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Laparoscopic treatment for inguinal hernia combined with cryptorchidism: Totally extraperitoneal repair with orchiectomy under the same operative view



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ABSTRACT

INTRODUCTION: Approximately 7% of child patients with inguinal hernias also present with cryptorchidism. On the other hand, combined adult cases are uncommon. Here we report two adult cases of inguinal hernia combined with intra-canalicular cryptorchidism who underwent totally extraperitoneal (TEP) repair with orchiectomy under the same operative view.

PRESENTATION OF CASES: We treated two patients (49- and 38-year-old men) with right indirect inguinal hernias and cryptorchidism. Both patients underwent TEP repair with orchiectomy. In operative findings, an atrophic testis was drawn out with a hernia sac from the internal inguinal ring. After the testis was separated from the sac and cord structure was sheared, it was removed. The procedure did not require special techniques and devices. In both patients, the postoperative courses were satisfactory.

DISCUSSION: To our knowledge, there has been only one such reported case till date which demonstrated the feasibility of TEP repair accompanied by orchiectomy.

CONCLUSIONS: TEP repair with orchiectomy under the same operative view could be safely performed in adults with an inguinal hernia combined with extra-abdominal cryptorchidism. This procedure could be an option for the treatment of such adult patients.

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1. Introduction

Recently, laparoscopic repair of groin hernias has been permeated. The most popular techniques of laparoscopic repair include totally extraperitoneal (TEP) and transabdominal preperitoneal (TAP) repairs, and we adopted TEP repair, wherein approaching into the abdominal cavity is not necessary. Approximately 7% of child patients with inguinal hernia also have cryptorchidism [1], and they are treated by herniorrhaphy and orchiopexy in childhood. In contrast, combined adult cases are uncommon. Rangarajan and Jayaker reported that when laparoscopic intra-abdominal observation was performed for adult cases of impalpable testis, 26% of them had inguinal hernia; patients underwent laparoscopic orchiectomy with TAP repair [2]. Although there were some reports of laparoscopic orchiectomy with TAP, there was only one report of TEP with orchiectomy for combined cases [3]. Here we present inguinal hernia combined with cryptorchidism occurring in two adults;

TEP repair with orchiectomy was safely performed in both these patients under the same operative view.

2. Presentation of cases

2.1. Case 1

A 49-year-old man presented to our hospital with a bulge in the right groin area since 2 months. Physical examination revealed a right groin bulge in the upright position and non-palpable testis in the scrotum. Computed tomography (CT) showed a protrusion of the intraperitoneal adipose tissue and an atrophic testis in the right expanded inguinal canal (Fig. 1). The patient was diagnosed with a right inguinal hernia combined with a right canalicular testis. We scheduled a TEP repair and orchiectomy under the same operative view. At first, a 1.5-cm transverse infraumbilical incision was placed and approached above the anterior rectus sheath, which was then penetrated. After the rectus muscle was pulled up and held above, the posterior rectus sheath was confirmed. Then, the spacemaker balloon (Covidien, Mansfield, MA, USA) was inserted through the incision and approached to the preperitoneal cavity. Under the visualization of a laparoscope, the balloon was extended to make an operative field on the preperitoneal cavity. A blunt-tip

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Fig. 1. Computed tomography (CT) images of Case 1. CT shows protrusion of the intraperitoneal adipose tissue and a right atrophic testis (←) in the expanded inguinal canal.

trocars were inserted in the same incision, and carbon dioxide was insufflated through this trocar at a pressure of 8 mmHg. Then, a 30° laparoscope was inserted, and two 5-mm ports were set up on the midline of the hypogastric region. After the inguinal floor was investigated, the hernial sac was found to invaginate into the right internal inguinal ring. The sac was totally drawn back to the operative field along with the atrophic testis and a spermatic cord (Fig. 2a). The cord structure was then divided into a spermatic duct and the testicular blood vessels so that they could be definitely cut and ligated (Fig. 2b). The atrophic testis was extracted through the infraumbilical incision. A piece of polypropylene mesh (Microval, Saint-Just-Malmont, France) was inserted into the preperitoneal space and fixed to the inguinal floor. The operative time was 124 min, and little blood loss was observed. This procedure does not require any unusual techniques and special devices. The post-operative course was uneventful, and the patient was discharged on postoperative day (POD) 6. Pathological examination confirmed an atrophic testis that contained no malignancy and lacked spermatogenic ability.

2.2. Case 2

A 38-year-old man was admitted to our hospital with discomfort in the right inguinal region since the past 2 years. Physical examination confirmed an easily reducible right inguinal hernia

adjacent to a palpable prune-sized nodule. The right side of the scrotum was empty. CT demonstrated a right inguinal hernia and a right atrophic testis in the expanded inguinal canal. The patient was diagnosed with a right inguinal hernia combined with right canalicular testis and underwent TEP repair with orchietomy. The operative procedure was performed in the same manner as in Case 1. The operative time was 112 min, and blood loss was minimal. The patient had no complications and was discharged on POD 4. Pathological examination revealed that the testis had no malignancy and lacked spermatogenic ability.

