

# Surgery Illustrated

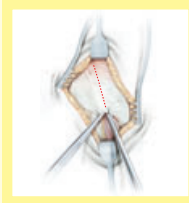


## Communicating hydrocele/hernia repair in children

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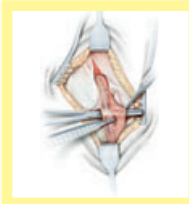
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### INTRODUCTION

Hydrocele surgery in children can be simple or remarkably complex, depending on the child's anatomy and the surgeon's experience. Importantly, a hydrocele in a child is most

frequently a communicating hydrocele, with a patent processus vaginalis. In these cases the critical step in the operation is a high ligation of the hernia sac (the patent processus vaginalis). Dealing with the hydrocele itself is secondary and often unnecessary.

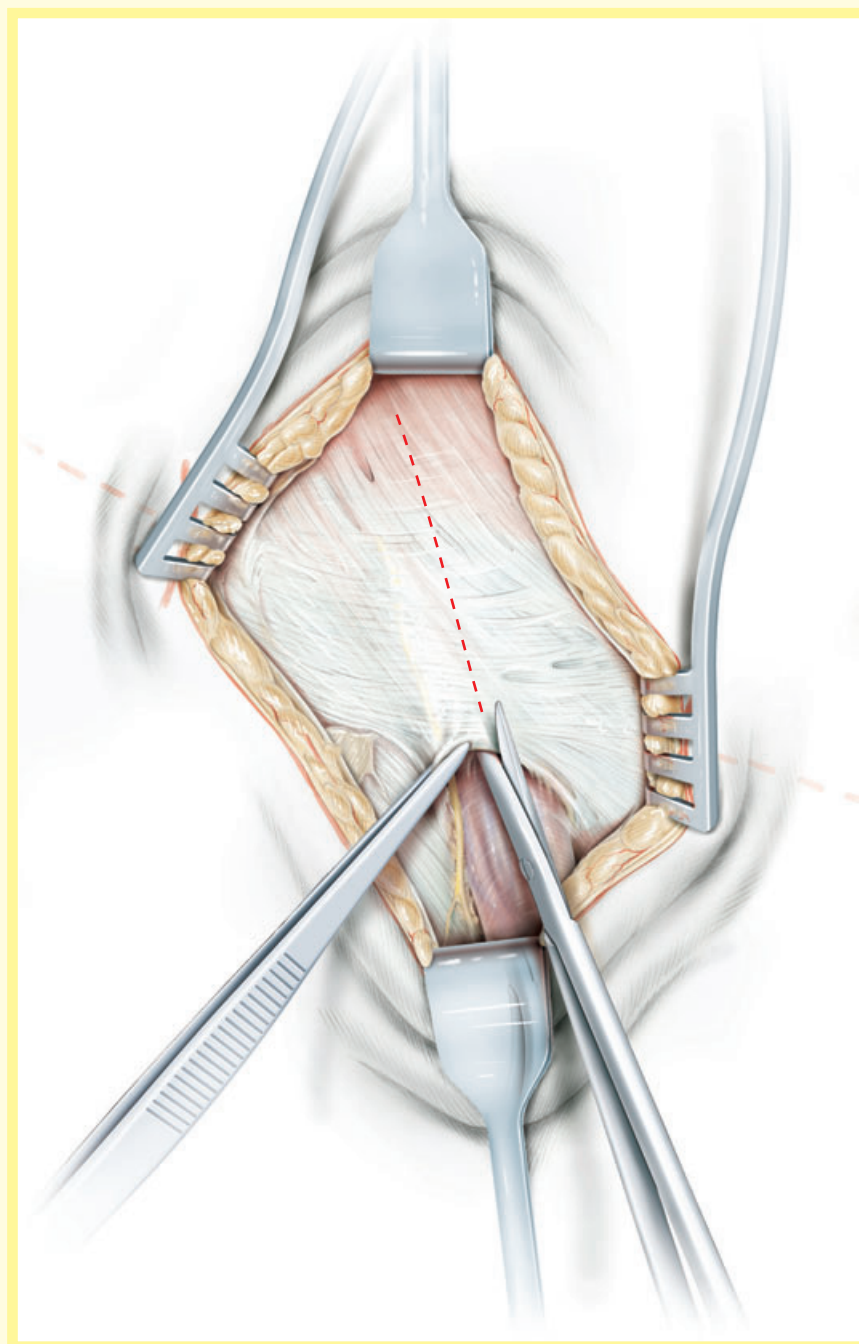


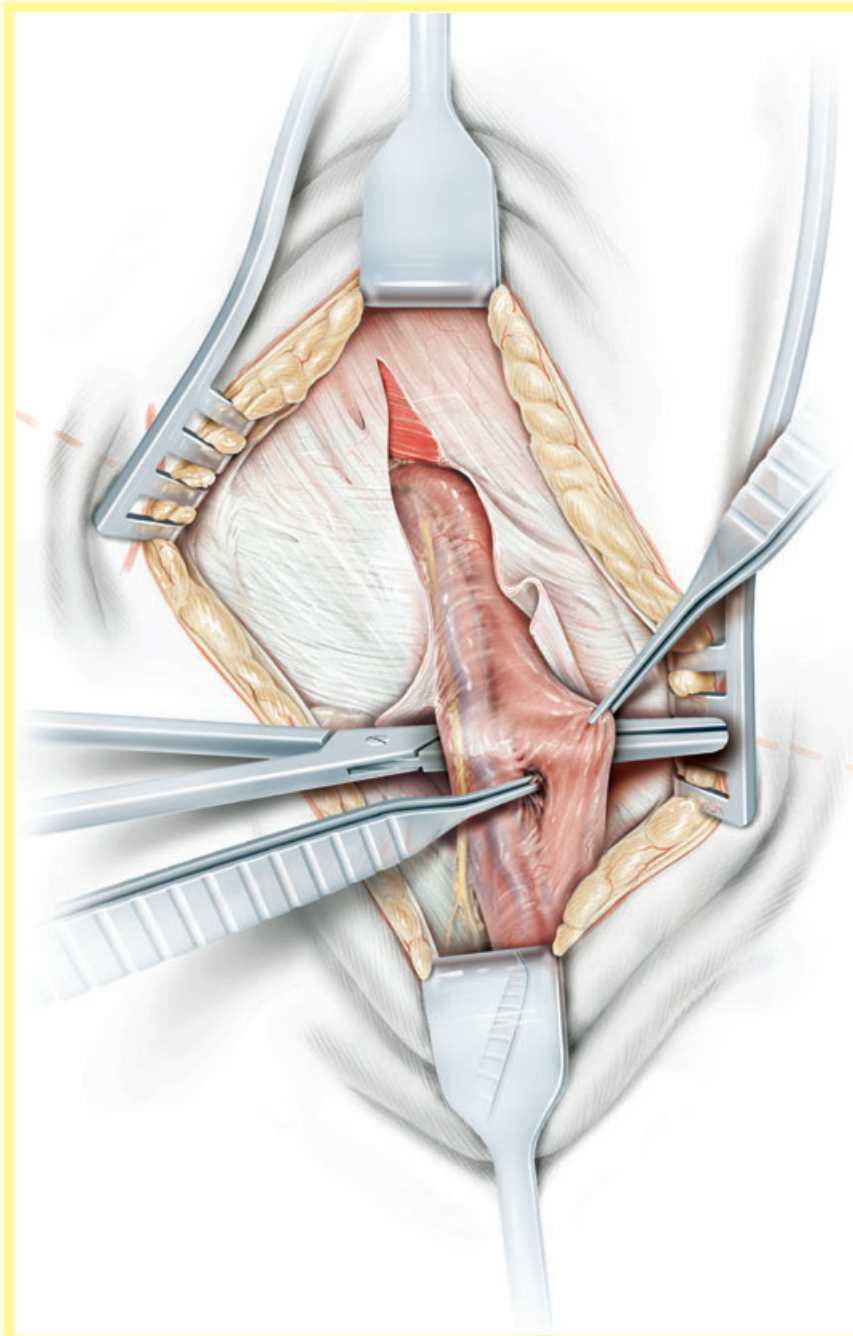
**Figure 1**

Locate the external inguinal ring about 3 cm superior and lateral to the pubic tubercle, and mark a 2–3 cm incision line along Langer's lines in a skin crease on **both** sides (just in case there is a contralateral hernia that needs repair). Using a knife and fine-tipped cautery, open the skin and subcutaneous tissue down to the external oblique, and by spreading, clear the inguinal ligament down towards the symphysis until the external ring is clearly delineated (slight tension on the testis will help to delineate the cord exiting the external ring).

