

# Role of Laparoscopy in Diagnosis of Non Palpable Undescended Testis

M ZUBAIR J IQBAL M SALEEM

Department of Paediatric Surgery, Quaid-E-Azam Medical College, B V Hospital, Bahawalpur

Correspondence to: Dr. Muhammad Zubair, Assistant Professor

Laparoscopy is the latest advancement in the evaluation of non-palpable testis. We came across total 41 patients with 52 undescended testis in 2 years. Nineteen out of these patients with 25 undescended testis (six of them had bilateral undescended testis) were subjected to laparoscopic examination, as there testis were impalpable. In 80 % of cases, laparoscopy was helpful to locate the testis. In 20% (5/25) of cases laparoscopy helped in avoiding an unnecessary groin exploration. In this paper our experience with laparoscopic examination in impalpable undescended testis is presented.

**Key words:** Laparoscopy, undescended.

True cryptorchidism represents a congenital arrest of the normal descent of the testis into the scrotum. The incidence of undescended testis varies from 1-10% according to various studies<sup>1</sup>. Scorer surveyed more than 3500 newborn males and found the incidence of undescended testis to be 4.3%<sup>2</sup>.

The diagnosis of impalpable undescended testis is a common problem. Different diagnostic tools are used for this purpose. Ultrasonography can locate the testis arrested in inguinal canal in about 70% of cases, but does not give satisfactory results in cases of abdominal undescended testis<sup>3</sup>. Computerized axial tomography may be helpful in locating the abdominal undescended testis and have the advantage of being non-invasive. The disadvantage is that it exposes the child to radiation and is of limited value in children less than 5 years old who lack adequate amount of retroperitoneal fat for clear structural delineation.

Transperitoneal Herniography, selective arteriography<sup>4</sup> and selective testicular venography<sup>5</sup> are described by various workers, but their practical value is not very well proved and moreover the necessary expertise and the gadgetry is not available in most of centres in our setup. Anatomical localization of non-palpable testis by laparoscopic examination was first described in 1980 by Silber and Cohen<sup>6</sup> and since then many reports appeared in literature on this subject<sup>7,8,9,10</sup> showing the value of this diagnostic tool. We present our own experience of laparoscopic examination in patients with impalpable testis.

## Patient and method

All the patients who presented with impalpable undescended testis to the authors from May 1996 to June 1998 were subjected to laparoscopic examination. Details of the age, side involved clinical and laparoscopic findings and the management were noted on a proforma made for this ongoing study. The criteria for subjecting the patient to laparoscopy was a clinically impalpable testis and inconclusive ultrasonographic examination.

We used Verres needle for pneumo-peritonium in all the patients, inserted through a tiny infra umbilical stab. The laparoscopy was done with a 5 mm 0 angle telescope

passed through a 5/6 mm port through infra umbilical region. The intra-abdominal pressure of CO<sub>2</sub> was kept at 10mmHg by using automatic CO<sub>2</sub> insufflator. Some patients required the insertion of another 5mm. port, which was passed at the opposite iliac fossa.

The internal ring was located with a view to note whether it has a patent processus vaginalis, which signifies that the testis can be sorted out in the inguinal canal or the vas and the blood vessels end blindly or enter into the closed internal ring.

## Results

During period of 25 months ( from May 1996 to June 1998), 41 patients with 52 undescended (11 were bilateral) testis were treated. Nineteen out of these patients were subject to laparoscopic examination, as their testis were impalpable. Six of them had bilateral undescended testis and out of the other 13, nine had undescended testis on left and 4 had on the right side. So in total 25 impalpable undescended testis were laparoscopically sorted out. The youngest patient was of 2.2 and the eldest was of 10 years with average age of 4.7 years.

In evaluation of 17 (68%) testis, 11 on left and 6 on right side the processus vaginalis was found to be patent and the vas and vessels were entering into an open internal ring. All of these patients underwent inguinal canal exploration in the same setting and their testis were brought down with standard one stage orchidopexy. Three (12 %) testis could be located in the abdomen and in 2 the two stage orchidopexy was performed. In third patient the testis were atrophic and were removed. In examination of further four gonads (16%) the internal ring was closed and the peritoneum was flat at the point where the vas and vessels were piercing it. In all of these cases no more exploration was done. Plotzker (11) described that if internal ring is closed then there are no chances of finding a normal testis in the inguinal cannal. In one patient we could not find a testis. (Table 1)

The average hospital stay was 2.6 days. We did not encounter any morbidity or mortality. Only one patient developed a minor umbilical wound infection that was treated with antibiotics.

Table No 1. Total number of testis examined (n=25)

Site	Right(n=10)	Left(n=15)
Open internal inguinal ring.	06	11
Closed ring with vas entering in it.	02	02
Intra abdominal testis	02	01
Testis could not be detected.	00	01

### Discussion

Cryptorchidism is one of the commonest malformations encountered in children, and is the most common disorder of sexual differentiation that occurs in man.<sup>12</sup>

The normal descend of the testis from its origin at retro-peritoneum to the scrotum occurs in various stages. It reaches upto the internal ring at the end of third intrauterine month. Processus vaginalis is formed at this time and obliterates when testis are completely descended. This is why the undescended testis are almost always associated with a patent processus vaginalis<sup>13</sup>. This embryological fact is exploited to diagnose the impalpable undescended testis, laparoscopically. If a blindly ending vas and vessels are encountered in the abdomen or the vas is found to be entering in a close internal ring, the chances of finding viable testis are minimal. This is because both of these situations occur because of some vascular accident during or following the descended of the testis, resulting in 'vanishing testis'<sup>10</sup>. So in both of these situations, prior laparoscopic examination avoids the unnecessary groin exploration.