3. Discussion

Laparoscopic repair has become a standard treatment for groin hernias. The rate of laparoscopic procedure for all patients with inguinal hernia in USA and Europe was 19.7% and 17%, respectively in 2010 [4]. The most popular techniques of laparoscopic repair include TEP and TAP repairs. The merits of both techniques are fine visualization of the anatomy and usefulness for the repair of all inguinal hernia defects. Although TEP repair may be a technically and anatomically difficult method to learn, it has an advantage of direct access to posterior defects and a small risk of damaging the intraperitoneal viscera [5]. The disadvantages of TAP include the breach of the peritoneal cavity and the possibility of bowel adhesions to the mesh [6,7]. Because we considered that the major merit of TEP is the unnecessary of approaching into the abdominal cavity, we have been routinely performing TEP repair for patients with inguinal hernia since 1997 in our hospital. Regarding the selection of procedure, we recommend that the surgeon chooses the technique with which he or she feels most comfortable [8].

Cryptorchidism is a condition in which one or both testes fail to descend into the scrotum before birth. The frequency of undescended testes has been reported as 4.1–6.9% during the neonatal period, 1.0–1.6% by 3 months of age, 1.0–1.7% by 1 year of age, and <1.0% after 1 year of age [9–13]. Cryptorchidism is a frequent congenital disease that is often diagnosed and treated during childhood. Therefore, adult patients with cryptorchidism are uncommon [14]. Gilbert and Hamilton reported that the incidence of undescended testes in adults was 0.23% [15].

The following findings can be categorized as cryptorchidism: (1) retractile testis, (2) extra-canalicular testis, (3) intra-canalicular testis, (4) ectopic testis, and (5) intra-abdominal testis [6]. Our cases were categorized as intra-canalicular testis. Cryptorchidism is associated with subfertility, testicular cancer, inguinal hernia, and testicular torsion [16]. Inguinal hernia occurs in 90% of patients with cryptorchidism. Testes that are retained at a higher level can cause a patent processus vaginalis and have higher risks of inguinal hernia [17].

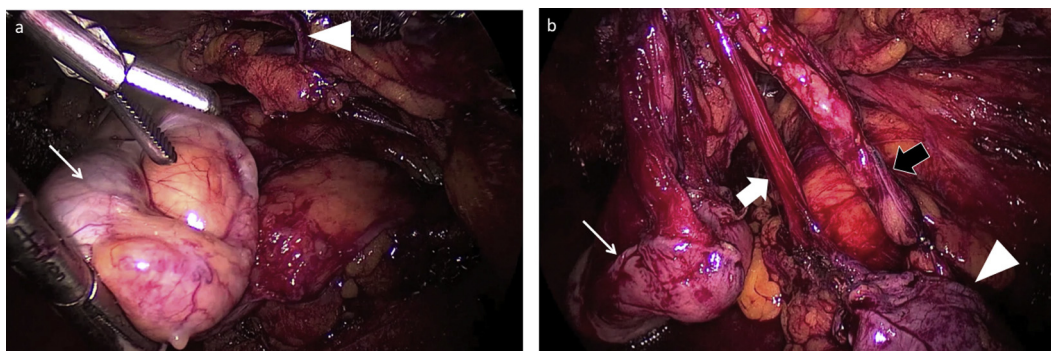


Fig. 2. Operative view of TEP repair and orchietomy of Case 1. a: An atrophic testis (←) was pulled into the preperitoneal cavity from the internal inguinal ring (▷). b: Atrophic testes (→), spermatic duct (⇨), and spermatic blood vessels (⇨) were separated from the hernia sac (▷).

Orchiectomy is also recommended for adult cases because adult patients with cryptorchidism already lack spermatogenic function and have a risk of neoplasms [14]. Except for the cases of intra-abdominal testis, an orchiectomy using an inguinal procedure is generally performed for undescended testes [16].

We identified a total of six reports on PubMed using the keywords “undescended testis,” “inguinal hernia,” “laparoscopic repair,” and “adult.” Four articles reported cases of cryptorchidism combined with an inguinal hernia that underwent a laparoscopic orchiectomy and TAP repair [2,18–20]. One article presented a case of indirect hernia who underwent Lichtenstein hernioplasty; and intra-canalicular cryptorchidism was subsequently observed and removed during the surgery [21]. Finally, only one case report showed similarities with our cases [3]. The author commented on the feasibility of TEP repair accompanied by orchiectomy; the perioperative and postoperative processes of our cases were also satisfactory.

4. Conclusion

TEP repair with orchiectomy under the same operative view can be safely performed in adult cases with an inguinal hernia combined with an extra-abdominal cryptorchidism. This procedure could be an option for the treatment of such adult patients.

Conflict of interest

The authors declare no conflict of interest.

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Ethical approval

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Consent

Written informed consent was obtained from the patient prior to the writing of the case report.

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The authors participated in writing the manuscript and all agreed to accept equal responsibility for the accuracy of the content of the paper.

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