**Figure 2**

Often it is possible to identify the ileo-inguinal nerve just beneath the fascia. Incise the external oblique sharply along the course of its fibres so that the incision opens through the external ring. Care must be taken to avoid the ileo-inguinal nerve. Using a right-angle, dissect the cord structures and bring them up into the wound, leaving the ileo-inguinal nerve behind. Cremasteric fibres should be gently pulled off to help the dissection and allow the cord to be mobilized to the skin level.

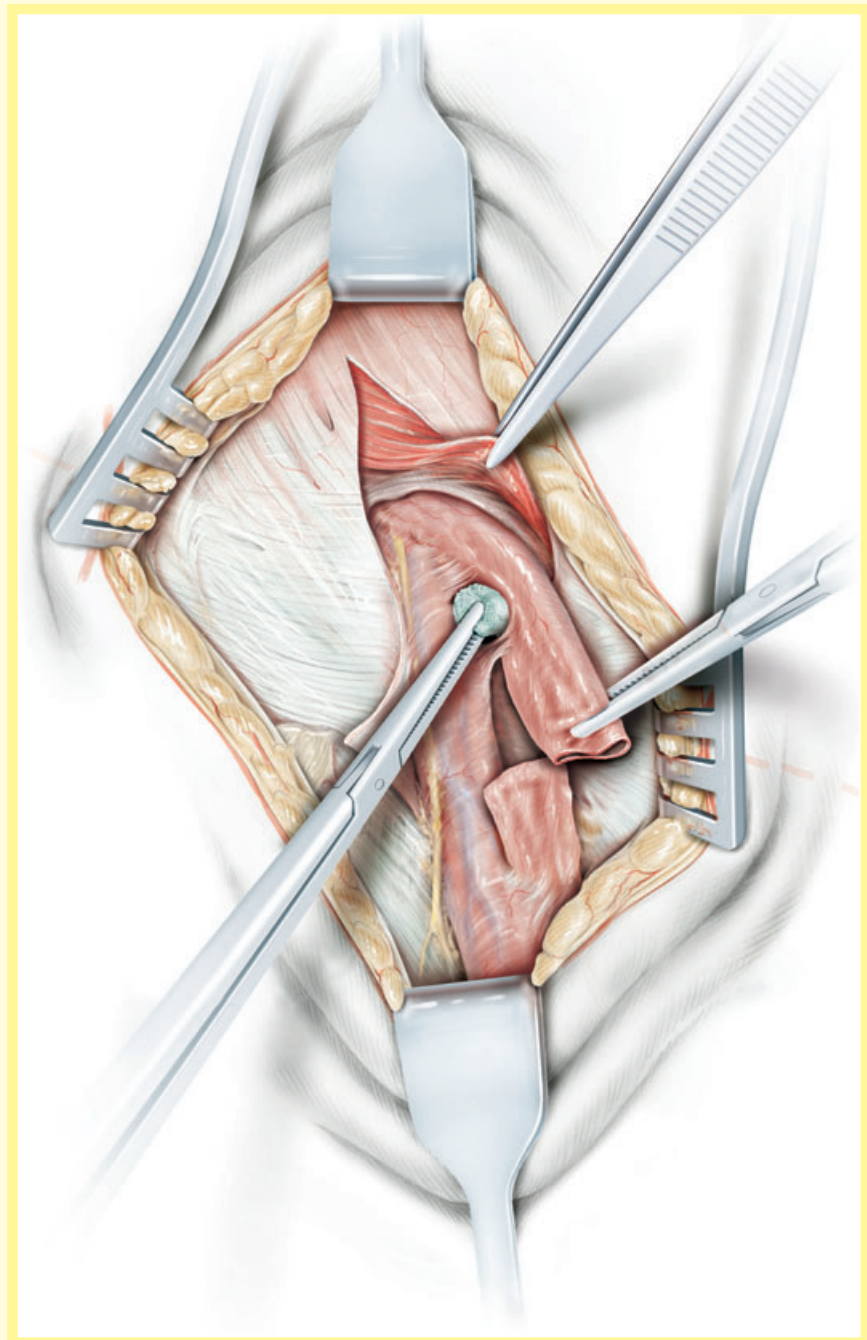


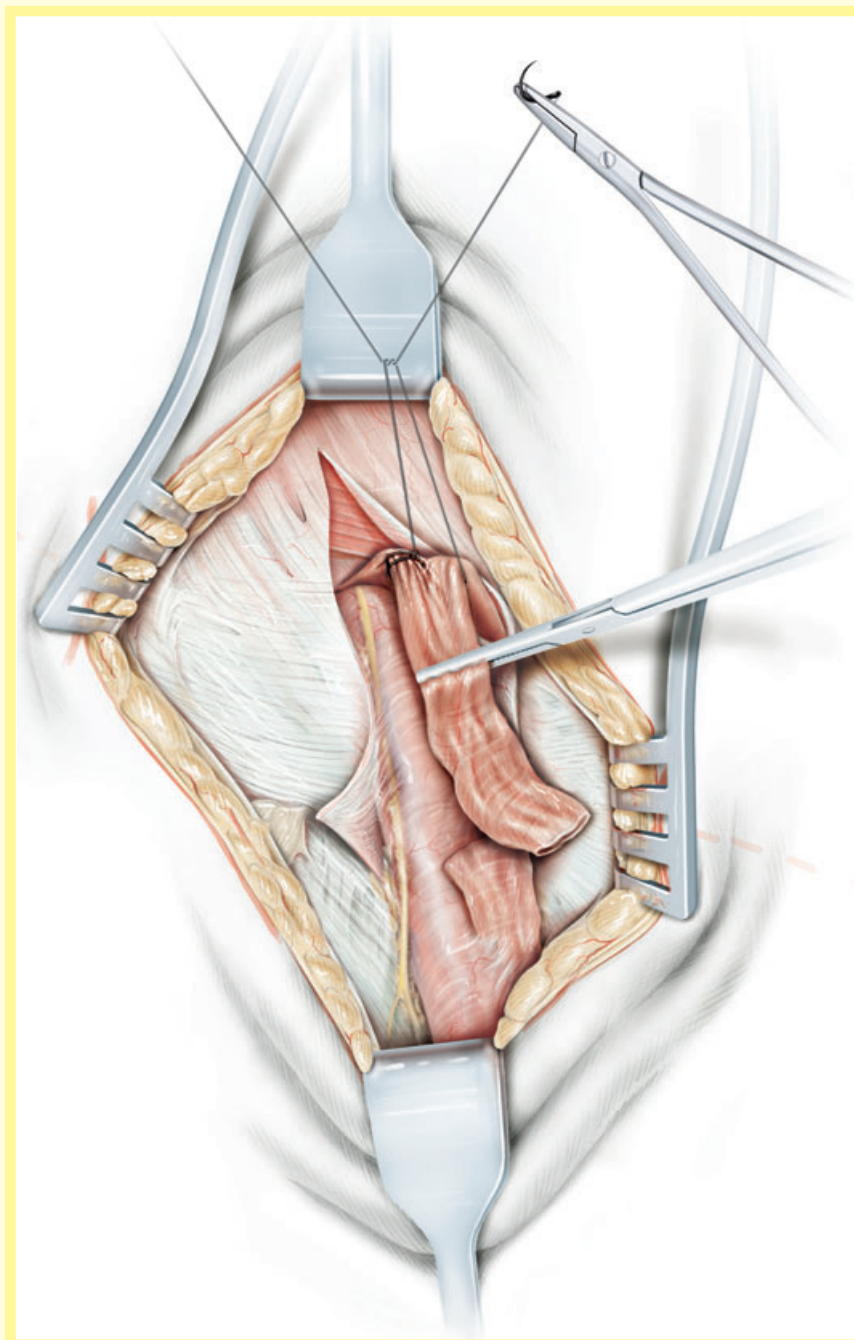
