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Laparoscopic treatment for adult inguinal hernia with cryptorchidism: A case report

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ABSTRACT

INTRODUCTION: Cryptorchidism or undescended testis is the most common disorder of male children, which is often diagnosed and treated during childhood. Adult patients with cryptorchidism are uncommon. Herein we report the case of adult inguinal hernia with cryptorchidism successfully treated by laparoscopic surgery simultaneously.

PRESENTATION OF CASE: We report a case of 68 year-old-man who was admitted to our hospital with a complaint of bulge and pain in the right groin area from 2 weeks before. CT or MRI revealed a right inguinal hernia and an undescended testis in the right inguinal canal. He was diagnosed with right inguinal hernia accompanied by cryptorchidism. Laparoscopic transabdominal preperitoneal repair (TAPP) and orchiectomy were performed simultaneously. Postoperative period was uneventful and he was discharged home on the 1st postoperative day. Pathological examination of the specimen was reported as atrophic testis with no malignancy. There has been no recurrence during a follow-up.

DISCUSSION: To our Knowledge, the case report of adult inguinal hernia with cryptorchidism treated by laparoscopic surgery is rare. All cases recommended the feasibility of laparoscopic surgery.

CONCLUSION: Adult inguinal hernia with cryptorchidism is a rare condition. TAPP and simultaneous laparoscopic orchiectomy for inguinal hernia with cryptorchidism were safe and feasible. It could be the first surgical option for the treatment of such adult patients.

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1. Introduction

Cryptorchidism or undescended testis is the most common disorder of male children, which is often diagnosed and treated during childhood. The standard therapy is surgical repositioning of the testis within the scrotal sac (orchidopexy) for children, and orchiectomy for adult patients because of the risks of torsion and malignant formation and less fertility. Adult patients with cryptorchidism are uncommon, and with inguinal hernia are very rare condition. Herein we report the case of adult inguinal hernia with cryptorchidism successfully treated by laparoscopic surgery simultaneously.

The work has been reported in line with the SCARE criteria and cite the following paper in my references [1].

2. Presentation of case

We report a case of 68 year-old-man who was admitted to our hospital with a complaint of bulge and pain in the right groin

area from 2 weeks before. Physical examination showed a right groin bulge and non-palpable testis in the scrotum. Ultrasound test, CT and MRI revealed a right inguinal hernia and an undescended testis in the right inguinal canal (Figs. 1 and 2). He was evaluated in Urology and General Surgery and was diagnosed with right inguinal hernia accompanied by cryptorchidism. TAPP for right inguinal hernia and laparoscopic orchiectomy for right cryptorchidism were performed simultaneously. With the patient in the spine position after induction of general anesthesia, three trocars were placed through the abdominal wall. The first trocar was placed into the umbilicus for the laparoscope. After making a pneumoperitoneum, the next two trocars were placed into the right and left middle abdomen for the operator. Laparoscopic findings showed the right indirect inguinal hernia and the hernia orifice was 2 cm sized in diameter (Fig. 3). Pulling the hernial sac back to the abdominal cavity, we could find out the intracanalicular testis along with a spermatic cord and a testicular vessels, then they were cut and ligated (Fig. 4). The testis was extracted through the umbilical port site, after the incision was extended to 2 cm. Next to laparoscopic right orchiectomy, TAPP for right inguinal hernia was performed. The operation time was 81 min and little blood loss was observed. Postoperative period was uneventful and the patient was discharged home on the 1st postoperative day. Pathological exam-

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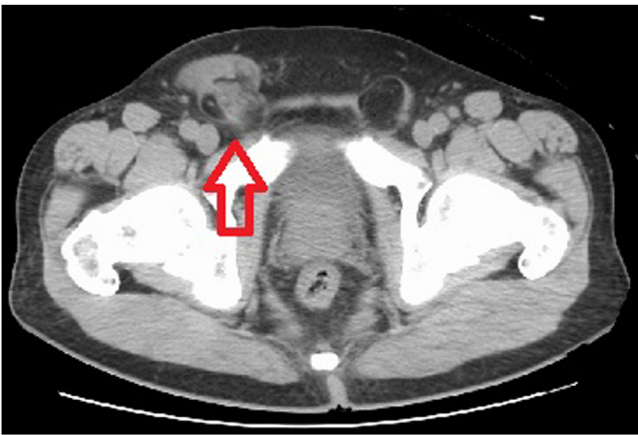


Fig. 1. Horizontal abdominal CT. Horizontal abdominal CT shows a right inguinal hernia and an undescended testis in the right inguinal canal (arrowhead).



