



A combined preperitoneal and inguinal approach for redo orchiopexy

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Summary

Introduction

Redo orchiopexy involves a hazardous dissection inside the inguinal canal (IC) where scar tissue encircles the testicular vessels (TesV), vas deferens (VD), and the testis.

Objective

The aim was to describe and evaluate a combined preperitoneal and inguinal approach (CPI) through a single cutaneous incision and accomplish this task as safely as possible, at the same time permitting additional maneuvers for cord lengthening.

Material and methods

We prospectively studied eight patients aged from 2.7 to 13 years (mean 7 years) reoperated for failed orchiopexy using the CPI approach. Reoperation took place 12 months to 11 years (mean 4.4 years) after the initial operation. Through a single transverse skin crease incision over the IC, at the level of the deep inguinal ring (DIR), we gained access to both the preperitoneal space (PPS) and the IC. We first entered the PPS, the peritoneum is retracted, and the VD and TesV are seen entering the DIR. They are gently dissected and two vascular lacets are passed around them. We introduce the backside of an anatomic forceps through the DIR, just under the anterior IC wall, until it is impeded by adhesions and then incise above the forceps, thus protecting the cord structures. Through that

opening we transpose one of the lacets that encircle the VD and TesV and exercise traction upon them (figure, 1), revealing step by step the points where adhesiolysis must take place (figure, 2). The testis is dissected last of all and delivered back, through the DIR, into the PPS. There, the TesV and VD are freed from their retroperitoneal attachments (figure, 3). Finally, the testis is fixed into a Dartos pouch.

Results

In all cases the testes were relocated to the scrotum without any mishaps. All testes were inside the scrotum at first month examination and with good consistency. At 6 months, one testis ascended at mid-scrotum. At 2 years they all retained their position and their good standing, according to clinical and ultrasonographic findings.

Discussion

Several procedures of redo orchiopexies have been published so far, most of them rely on the surgeon's dexterity for good results. The CPI procedure offers a practical maneuver to protect the cord elements while dissecting and also exposes all the regions where dissection will offer lengthening of the cord.

Conclusion

Our results have demonstrated that the CPI can be considered as a safe and efficient procedure for redo orchiopexy.

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Keywords

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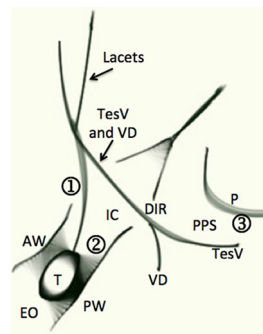


Figure Dissection of the vas deferens and testicular vessels. 1, opened AW; 2, region of dense adhesions; 3, region of pre- and retroperitoneal dissection. AW = anterior wall of IC; DIR = deep inguinal ring; EO = external orifice of IC; IC = inguinal canal; P = peritoneum; PW = posterior wall of IC; TesV, testicular vessels; VD = vas deferens.

Introduction

Retraction of the testis following previous orchiopexy occurs in about 2% of the cases operated on by experienced hands [1]. In order to relocate the testis for a second time, the testicular vessels (TesV), vas deferens (VD), and the testis itself have to be released from postoperative adhesions inside and distally to the inguinal canal (IC) [2,3]. Additionally, other possible conditions tethering the spermatic cord, not corrected during the initial operation, must be investigated and corrected [2].

Our strategy is to start the TesV and VD dissection from the preperitoneal space (PPS), where no adhesions are present, and only after good control is gained over them, to continue the dissection in the scarred intracanalicular area step by step.

In order to serve these purposes, we use a combined preperitoneal and inguinal approach (CPI) through a single cutaneous incision, which we present in this paper.

We applied the CPI approach and we examined it for efficacy and safety.