**Figure 3**

With the cord structures isolated and brought up to the skin level, the processus vaginalis should be visualized at the internal ring and is always seen anteromedial to the rest of the cord structures. Using smooth forceps, the processus is held firmly and the vessels and vas gently teased off. They should be gently pulled apart, but not grasped, as it is very easy to injure them permanently. Depending on the size and thickness of the processus vaginalis, this can be easy or challenging.

**Figure 4**

Once the processus vaginalis is separated in one area, it is easiest to divide it while controlled with a haemostat and using this handle, blunt dissection can be used to extend the separation from the cord structures up to and above the internal ring.



**Figure 5**

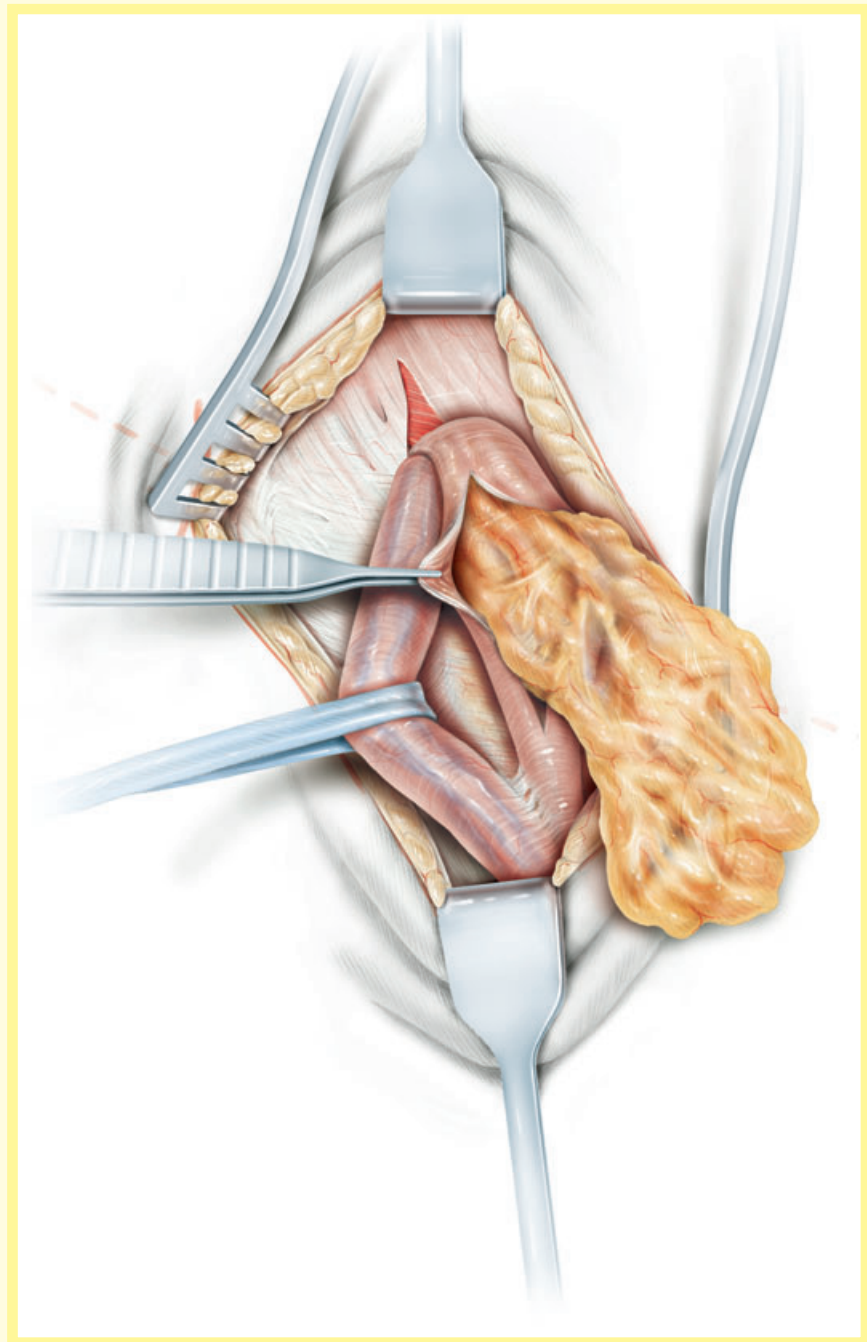
The hernia sac is then suture ligated, completing the repair. If there is a small to moderate hydrocele in the scrotum, it is drained through the open processus vaginalis. The ileo-inguinal nerve and the skin edges are infiltrated with a long-acting local anaesthetic and the wound is closed in layers with an absorbable subcuticular skin closure.

