VARICOCELE AND INFERTILITY

Varicocele may turn out to be the most common cause of male infertility; fortunately, at this time it is also the most treatable. Between 30 and 40 percent of all infertile men have a varicocele—a varicose vein of the testicle—as their only symptom. Also, 15% of the male population has varicocele that cause no symptoms and don't appear to cause infertility.

Varicose veins, including varicoceles, occur because of an increase in water pressure in the veins. To understand water pressure better, remember that when you dive in water, the deeper you go, the greater the pressure on your ear drums. At the bottom of a column of water, the pressure from the weight of the water above causes an increase in pressure.

Varicose veins usually occur in the legs and lower parts of the body where there is the greatest fluid pressure. For the same reason, they also occur in the testicles. About 10 percent of all men have a varicocele, and most of the time it is harmless. But in a significant number of men, the varicocele seems to cause dimished fertility.

Why then don't all men have varicoceles? Normal testes veins have special valves that reduce the back pressure. These valves allow the blood to travel only in one direction—back to the heart. If the valves are not working or weak, then back pressure can develop as described above. This creates a heavy pool of stagnant blood. The more valve damage, the higher the reservoir of blood, until a point is reached where the vein begins to swell. This is a varicocele, or varicose vein of the testicle.

Most of the time the varicocele occurs in the left testicle, because of a difference in anatomy between the veins draining the two testicles. (In the left testicle, the spermatic or testicular vein is longer and takes a more roundabout course to return blood to the heart. The left testicular vein enters the left kidney vein, which has generally higher pressures within it. The right testicle is shorter and directly enters the vena cava, the main vein returning to the heart, which generally has lower pressure within it. Rarely does a varicocele occur only on the right side.

Exactly how a varicocele leads to infertility remains a mystery. Of the several theories advanced, the most credible is that the pooled venous blood overheats the sperm production centers of the testicles. Excess heat can kill the sperm. Heat can also speed up sperm production, causing the primary cells to divide so fast that sperm are forced rapidly through development without enough time to mature in each stage. The result is immature and deformed sperm.

If the theory is correct, why doesn't varicocele cause infertility? Neither the size nor the location of a varicocele seems to have any bearing on its effect. Another theory suggests that the damaged veins allow chemical toxins normally cleansed through the kidneys to drift down into the testicle. But this possibility seems remote and also does not explain "selective" infertility. The only certainty about a varicocele is that if it is surgically tied off, sperm production often improves.
DIAGNOSIS
A varicocele may be discovered for the first time during a man's physical exam, when he is asked to stand up and bear down or cough. If a varicocele is present, the extra pressure will usually make the vein bulge and the specialist can feel it in the scrotum. Sometimes, however, the varicocele is so small or so hidden that it cannot be felt.

Two devices can help the specialist detect a hidden varicocele. One is thermography, which can detect pockets of heat in the testicles. The other is the Doppler stethoscope, which magnifies sound so much that the specialist can listen to the blood flowing through the veins.

If a varicocele is discovered, the specialist will compare the finding with the semen analysis. A varicocele that causes fertility problems usually presents a consistent pattern on the semen analysis, namely, a great number of immature sperm, with tapered or "stressed" heads. Many more sperm are dead or dying.

TREATMENT
If a varicocele is present and the semen analysis shows a stress pattern and a low sperm count, surgery is usually recommended. Either general or local anaesthesia can be used in this operation. The surgeon makes an incision in the lower abdomen, locates the bundle of blood vessels, and isolates the veins from the artery and the vas deferens. The surgeon ties off the main trunk of the veins above the varicocele.

New pathways will open up to carry blood from the testicles. The man may remain in the hospital overnight or go home the same day. He can resume his normal activities, including sex, within a week.

Another technique is to have a radiologist plug off the vein by inserting a small balloon into the testicular vein. This procedure does away with the surgical incision, but has the potential risk of clotting the bigger veins and having the balloon migrate into the lungs.

After surgery, a man must wait three months for new sperm to be produced and find their way into the ejaculate. This is a stressful period, since the first postoperative semen analysis will not be taken for ninety days. Some improvement is usually seen at that time; but maximum recovery of sperm production usually doesn't show up until the next analysis, at the six-month mark.

Semen quality and/or sperm count improves in 80 percent of infertile men who have surgery, but only half of these men go on to impregnate their wives. The number of successful pregnancies is higher for those men whose sperm counts were relatively high (10-20 million per cc) before surgery. The pregnancy rate is somewhat lower when the sperm count is under 10 million per cc before surgery. Even so, the overall high success rate makes surgical correction of varicocele the most effective of all fertility treatments available to men.

If the sperm count doesn't improve following surgery, some physicians recommend a course of drug therapy with either clomiphene or HCG (human chorionic gonadotrophins). HCG is similar to the brain hormone, leutenizing hormone or LH, which helps the testicles produce testosterone.