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Laparoscopic management of 128 undescended testes: Our experience

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ABSTRACT

Background: To describe different laparoscopic procedures in the management of impalpable undescended testes (UDT) and their outcome. Descriptive study. **Materials and Methods:** The medical records of all the patients, managed laparoscopically for impalpable UDT between January 2008 to March 2011 at the department of Pediatric surgery, the Children's Hospital and The Institute of Child Health Lahore, Pakistan were reviewed for demography, history and clinical examination, investigations, operative notes, complication and outcome. **Results:** There were a total of 90 patients (128 testes) with impalpable UDT managed laparoscopically. The mean age of presentation was 4.25 years (SD±3.47). In 38 (42.2%) patients, UDT were bilateral, whereas in 33 (36.7%), these were right sided and in 19 (21%), these were left sided. Laparoscopic findings revealed 65 (50.8%) testes lying higher up in the abdomen, 26 (20.3%) testes at internal ring, vas and vessel going into the deep ring in 22 (17%) cases and 15 (11.7%) atrophied/vanishing testes. Laparoscopic 2-Stage Fowler-Stephen (FS) orchidopexy was performed in 65 testes, laparoscopic orchidopexy was performed in 26 testes, laparoscopy followed by inguinal exploration and orchidopexy in 19 testes (3 testes were atrophied) and orchidectomy was performed in 9 testes. There were three conversions to laparotomy, one for external iliac iatrogenic injury and two for adhesions of the testes with the intestine. During follow-up at 6 months, 2 patients had testicular atrophy and the parents of 5 patients where testes could be brought to the scrotum neck were worried for the location. **Conclusion:** Laparoscopic management of impalpable UDT is an effective way of managing every kind of impalpable UDT. It is safe and its complications are very few.

Key words: Impalpable undescended testes, laparoscopy, orchidopexy

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INTRODUCTION

Laparoscopic management in surgical practice has gained a lot of popularity and the coming era is considered an era of minimally invasive surgery. Laparoscopy has achieved many milestones in the management of impalpable undescended testes (UDT), especially in last two decades. Now, laparoscopy is the modality of choice for diagnosis as well as intervention in the management of impalpable UDT.[1-4]

A number of laparoscopic approaches have been described for various locations of the UDT. These procedures range from single-staged laparoscopic orchidopexy to staged orchidopexy with vessel transaction. We conduct this study to describe our experience with various laparoscopic approaches used in the management of impalpable UDT.

MATERIALS AND METHODS

During the study period, 508 patients (625 testes) were managed in our centre. Out of the total, 90 patients (128 testes) had impalpable UDT and underwent laparoscopy for their management. The medical record of the study population was reviewed for demography, clinical examination, investigations and laparoscopy notes. All the patients were followed on average 6 months for evaluation of the outcome of the management. Two patients with bilateral UDT and perineal hypospadias were found to have persistent mullerian duct remnants, therefore excluded from the study.

The laparoscopy was started by inserting camera port through umbilicus by Hasson technique (insufflations pressure of CO_2 was 10-12 mmHg). In case of therapeutic laparoscopy, two additional ports were inserted through either iliac fossae. The site of testes was then assessed. In case of vas and vessels going into the deep ring, the procedure was usually terminated followed by inguinal exploration. In case of testes lying near to the deep ring (peeping), laparoscopic orchidopexy

was performed. In case of high-lying testes, Fowler-Stephens staged orchidopexy was employed (6 months gap between two stages). In case of atrophic/vanishing testes, orchidectomy was performed after explaining the parents. In case of blind-ending spermatic vessels, the procedure was terminated.

RESULTS

There were a total of 90 patients (128 testes) with impalpable UDT managed laparoscopically during the study tenure. The mean age of presentation was 4.25 years (SD±3.47). In 38 (42.2%) patients, UDT were bilateral, whereas in 33 (36.7%), these were right sided and in 19 (21%), these were left sided. Laparoscopy was performed in all cases. Laparoscopic findings revealed 65 (50.8%) testes lying higher up in the abdomen, 26 (20.3%) testes at internal ring/peeping, vas and vessel going into the deep ring in 22 (17%) cases and 15 (11.7%) atrophied/vanishing testes (blind-ending spermatic vessels in 6 patients and small or nearly atrophic testes in 9). Laparoscopic 2-Stage Fowler-Stephen orchidopexy was performed in 65 testes, laparoscopic orchidopexy was performed in 26 testes, laparoscopy followed by inguinal exploration and orchidopexy in 19 testes (three testes were not found - only blind-ending vessels in the inguinal canal) and orchidectomy was performed in 9 testes. In 6 cases where blind-ending spermatic vessel was present, the procedure was terminated. There were three conversions to laparotomy, one for external iliac iatrogenic injury and two for adhesions of the testes with the intestine (during second stage SF orchidopexy). No attempt was made to close the internal ring in any patient. For testes lying near to the deep ring, single stage laparoscopic orchidopexy was performed. In cases where vas and vessels were going into the deep ring, inguinal exploration and orchidopexy (19 testes - small but not atrophic) was performed (these testes were pulled into the abdomen but on failing to do, inguinal exploration was performed). Out of 128 testes, orchidopexy was performed in 110 patients. In the remaining patients, orchidectomy was performed in 9 testes for very small testes. During follow-up at 6 months, 2 patients (two staged SF orchidopexy) had testicular atrophy and the parents of 5 patients where testes could be brought to the scrotum neck were worried for the location.