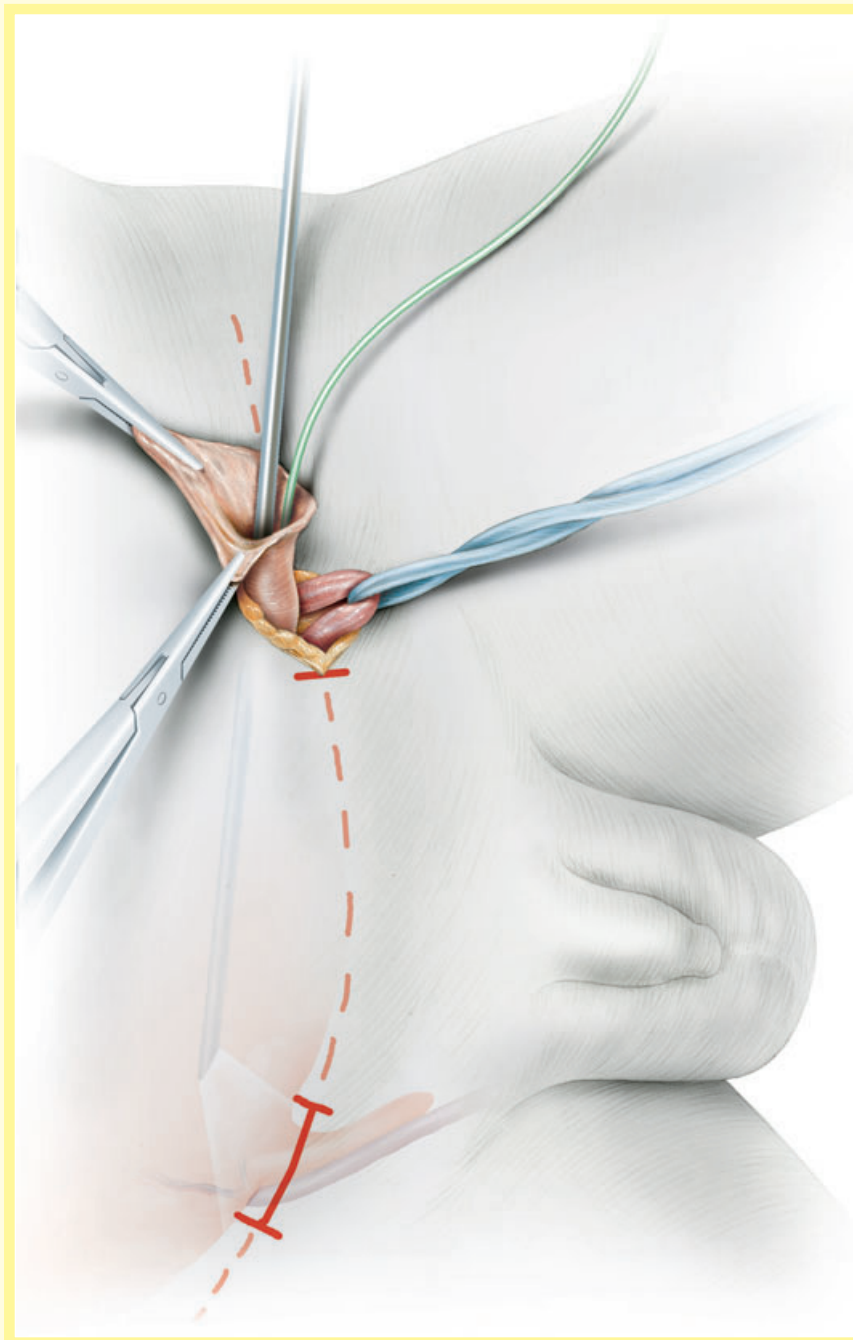
### SPECIAL TECHNIQUES

When the hernia sac has tissue in it: **Figure 6**

If there is omentum or bowel in the hernia sac, this can be palpated or visualized. With the child relaxed under anaesthesia it is often easily reducible with gentle pressure on the tissue, pushing it back towards the peritoneum. If not, the hernia sac can be opened and the tissue manually reduced.

Tense scrotal hydrocele: if there is a large and/or tense hydrocele (usually because the distal tunica/hydrocele is loculated), we prefer to bring the testis up into the wound and to widely open the tunica vaginalis and fold it back upon itself.