Material and methods

We prospectively evaluated the CPI redo orchiopexy for efficacy and safety. In our institution, over a period of 7 years (February 2005 until February 2012) 480 primary orchiopexies were performed and 19 patients were examined for failed orchiopexy. Among these, eight patients were managed with different surgical approaches by other surgeons and 11 were examined by the authors of this paper, with the purpose to be treated with the CPI technique, and they represent the subjects of this investigation. Their testes (11 testes) retracted after prior orchiopexy for undescended testis and were no longer found in the scrotum. The condition was discovered during a medical examination or by the parents themselves, and confirmed in our department by clinical examination and ultrasound. The criteria for inclusion in the study were (a) the presence of the retracted testis above the scrotum, inside the IC or just distally to it, (b) the retracted testis should be larger

than half the volume of the contralateral scrotal testis by ultrasound criteria. Three patients were excluded from the study, two for small cryptorchid testes and one for a testis peeping at the DIR. Finally, eight patients were included in the study, aged from 2.7 to 13 years (mean 7 years). The mean volume of their retracted testes, calculated with the help of ultrasound, was 0.95 mL (0.20–3.66), while that of the contralateral testis was 1.06 mL (0.24–3.86). None of them seemed atrophic and the relative size of the retracted testis was from 70% to 100% compared with that of the scrotal testis. Reoperations took place 12 months to 11 years (4.4 years) after the initial operation. The retracted testis was fixed at the superficial inguinal ring in five cases, in the distal IC in two cases, and at the mid-portion of the IC in one case, always firmly attached to the surrounding tissues. Informed consent was asked from the parents after explaining to them the additional abdominal approach and the possible mishaps of the operation. The study was approved by the scientific committee of our institution.

In two cases, full medical records on the initial management were available, in two cases only the operation report was available and in four cases no report was available. For the two patients with medical records, the testes were reported palpable before the initial operation, but for the remainder of the patients no information was available.

Reoperation should be scheduled at least 6 months after the primary operation when no active inflammatory process will be present [2]. It is performed under general anesthesia and with adequate muscular relaxation.

A transverse skin crease incision is made over the inguinal canal, placed more laterally than for standard orchiopexy. The incision is centered over the deep inguinal ring (DIR) at mid-distance between the ipsilateral anterior superior iliac spine (ASIS) and the pubic tubercle (PT). If the site of the previous incision is acceptable, an incision was made at the same site. The incision is deepened until Scarpa's fascia is divided and the external oblique aponeurosis (EOA) is exposed along the inguinal ligament (IL) and medially for about 3–4 cm, from the PT up to the ASIS (Fig. 1A). The EOA, and the internal oblique and transversus abdominis are also split 2–3 cm cranially to the DIR, and retractors are inserted, helping to expose the

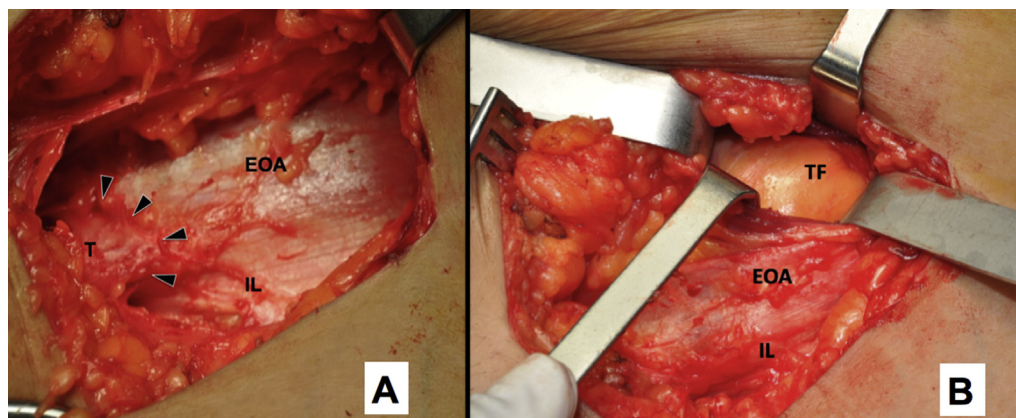


Figure 1 Orientation: left inguinal region, head up, feet down. (A) Exposed EOA and retracted testis (T) at the superficial inguinal ring (arrowheads). (B) EOA, internal oblique and transversus abdominis muscles are divided and the TF exposed. EOA = external oblique aponeurosis; IL = inguinal ligament; TF = transversalis fascia.

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