Fig. 2. Sagittal abdominal MRI. Sagittal abdominal MRI shows a right inguinal hernia and an undescended testis in the right inguinal canal (arrowhead).

ination of the specimen was reported as atrophic testis with no malignancy. There has been no recurrence during a follow-up.

3. Discussion

Cryptorchidism or undescended testis is the most common disorder of male children, which is often diagnosed and treated during childhood. The incidence of cryptorchidism ranges between 3.4% and 5.8% in full-term boys and 30% in premature boys [2]. Clinical diagnosis of cryptorchidism is not so difficult because of non-palpable testis in the scrotum. Ultrasound test, CT and MRI are also used for diagnosis of an undescended testis. But if sometimes they

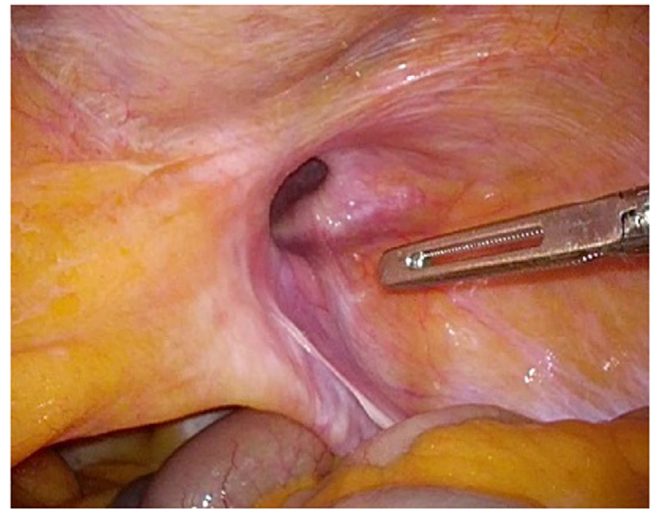


Fig. 3. Laparoscopic surgical findings. The right indirect inguinal hernia was found. The hernia orifice was 2 cm sized in diameter.

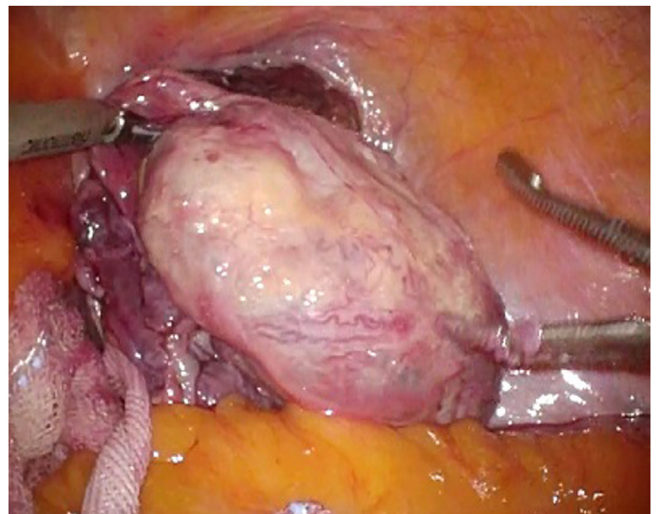


Fig. 4. Laparoscopic surgical findings. The intracanalicular testis along with a spermatic cord and a testicular vessels was safely removed.

can't show an undescended testis, laparoscopy has the benefit of being both diagnostic and therapeutic.

Adult patients with cryptorchidism are uncommon and at increased risk for gonadal malignancy and infertility. Therefore, the standard therapy is surgical repositioning of the testis within the scrotal sac (orchidopexy) for children, and orchiectomy for adult patients because of the risks of torsion and malignant formation and less fertility. In addition, adult patients who present with cryptorchidism and inguinal hernia should be treated both diseases. For such patients, laparoscopic surgery can be very useful with high diagnostic ability for the location of the undescended testis, less incision and aesthetic advantage.

To date, we identified a total of 11 reports of laparoscopic repair for adult inguinal hernia with cryptorchidism including our case using the keywords “inguinal hernia”, “adult”, “laparoscopic surgery”, “cryptorchidism” or “undescended testis” based on PubMed search for all English articles (Table 1). 3 reports are the case series from Turkey and India. The authors described that some people with undescended testis in developing countries such as Turkey or India, present late because they have not been treated

Table 1
Reported cases of adult inguinal hernia with cryptorchidism treated by laparoscopic surgery.