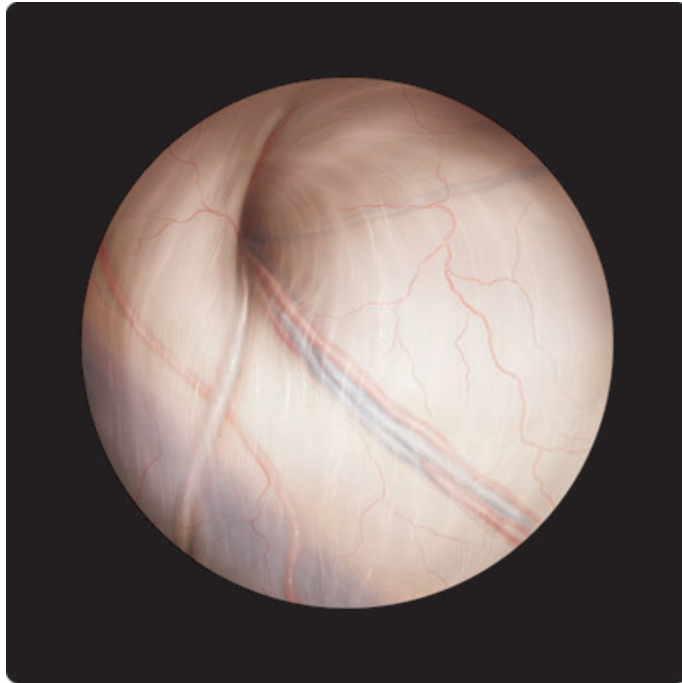


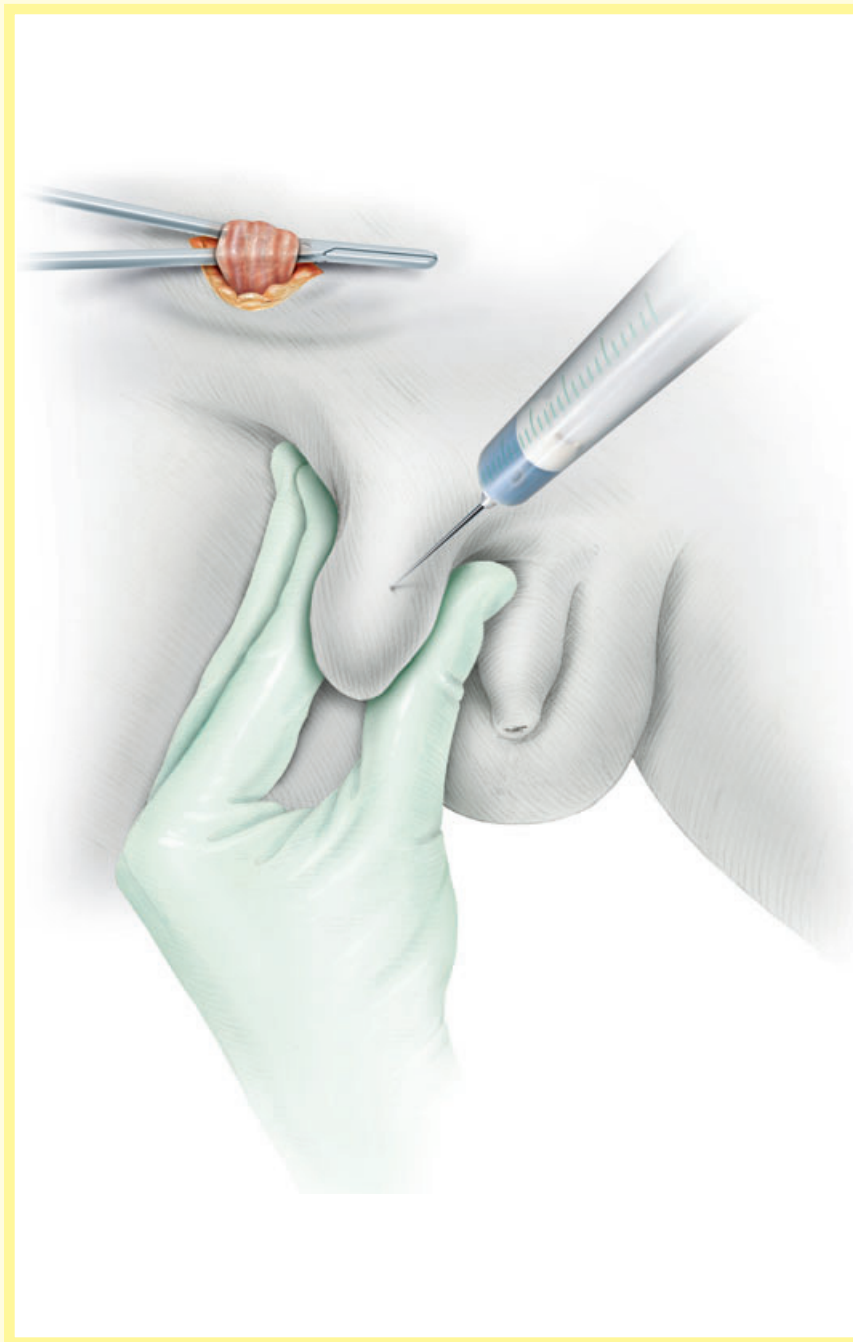
Laparoscopy for a contralateral patent processus: **Figs 7 and 8**

Because at least 3–5% of patients will present later with a symptomatic hydrocele/hernia on the contralateral side, we prefer to use peritoneal insufflation and endoscopy to evaluate the contralateral internal ring.

Before ligating the hernia sac, an 8 F feeding tube and a small 70° lens (usually a cystoscope lens) are passed from the hernia sac into the peritoneum. The abdomen is insufflated with CO<sub>2</sub> and the contralateral internal ring is visualized. The contralateral groin is palpated for crepitus and the contralateral internal ring is evaluated.

If it is visually patent and there is crepitus in the groin (if it is patent, bubbles can be observed at the internal ring after palpating for crepitus), a contralateral procedure is performed. It is useful not to desufflate the abdomen completely at this time, as the persistent CO<sub>2</sub> will help to delineate the contralateral hernia sac when it is dissected.



**Use of methylene blue: Figure 9**

A useful adjunct in the repair can be the injection of a very small amount of methylene blue in the hydrocele sac. A 30 G needle is used to inject about 0.5 mL of methylene blue into the hydrocele. There are two circumstances in which this is particularly useful:

**Figure 10;** when there is a moderate but not tense hydrocele, the blue dye flows upwards into the inguinal canal. The blue then clearly outlines the processus vaginalis, making dissection much easier. This is particularly informative for trainees.

When there is a tense scrotal hydrocele, there is often both a patent processus at the internal ring and a loculated area distally. Injecting methylene blue into the tense sac allows for certain delineation of the loculated area, confirming the anatomy.

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