Non-operative treatment of varicocele

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Summary

Thirty-eight patients with 40 varicoceles underwent spermatic venography and 27 varicoceles were treated by transvenous embolization under local anesthesia as an outpatient procedure. The indications for the procedure were infertility (21), swelling (3), pain and discomfort (9) and asymptomatic varicoceles (5).

Varicoceles occur in 15% of the general male population and the incidence varies from 21% to 41% in men attended an infertility clinic. By using thermography, Chatel et al. found left-sided varicocele in 70% of infertile men.

Spermatic vein venography followed by transvenous embolization is a useful diagnostic and therapeutic procedure. Surgical ligation of the spermatic vein for the treatment of varicocele requires general anesthesia and hospitalization whereas transvenous embolization is performed as an outpatient procedure and under local anesthesia. Precise occlusion of the spermatic vein takes place and inadvertent damage to the testicular artery is avoided.

The use of transvenous spermatic vein embolization in the treatment of varicocele is discussed.

Patients and methods

The study group consisted of 38 patients with varicoceles; mean age 28 years (range 13-63 years). They were seen because of infertility (21 patients), swelling of the varicocele (3), and pain and discomfort (9); 5 patients were asymptomatic. The asymptomatic patients were found to have a varicocele on routine clinical examination by their family doctors. Four patients had undergone a previous surgical procedure for varicocele but it had recurred. All patients underwent spermatic vein venography and, where possible, transvenous embolization.

As an outpatient procedure all patients had a type III end-hole Cobra catheter introduced under local anesthesia into the inferior vena cava through the femoral vein using the Seldinger method. The left spermatic vein was catheterized and a venogram using Angiografin 65% (≤100 ml) carried out.

Only one film of the scrotum was needed to demonstrate the extent of the varicocele. The remainder of the films are coned to the upper abdomen and very little scan of radiation to the scrotum occurs. The tests were not covered with a lead shield. The procedure takes from 15 to 30 minutes with an average duration of about 20 minutes. The contrast material was injected by gentle hand injection and the catheter left free in the internal spermatic vessels, thus avoiding artefactual reflux from occlusion of the vein and a high pressure injection. If the femoral approach failed, the spermatic vein was catheterized via the right antecubital vein and superior vena cava — this was necessary in 3 patients.

The left testicular vein is almost invariably catheterized without difficulty since its anatomy is constant. This applies particularly in the presence of a varicocele because the testicular vein is dilated. The right testicular vein may present difficulties because its site of entry into the inferior vena cava is variable and the angle between it and the inferior vena cava is acute.

A straight 0,038 movable-core guide wire facilitates introduction of the catheter into the left testicular vein and it is usually possible to manipulate the catheter deep enough to allow selective catheterization of more than one tributary.

Embolization was accomplished in all the cases with a 3 mm, 5 mm or 8 mm Gianturco coil, once spermatic venous incompetence was established (Fig. 1). Patients with numerous venous tributaries were not selected for embolization. In some of these patients with numerous collateral vessels it was technically impossible to embolize each and every collateral; in others the procedure would have become prolonged if every collateral was embolized, and there would have been an increase in exposure to radiation.

Results

Twenty-five patients underwent successful embolization without any complications. In this group 3 patients had right-sided varicoceles and 2 had bilateral varicoceles. In 12 patients the varicoceles were not embolized — 10 had multiple incompetent veins and embolization of all these collaterals was not possible. In 1 patient it was, for technical reasons, impossible to pass a catheter into an incompetent spermatic vein. In spite of having a large left varicocele clinically, an incompetent spermatic vein could not be demonstrated in 1 patient. These 12 patients underwent surgery.

In 1 patient the coil unfolded and extruded from a tributary of the spermatic vein and lay in the inferior aspect of the renal vein. (Fig. 2). This coil was removed from the renal vein by transabdominal surgery at the same time as a 'high' ligation of the spermatic vein (where it enters the renal vein) was carried out. This complication would not occur if the coil were placed in a diluted spermatic vein.

References


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Discussion

In this series 27 varicoceles in 25 patients were successfully embolized, giving a success rate of 68%. Multiple venous channels were the main reason for failure. Complications were minimal, there being only 1 serious one. This was early in the series and no major complications occurred subsequently.

Infertility was the major indication for this procedure. Spermatic vein venograms should be done in patients with infertility problems and clinically detectable varicoceles, and in patients who show a 'stress' picture on their spermiogram and a clinically normal spermatic cord.7 We have previously reported the results in a series of 21 patients with infertility;8 in which 3 men had subclinical varicoceles and were referred for spermatic vein venography on the basis of their spermiograms.

There is no correlation between the size of the varicocele and the degree of testicular dysfunction. Thus, subclinical varicoceles diagnosed on venography may be a significant cause of infertility and therefore diagnosis of these incompetent spermatic veins is important. Patients complaining of the swelling of the varicocele, or pain and discomfort are easily treated by this procedure, and in all instances respond dramatically to embolization of the varicocele.

Buch and Cromie10 presented data to show that the effects of varicocele are often of a progressive nature. Others have stressed the importance of recognizing testicular atrophy and have encouraged the treatment of adult and childhood patients. Wyllie11 has demonstrated that a varicocele which develops when the testis is immature adversely affects its growth and this type of patient may well present with infertility. We therefore advocate that patients with asymptomatic varicoceles be subjected to transvenous embolization.

Conclusion

Transvenous embolization is simple and easy to perform. It should be used as an initial therapeutic procedure in the treatment of clinically present varicoceles. It should also be used as a diagnostic and therapeutic procedure in infertile patients with a 'stress' spermiogram and a clinically normal pampiniform plexus.

REFERENCES