No.	Year	Author	Age	Type of inguinal hernia	Type of cryptorchidism	Operation for hernia	Operation for cryptorchidism	Operation time (min)	Blood loss (ml)	Post operative hospital stay (day)	Complications
1	1994	Banwell et al. [8]	25, 61 (2 cases)	right / indirect	right / intraabdominal	TAPP	orchietomy	NS	NS	1	none
2	1995	de la Torre et al. [9]	22	right / indirect	right / intracanalicular	TAPP	orchietomy	NS	NS	NS	NS
3	2002	Ansari et al. [10]	30	bilateral / indirect	bilateral / intraabdominal	TAPP	right orchidopexy left orchietomy	210	little	1	none
4	2003	Sahin et al. [3]	20–27 (44 cases)	various	various / 35 intraabdominal, 7 intracanalicular	TAPP	orchietomy	45–80	NS	1–2	2 pneumoscrotum
5	2004	Vijjan et al. [4]	12–28 (4 cases)	left 3, right 1 / indirect	various / intraabdominal	TAPP	orchietomy or orchidopexy	NS	NS	NS	NS
6	2007	Rangarajan et al. [5]	26–38 (11 cases)	various	various	TAPP	orchietomy	NS	NS	1	none
7	2008	Rhee et al. [11]	35	right / indirect	left / intraabdominal	TAPP	orchietomy	NS	NS	0	none
8	2014	Birrol et al. [6]	22	left / indirect	right / intracanalicular	TEP	orchietomy	NS	NS	1	none
9	2015	Fujishima et al. [7]	49, 38 (2 cases)	right / indirect	right / intracanalicular	TEP	orchietomy	124, 112	little	6, 4	none
10	2017	Omoto et al. [12]	53	right / indirect	right / intracanalicular	TAPP	orchidopexy	228	little	4	none
11	2020	our case	68	right / indirect	right / intracanalicular	TAPP	orchietomy	81	little	1	none

NS: not stated, TAPP: transabdominal preperitoneal repair, TEP: totally extraperitoneal repair.

due to ignorance, relative inaccessibility of health care or socioeconomic factors [3–5]. The age of most cases were between 20 and 30, and our case was 68 years old, the oldest male in the already published cases before. The type of cryptorchidism was classified into intraabdominal (testis is identified in the abdominal cavity) and intracanalicular (testis is identified in the inguinal canal and normal cord structures entering the inguinal ring is observed) according to its localization. Almost all the cases were into the category, but in a few cases, the testis is not identified and blind-ending vessels were observed [3–5]. 2 reports presented with totally extraperitoneal repair (TEP) [6,7], and 9 reports described TAPP [8–12] for an inguinal hernia. The standard operation for cryptorchidism are orchietomy or orchidopexy. Laparoscopic orchidopexy was performed in 3 reports despite orchietomy is recommended for adult case [4,10,12]. The reasons were patient's will under the informed consent or the idea that malignancy rate is not unacceptably high. Simultaneous laparoscopic management of an undescended testis and an associated inguinal hernia could be undertaken safely without the need to convert to an open surgery for all cases. The mean post operative hospital stay was a day. The operative complications were two cases of pneumoscrotum, but they recovered completely after 24 h [4]. No other major complications were reported.

We opted for the simultaneous laparoscopic surgery with early diagnosis of right inguinal hernia with cryptorchidism by medical imagings like CT or MRI, getting the benefits, minimal invasiveness, aesthetic advantage and early recovery. The operation was completed in 81 min with little blood loss. The patient was discharged home on the 1st postoperative day, and there were no complications during either the perioperative or the postoperative process. We believe the results to be acceptable for a treatment including inguinal hernia repair and orchietomy.

All authors indicated that the laparoscopic repair of inguinal hernia with cryptorchidism resulted in less postoperative pain, earlier recovery, shorter hospital stay, cosmetic satisfaction.

4. Conclusion

TAPP and simultaneous laparoscopic orchietomy for inguinal hernia with cryptorchidism were safe and feasible. It could be the first surgical option for the treatment of such adult patients.

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Ethical approval

Institutional review board approval was exempt from our institution because all data were collected from clinical records and imaging systems for routine preoperative planning and follow up.

Consent

Informed consent was obtained from the patient for publication of this case report and any accompanying images.

Author contribution

MW performed the surgery, and is the first author and prepared the manuscript. KA, HY, TK, YD, MH, KF, KA, and TH who performed perioperative therapy have read and approved the final manuscript.

Registration of research studies

This paper is not research study.

Guarantor

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Declaration of Competing Interest

The authors report no declarations of interest.

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