a varicocele varies from case to case. Some cannot be seen, only felt. Some are large and can be easily seen. If you lie down, the blood from the veins drains away and the varicocele may seem to disappear. On standing, gravity will cause the blood to pool again and the varicocele reappears.

What causes varicoceles?

In most cases, the reason why the veins (blood vessels) become larger is because the valves of the small veins in the scrotum do not function well. There are one-way valves at intervals along the veins. The valves open to allow blood to flow towards the heart, but close when blood flow slows to stop blood flowing backwards.

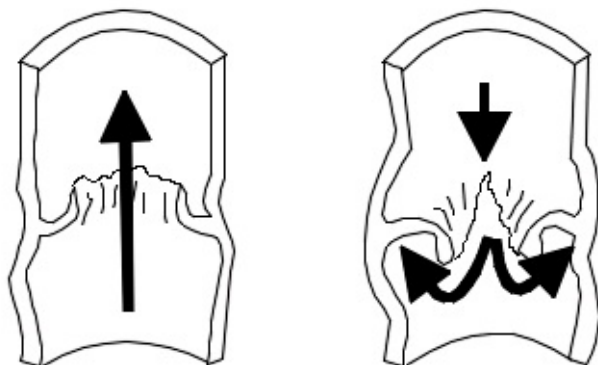
If these valves do not work well, blood can flow backwards (due to gravity) and pool in the lower parts of the vein to form a varicocele. (This is similar to how varicose veins form in legs.)

It is not clear why the valves do not work well.



Healthy Venous Valves

Venous blood flows upward against gravity and any backflow is prevented by valves that shut against the flow



Veins in Varicocele

The valves do not function properly. Backflow of blood is not prevented and 'pooling' of blood causes the vein to enlarge

A varicocele may (rarely) develop if there is a blockage of larger veins higher in the tummy (abdomen). This puts back-pressure on the smaller veins in the scrotum which then enlarge (dilate). This is only likely to occur in men older than 40. For example, if a varicocele suddenly develops in an older man, it may indicate a tumour of the kidney has developed which is pressing on veins.

It must be stressed, the vast majority of varicoceles develop in teenagers and young men and are not due to a serious condition.

Are varicoceles serious?

Usually not. In themselves they are usually harmless. Causes of concern include the following:

Possible cause of infertility

Studies have shown that there is a higher rate of **infertility in men** with a varicocele compared with those who do not have a varicocele. The reason for this is not clear. One theory is that the pooled blood causes a slightly higher temperature in the scrotum than normal. This may reduce the number and quality of sperm made by the testicle (testis), which can reduce fertility. Even if you have a varicocele only on one side, both testicles (testes) can be warmed by the increased amount of blood pooled in the enlarged veins (blood vessels).

However, most men with varicoceles are not infertile. It is just that the chance of being infertile is increased if you have a varicocele.

Small testis

If a large varicocele develops in a teenager, the testis on the side of the varicocele may not develop as much as would be expected. The testis may end up being smaller than normal. This may contribute to infertility too.

Sudden onset of a varicocele in an older man

Very rarely, a varicocele quickly develops as a symptom of a blockage of a larger vein in the abdomen (see above). This would normally only occur in men over the age of 40.

Do I need any tests?

Usually not. Most varicoceles occur in young healthy men. The diagnosis is made by a doctor's examination. A varicocele is associated with some cases of infertility. Therefore, a semen test may be asked for if you are part of a couple being investigated for infertility. In the rare situation of a varicocele first developing in a man over 40, tests to check out a possible underlying cause may be advised. Also, a solitary right-sided varicocele is unusual. If this occurs, you may need some tests to rule out any unusual cause.

What is the treatment for varicoceles?

No active treatment is needed in most cases

If a varicocele is causing no symptoms or problems, then it is best left alone. If there is just mild discomfort, supportive underpants (rather than boxer shorts) may help to ease or prevent discomfort. If a varicocele develops in a teenager, then your doctor may wish to monitor the growth of the testicles (testes). For example, an annual measurement of the testes may be advised. This may help to clarify if a testis is not growing to its full size.

Treatment may be advised in certain situations

For example, treatment may be advised if you have persistent discomfort. Also, treatment may be advised if a testis is not growing properly in a teenager with a varicocele.

Treatment involves tying off the veins that are enlarged. Another method of treatment is to use a special substance injected into the veins (blood vessels) to block them. Both methods are usually successful. Your surgeon will advise on the pros and cons of the different techniques.

However, after successful treatment, some men have a return (recurrence) of a varicocele months or years later. This is because the veins left behind to do the job of taking the blood from the testes may themselves enlarge (dilate) with the extra blood they will now have to carry. A recurrence can be treated in the same way as the first time.

Is treatment for varicocele a possible cure for male infertility?

Probably not - but there is debate about this. For many years it was thought that treating a varicocele in an infertile man would increase his chance of becoming fertile again. Studies have shown that, after treatment, the sperm count often improves. This was assumed to increase the chance of fertility. Some studies did indicate that fertility may be increased with treatment.

A large analysis of studies (a Cochrane review cited below) looked at this issue. The review found that there was no good evidence to say that fertility is increased by treatment. However, research done since this review suggested that treatment could improve fertility in some cases. If you are infertile, your specialist will advise on current research and thinking related to this issue.

And remember, most men with a varicocele are not infertile.

Further reading & references

- [Guidelines on Male Infertility](#), European Association of Urologists (Mar 2013)
- [Ficarra V, Crestani A, Novara G, et al; Varicocele repair for infertility: what is the evidence? Curr Opin Urol. 2012 Nov;22\(6\):489-94. doi: 10.1097/MOU.0b013e328358e115.](#)
- [Ficarra V, Cerruto MA, Liguori G, et al; Treatment of varicocele in subfertile men: The Cochrane Review—a contrary opinion. Eur Urol. 2006 Feb;49\(2\):258-63. Epub 2006 Jan 4.](#)

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