The use of laparoscopy in the diagnosis of impalpable undescended testis is relatively new. However there are many recent reports which show its safety and accuracy<sup>7,14</sup>. We did not have any experience of laparoscopy in children but after going through the literature, it was discussed with a general surgeon having experience in adult laparoscopic surgery (second author). We found it an easy technique to learn and it is quite simple to identify vas and testicular vessels laparoscopically.

Our study is probably the first one in Pakistan where use of laparoscopy is reported for impalpable testis. Although the number of patients in our study are not very many yet it convincingly proves the role of laparoscopy in young boys with impalpable testis. In 4 cases of undescended gonads where vas was entering in a closed internal inguinal ring and in one patient where testis could not be detected, an unnecessary groin exploration was avoided (20%). We did not have any morbidity or mortality in our series. Only one patient developed a minor umbilical wound infection that was treated with antibiotics.

Although we find some studies in the literature where groin exploration was considered as a better choice than laparoscopy<sup>10</sup> yet most of the workers have shown that laparoscopic examination could detect testis with prior negative groin explorations<sup>15,16</sup>. These studies indicate that inguinal exploration alone is inadequate, unjustified, unnecessarily invasive and unreliable<sup>10</sup>.

Another very recent study from Japan mentioned another 'novel' approach of laparoscopic examination. They

performed examination using a laparoscope through internal inguinal ring after opening the inguinal canal. At this stage however it is very difficult to assess the role of this approach.

Studies are there in the literature where therapeutic laparoscopic procedures were performed in cases of abdominal undescended testis<sup>18</sup>. The first stage of Fowler Stephens procedure is carried out laparoscopically. Preliminary clipping of the spermatic vessels leads to augmentation of the collateral vassal blood supply, and a vas-based orchidopexy is performed 6 months or more later. We did not try it, but with increasing experience we plan to adapt this procedure in appropriate cases.

Most of the big hospitals in Pakistan have facility of laparoscopic surgery and we strongly recommend that laparoscopic examination should be a routine in all boys with impalpable undescended testis, where facilities are available. It is safe and reliable. Any surgeon with some experience in laparoscopic surgery can learn the technique quite easily.

### References:

1. Sabiston: Textbook of Surgery. p 1674. 13th edition. 1986, 1674.
2. Scorer C. G.: The descent of the testis: Arch. Dis. Child 1964, 39, 605-608.
3. Madrozo BL, Klugo RC, Parks JA, Diloreto R: Ultrasonographic demonstration of undescended testis; Radiology, 1979, 133, 181-183.
4. Domellof L, Hjalmas, K, Nordmork K., Nyberg G: Angiography of the testicular artery as a diagnostic aid in boys with the non-palpable testis; J. Urol. 1978, 119, 534-536.
5. Weiss RM., Glickman MG., LYTTON B. Venographic localization of the non-palpable undescended testis in children. J Urol. 1977, 117, 513-515.
6. Silber S.J., and Cohen R: Laparoscopy for cryptorchidism; J. Urol., 1980, 124, 928-929.
7. Weiss, RM. And Seashore JN: Laparoscopy in the management of the non-palpable testis; J. Urol. 1987, 138, 382-284.
8. Manson A.L. : Pre-operative laparoscopic localization of the non-palpable testis, J. Urol., 1985, 134, 919-920.
9. Guiney E.J., Corbally M., Malone P.S.: Laparoscopy and the management of the impalpable testis; Br. J. Urol. 1989, 63, 313-316.
10. Godbole P.P., Morecroft J.A. and Mackinnon A.E.: Laparoscopy for the impalpable testis. B. J. Surg.: 1997. 84. 1430-1432.
11. Plotzker ED, Rushton HG, Belman AB and Skoog SJ : Laparoscopy for the impalpable testis in childhood: is inguinal cannal exploration also necessary, when vas and vessels exit the inguinal ring ? J. Urol. 1992; 148, 635-7.
12. Czeizel, A. Erodi, E, Toth J: Genetics of undescended testis; J. Urol. 1981, 126, 528-529.
13. Elder JS. Laparoscopy for the implalpable testis: significance of the patent processus vaginalis. J Urol 1994; 152: 776-8
14. Wilson SD, MacKinnon AE. The laproscope and the undescended testis. J Pediatr Surg 1992; 27: 89-92
15. Lakhoo K, Thomas DFM, Najmaldin AS. Is inguinal exploration for the impalpable testis an outdated operation? Br J Urol 1996; 77: 452-4
16. Perovic S, Janice N. Laparoscopy in the diagnosis of non-palpable testis. Br J Urol 1994; 73: 310-13
17. Hayashi Y, Mogami T, Sasaki S et al. Transinguinal laparoscopy for nonpalpable testis. Int-J-Urol 1996 Jul; 3(4): 274-7.
18. Miller SS., Laparoscopic operations in paediatric surgery. Br. J. Surgery., 1992, 79, 986-87