

Overview

Varicocele is a mass of enlarged and dilated veins that develops in the spermatic cord within the scrotal sac. The spermatic cord is made up of veins, arteries, lymphatic vessels, nerves, and the duct that carries sperm to the seminal vesicles (vas deferens) from the testes. If the valves that regulate bloodflow from these veins are congenitally (from birth) defective, blood does not circulate from the testicles efficiently, causing swelling in the veins above and behind the testicles with resulting warming of the testes.

A varicocele can develop in one testicle or both, but in about 85% of cases it develops in the left testicle. The left spermatic vein drains into the left renal vein, which transits between the superior mesenteric artery and the aorta; it is theorized that these two arteries can compress the left renal vein and thus impede bloodflow from the spermatic vein, and in the presence of defective venous valves, cause increased distal backpressure and dilation, resulting in formation of a varicocele.

The right spermatic vein drains directly into the inferior vena cava and develops a varicocele less frequently. Because of the distended veins surrounding the testes, blood circulation is impaired and normal heat transfer is altered, resulting in a testicular temperature that is several degrees warmer than normal. This is believed to contribute to infertility, as heat can negatively impact the normal production of sperm in the testicle (spermatogenesis).

Incidence and Prevalence

Incidence of varicocele is 10-20% and the condition develops sometime around puberty. The sudden development of varicocele in an older man may indicate a retroperitoneal tumor blocking the spermatic vein, although this is quite rare.

Approximately 40% of infertile men have a varicocele and among men with secondary infertility—those who have fathered a child but are no longer able to do so—prevalence may be as high as 80%.