DISCUSSION

UDT are one of the frequently seen anomalies in boys, with an incidence 1% to 2% in infants. About 13% to 25% cases of UDT are impalpable. In our series, 20.5% of all the cases of UDT were impalpable, which is in accordance with the reported range. In our series, 36.7% of the cases were bilateral, whereas in other series, the range was 20% to 40%.[1-6]

It is believed that the chances of descent in a case of UDT are very minimal beyond 3 months of age. Diagnostic modalities for impalpable UDT never remained 100% accurate in the past. Ultrasound, CT scan, MRI, angiogram and like have been employed for the diagnosis but they all have limitations. Cortesi was the first one to use laparoscopy as a diagnostic modality in the management of impalpable UDT. The accuracy of laparoscopic diagnosis of impalpable UDT is reported to be 100%.[4-7] This was also true in our series as all the patients were successfully diagnosed with the laparoscopy and even in two patients, the persistent mullerian duct syndrome was diagnosed.

Laparoscopy is not only a diagnostic modality, but it is therapeutic in case of impalpable UDT. Jordan *et al*.[7] were the initial ones who described laparoscopic management of UDT. This gained enormous popularity among surgeons and urologists and to date rarely open surgical procedures are being employed in these cases. The success rate with laparoscopic management of impalpable UDT is as high as >95% in various series.[1,3,8]

The intra-abdominal location and morphology of the testes are very important in deciding laparoscopic procedures for the management. In case of blind-ending spermatic vessel, the procedure is usually diagnostic and no interventions need to be performed. In case of atrophic testes, laparoscopic orcidectomy may be performed. In case of testes lying near deep ring (peeping), laparoscopic orchidopexy is performed. In case of vas and vessels going into the deep ring, the testes may be brought back into abdominal cavity and laparoscopic orchidopexy is performed or the laparoscopy is terminated followed by inguinal exploration and orchidopexy. In cases where testes are lying high up in the abdomen, various techniques have been employed. One may initially try to mobilize the testes and in case of failure to achieve adequate length, the testicular vessel is ligated and the testicles brought into the scrotum (1-stage Fowler-Stephens orchidopexy) or vessel is ligated in the first stage, followed by laparoscopic orchidopexy after 6 months (2-stage FS orchidopexy). Some surgeons advocated microvascular anastomosis of testicular artery.[8-13]

We opted 2-stage FS laparoscopic orchidopexy in all the patients with high intra-abdominal UDT without

mobilizing the testicles in a view to avoiding testicular ischemia, as reported by Lindgren *et al*.[10]

The operative complications in our series occurred in one patient where during testicular mobilization external iliac vessel was injured iatrogenically and an open exploration was then performed and hemostasis was secured. Nevertheless, a venous graft had to be incorporated with the help of cardiovascular surgeon in that patient. The patient recovered uneventfully. The two other patients needed open exploration due to adhesions of testes with the intestine. We believe that on account of short-learning curve, we had to use open technique; however, with better learning curve, we would do the same laparoscopically. We never closed deep ring in any of our patient. During a 6-month average follow-up, no patient developed inguinal hernia. This is in accordance with the study of Handa *et al*.,[11] where narrowing of internal inguinal ring was proved unnecessary.

The success rate of laparoscopic management of impalpable UDT in our series is 97.2%, which is in accordance with other series.

CONCLUSION

Laparoscopy is highly diagnostic and potentially therapeutic modality for impalpable UDT. The laparoscopic procedures can be tailored according the testicular location and morphology. A success rate of 97.2% in our series is highly appealing for its credibility, though cost and technical training are main issues in acquiring such modalities in the developing word.

REFERENCES

1. Chowdhary SK, Chaudhury RK, Singh PP, Paljor Y, Joseph SC. Role of laparoscopy in the management of impalpable testis. Indian J Urol 2000;17:13-5.
2. Nasaar AH. Laparoscopic assisted orchidopexy: A new approach to the impalpable testes. J Pediatr Surg 1995;30:39-41.
3. El-Gohary MA. Role of laparoscopy in the management of impalpable testes. J Indian Assoc Pediatr Surg 2006;11:207-10.
4. Cortes D, Thorup JM, Lenz K, Beck BL, Neilson OH. Laparoscopy in 100 consecutive patients with 128 impalpable testes. Br J Urol 1995;75:281-7.
5. Hrebinko RL, Bellinger ME. The limited role of imaging techniques in managing children with undescended testes. J Urol 1993;150: 458-60.
6. Chui CH, Jacobsen AS. Laparoscopy in the evaluation of the non-palpable undescended testes. Singapore Med J 2000;41:206-8.
7. Argos R, Unda FA, Ruiz OA, Garcia LC. Diagnostic and therapeutic laparoscopy for nonpalpable testis. Surg Endosc 2003;17:1756-8.
8. Jordan GH, Winslow BH. Laparoscopic single stage and staged orchidopexy. J Urol 1994;152:1249-52.
9. Bloom DA. Two step Orchiopexy with pelviscopic clip ligation of the spermatic vessels. J Urol 1991;145:1030-3.
10. Lindgren BW, Darby EC, Faiella L. Laparoscopic orchidopexy: Procedure of choice for the nonpalpable testis. J Urol 1998;159:2132-5.
11. Handa R, Kale R, Harjai MM. Laparoscopic orchiopexy: Is closure of the internal ring necessary? J Postgrad Med 2005;51:266-8.
12. Al-Shareef ZH, Al-Shlash S, Koneru SR, Towu E, Al-Dhohayan A, Al-Brekett K. Laparoscopic orchidopexy: One-stage alternative for non-palpable testes. Ann R Coll Surg Engl 1996;78:115-8.
13. El Gohary MA. The role of laparoscopy in the management of impalpable testis. Pediatr Surg Int 1997;12:463-5.

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