Abstract. The varicocele is a common cause of adult male infertility, but surgical treatment in adolescence still remains controversial. Many data suggest that early recognition and correction of a varicocele may prevent testicular damage and sterility. The argument that infertility does not necessarily result in each case is probably not relevant due to uncertainty involved in an individual case. Changes similar to those observed in infertile adults occur in the affected testicle in adolescents with varicocele. High ligation of the spermatic veins is associated with a 20% recurrence rate. Twenty-five children (mean age 12 years 5 months) underwent microsurgical treatment for a left-sided varicocele. All had antegrade phlebography under general anesthesia to distinguish the type of varicocele and determine the proper surgical approach. Twenty (80%) patients had type 1, 2 (8%) type 2, and 3 (12%) had a third type. All were treated using Belgrano’s technique, which seems to allow anatomic-physiologic venous return from the testis. The mean postoperative hospitalization was 4 days and the mean follow-up time 17 months. Belgrano’s technique is a complete, easy and esthetically effective procedure for treating varicocele in childhood. It is also advisable to employ phlebography in patients treated by the most common surgical approach to avoid recurrences. These findings encourage early surgical treatment, which in our experience was always effective.

Introduction

A significant correlation between varicocele and infertility has been demonstrated in many patients suffering from this condition, which is reported to occur in infertile men approximately 2 to 3 times more frequently than in the fertile population [21].

The most important hypotheses regarding testicular damage are: (1) higher temperature of the gonad; (2) adrenal blood reflux; (3) venous stasis, and (4) impaired arterial perfusion with subsequent seminiferous epithelial alterations [10, 26]. In addition, immunologic mechanisms may be involved.

Recent studies have demonstrated significant morphologic changes in the ipsilateral testicle of children with varicocele [11, 17]: degeneration of the seminiferous tubules [11, 18] and abnormal responses to follicle-stimulating hormone (FSH) and luteinizing hormone (LH) in adolescents [18]. Lyon et al. report that “the earlier the varicocele appears the greater the change of testicular growth arrest” [17]. These findings have led us to conclude that it may be more correct “to treat than not treat” varicocele in children [9].

Many authors have reported that surgical treatment of idiopathic varicocele may improve the quality and number of spermatozoa and the pregnancy index [5]. Nevertheless, the most common surgical approach, Ivanissevitch’s high ligation of the internal spermatic vein [14], is associated with recurrences and complications in 3%–20% of cases and the semen quality is not improved in 20%–30% of patients [25].

We treated 25 children with an idiopathic varicocele on the left side using a microsurgical technique following transscrotal antegrade phlebography of the internal spermatic vein.

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Materials and methods

From November 1985 to October 1986, 25 children with a mean age of 12 years 5 months (range 11 years – 13 years 10 months) underwent microsurgical treatment using the procedure described by Belgrano et al. [2].

The varicocele was graded on the 1-to-4 scale suggested by Horner [12]. Phlebography, performed under general anesthesia as the first step of the operation, has been a valuable aid in choosing the proper surgical approach [3]. Three types of varicocele can be distinguished: (1) passive renal spermatic reflux; (2) distal “nutcracker” phenomenon; and (3) both types coexisting (Figs. 1–3).

In all cases we created an end-to-end anastomosis between the internal spermatic and inferior epigastric veins. Via a standard inguinal incision, the cord structures were mobilized. The inferior epigastric vessels were identified and carefully isolated for a length of 3–4 mm. The operating microscope was then introduced and under 6–10× magnification the spermatic vein (s) was separated from the spermatic artery and the epigastric vein (s) separated from the epigastric artery. The internal spermatic vein was divided and the distal stump – the one farther away from the testis – was ligated. The proximal stump of the spermatic vein was anastomosed end-to-end to the epigastric vein.

For the first type of varicocele we utilized the iliac stump of the epigastric vein; for the second and third types we used the abdominal stump of the epigastric vein itself (Fig. 4).

In cases of multiple spermatic veins, the largest one was selected for anastomosis and the others were ligated. The operation was performed with the aid of a microscope (Wild Leitz M 690) using 9/0 nylon or prolene and separate stitches under 12–18× magnification.

Results

In our series of 25 children, 1 had a Horner grade 1 varicocele, 9 had grade 2, 12 had grade 3, and 3 had grade 4; 18 (72%) had a smaller left testis.

All patients had antegrade phlebography, as the hemodynamic conditions of the varicocele could not always be visualized by retrograde phlebography [4, 16].

The study revealed isolated impaired left renal venous drainage (type 1) in 20 patients (80%) and the “inferior nutcracker sign”, partial obstruction of the left iliac vein (type 2), in 2 (8%); in 3 (12%)