

# Chapter 16

## Technical Tips for Varicocelectomy

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**Abstract** Successful varicocele repair is of utmost importance for infertile couples with varicocele as a cause of male factor infertility. In this chapter, technical tips to increase quality of varicocele repair will be given. For varicocele repair, sub inguinal, inguinal, and retroperitoneal approaches can be used.

**Keywords** Varicocele repair • Surgical technique • Infertility

### Introduction

The role of varicocele repair on maintaining spontaneous pregnancies has been a subject of debate and still controversy exists on its superiority over observation. However, recent randomized controlled trials on population of clinical varicocele and impaired semen analysis and meta-analysis of these trials clearly shown the advantage of varicocele repair [1,2,6]. Therefore successful varicocele repair is of utmost importance for infertile couples with varicocele as a cause of male factor infertility. In this chapter, technical tips to increase

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quality of varicocele repair will be given. For varicocele repair, sub inguinal, inguinal, and retroperitoneal approaches can be used. Currently sub inguinal approach with aid of operating microscope is the most commonly used, as in our center, technique with high success and low complication rates [3–5]. In the following sections technical tips for sub inguinal approach will be given.

## Sub Inguinal Microscopic Varicocelectomy

### *Patient Position and Incision*

The patient must be positioned supine and mild Trendelenburg position maintains distention of the spermatic cord. Standard perioperative precautions such as padding, deep venous thromboembolism prophylaxis, and intravenous antibiotics for prophylaxis against gram-positive skin organisms should be applied. The incision must be at the level of external inguinal ring. To maintain the correct level of incision, external inguinal ring must be identified digitally by invaginating the scrotum. Generally a 2–3 cm transverse skin incision along the lines of Langerhans is performed to maintain adequate space to reach the spermatic cord. After passing through the Camper's and Scarpa's fascia, the surgeon should be aware of the inferior epigastric vein.

### *Identification of the Cord and Ligation of External Spermatic Veins*

Spermatic cord should be identified at the level of external inguinal ring and it should be grasped with a Babcock clamp and drawn gently through the incision. Ilioinguinal nerve must be identified at the level of external inguinal ring where it exits from the inguinal canal. It should be dissected gently and should be spared (Fig. 16.1). Spermatic cord must be dissected bluntly and cremasteric attachments must be divided. At this level perforating external spermatic vessels should be



FIGURE 16.1 Subinguinal varicocelelectomy: ilioinguinal nerve must be identified at the level of external inguinal ring where it exits from the inguinal canal. It should be dissected gently and should be spared

identified and carefully ligated (Fig. 16.2). Spermatic cord should be positioned on a tongue depressor and the operating microscope should be brought into the field and the cord should be examined under 8–15 power magnification. The most important point is the spermatic cord should be held at a level as proximal as possible even from the inner portion of inguinal canal to perform high ligation of the vessels. External and internal spermatic fascia should be opened and spermatic cord is inspected carefully.

### *Identification and Preservation of Internal Spermatic Artery*

Identification and protection of testicular artery is of utmost importance. Pulsations of the artery should be inspected but it is not always possible to observe. To aid identification of artery and separation of it from the adjacent veins, micro-Doppler should be introduced before fine dissection of the spermatic cord (Fig. 16.3). Internal spermatic artery may be



FIGURE 16.2 Spermatic cord must be dissected bluntly and cremasteric attachments must be divided. At this level perforating external spermatic vessels should be identified and carefully ligated

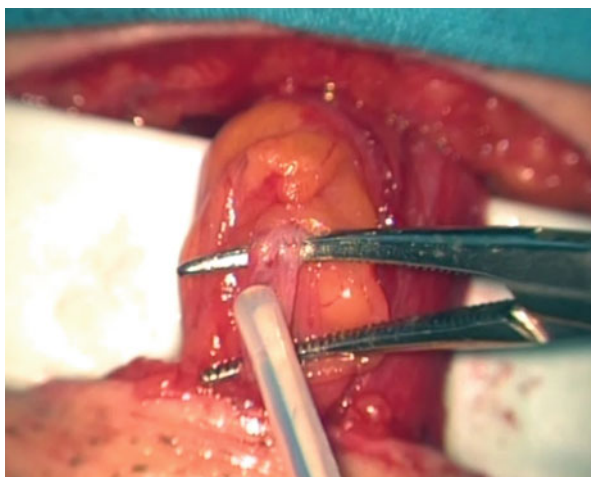


FIGURE 16.3 Identification and protection of testicular artery: to aid identification of artery and separation of it from the adjacent veins, micro-Doppler should be introduced before fine dissection of the spermatic cord

small in diameter or it may get smaller in diameter due to manipulations of the spermatic cord. In this case irrigation of the field with lidocaine 1 % solution or papaverine (30 mg/mL) diluted in a 1:5 ratio with saline helps to dilate the artery. Systemic hypotension due to anesthesia may also complicate identification of the artery. In this case the anesthesiologist should be requested to increase the systolic blood pressure over 100 mmHg. After identification of the artery, care the surgeon should take care of it throughout the surgery to protect and should be identified several times while performing fine dissection of the other structures.

### *Ligation of the Veins and Preservation of the Lymphatics*

After identification of the artery, internal spermatic veins should be ligated and divided. For ligation 3-0 or 4-0 silk is generally used. However we use titanium surgical clips for venous occlusion. While dividing the veins, special care for preservation of lymphatic vessels should be given. Optical magnification aids in identification of the lymphatics and it is responsible for decreased rates of hydrocele following sub inguinal varicocelectomy. After ligation of all veins, dissection of the cremasteric fibers should be performed and any cremasteric arteries identified should also be preserved.

### *Completion of the Surgery*

At the end of the procedure, to ensure completion of the surgery, the surgeon should check out the patency of testicular and cremasteric arteries, lymphatics, and vas deferens with its associated vessels, while there are no other veins (other than those preserved in the vas deferens packet) are visualized. If the operation is performed under local anesthesia the patient may be asked for a Valsalva maneuver to observe filling of any missed veins. Careful hemostasis should be performed first at the level of spermatic cord and than

hemostasis of the adjacent tissues should be performed especially in case of ligation of external spermatic veins. The spermatic cord than should be returned to its original position. For postoperative pain relief, proximal spermatic cord may be infiltrated with local anesthetics (0.25 % bupivacaine).

For completion of the surgery, Scarpa and Camper fascia should be closed with fine absorbable sutures, and the subcutaneous tissue should be infiltrated with a local anesthetic. The skin should be closed with running subcuticular closure and Steri-strips must be used to diminish the tenderness of the edges.

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