

## Laparoscopic orchidopexy: our experience

Abdulrahman Almaawi, Zakaullah Waqasi

### Abstract

**Objective:** To evaluate the role of laparoscopic surgery for the treatment of undescended testes.

**Design:** It is a retrospective descriptive study.

**Setting and Duration:** This study was carried out at Department of Paediatric Surgery, King Abdullah Hospital, Bisha, Kingdom of Saudi Arabia from January 2009 till December 2011.

**Methodology:** All patients of the ages 7 months to 8 years who underwent laparoscopic operation for undescended testes during the period January 2009 till December 2011 were included in this study.

**Results:** 81 children (100 impalpable testes) were treated with laparoscopic orchidopexy from January 2009 to December 2011. Out of these patients, 40(49%) had impalpable testes on the right, 22( 27%) were on the left and 19( 23%) were bilateral. The median age was 13 months (range 7 months to 8 years) and mean follow up 12 months. We performed standard laparoscopic orchidopexy in 64 cases, one stage Fowler-Stephens in 10 cases, and two stage Fowler-Stephens in 26 cases. During follow up, examination of the testicular position showed that all scrotal (59 low scrotal, 27 mid-scrotal and 14 high scrotal in position). In our study, only one testis got atrophied; this patients had a history of previous exploration at another hospital. Not a single case of hernia noted at one year follow up. In our study 99 testes were followed up and found viable at one year follow up.

**Conclusion:** Laparoscopic orchidopexy is very successful procedure even for high impalpable testes. The incidence of inguinal hernias almost zero using the inguinal canal to deliver the testes but the surgeon has to be trained for that.

**Keywords:** Undescended testis, Laparoscopic Orchidopexy, Fowler-Stephens 2 stage operation

### Introduction:

Laparoscopic orchidopexy was initially described in 1992 by Jordan et al<sup>1</sup> and since that time it has gained considerable support. It is very effective procedure for managing impalpable testis with high rate of successful scrotal positioning<sup>2</sup>.

Bloom initially used laparoscopy to ligate the spermatic vessels as stage one fowler Stephen`s procedure<sup>3,4</sup> but stage two was done by an open approach.

Surgical treatment of congenital undescended testis is now treatment of choice for patients as young as 6 months.<sup>5</sup>

Usually, at the time of diagnosis the testis is routinely brought down into the scrotum by surgery.<sup>6</sup>

The current operative treatment of impalpable testis is often accomplished by a laparoscopic procedure<sup>7</sup>. Single port laparoscopic surgery is an option<sup>8</sup>. In our study, in majority of our laparoscopic orchidopexies, we pulled the testis via

King Abdullah Hospital,  
Bisha, Saudi Arabia  
A Almaawi  
Z Waqasi

### Correspondence:

Abdulrahman Almaawi  
PO Box 197, Bisha 61922,  
Saudi Arabia  
almaawi@yahoo.com

the inguinal canal. The conventional technique of laparoscopic orchidopexy recommends that the internal ring should be narrowed around the pulled through spermatic cord to avoid herniation<sup>9</sup>. However, some surgeons reported that this is not necessary<sup>10</sup> and we support this in our study.

#### **Methodology:**

All those children who underwent laparoscopic orchidopexy from January 2009 till December 2011 are included in the study and their details were put in the preset proforma. Under general anesthesia, stomach and urinary bladder were decompressed before surgery. Infra-umbilical incision made then using an open technique, 5 mm port inserted. The peritoneal cavity was insufflated with carbon dioxide to maximum pressure of 14 mmHg. After insufflations, general inspection was done. Two additional trocars were placed at the level of the umbilicus in the midclavicular line on either side of the abdomen. The gubernacular attachment was divided with hook, keeping the vas safe under vision. The peritoneal covering of the spermatic vessels incised laterally in order to free these vessels and provide additional length to mobilize the testis. A small scrotal incision made and subdartous pouch created. An artery forceps was introduced retrograde into the external ring and the internal ring after which the mobilized testis was grasped under vision and then pulled down to scrotum. Care should be taken not to widen the internal ring too much during forceps introduction in order to prevent herniation of viscera; no sutures were needed around the internal ring.

#### **Results:**

81 children with 100 impalpable testes were treated with laparoscopic orchidopexies from January 2009 to December 2011. Median age was 13 months, range were from 7 months to 8 years. 40 (49%) had impalpable testis on the right, 22 (27%) were on the left and 19(23%) were bilateral. During laparoscopy, the impalpable testes were intra-abdominal in 62 cases, iliac in 21 cases and just at the internal ring were 17 cases. The procedure was standard laparoscopic orchidopexy of 64 patients while 10 underwent

one stage fowler Stephen`s procedure and 26 had two stage fowler Stephen`s technique.

Patients were seen after two weeks as first follow up, the mean follow up was 12 months. Those cases for whom we planned to do second stage fowler Stephen`s procedure, we took them to operating theatre after 6 months. Only one case developed atrophy of the testis and that had a past surgical history of previous open exploration at another center.

The overall success rate in this study was defined by two parameters; good scrotal positioning without atrophy and none post operative inguinal herniation at the orchidopexy side. In our study, all testes were scrotal in position; 59 low scrotal, 27 mid-scrotal and 14 high scrotal in position.

No single case developed inguinal herniation during the relatively long follow up.

#### **Discussion:**

Acquired cryptorchidism is mainly seen after the age of 4–5 years, but early forms have also been recognized.<sup>11</sup> Retractable testes seem prone to develop acquired cryptorchidism<sup>12</sup>. For congenital undescended testis (UDT), orchidopexy is currently recommended at 6–12 months of age to preserve testicular germ cell maturation.<sup>13</sup>

Early orchidopexy seems to be beneficial for the long-term testicular growth of congenital UDT<sup>14</sup>. Prompt surgical correction at the time of diagnosis is usually routinely recommended.<sup>15,16</sup> Surgery itself can lead to complications such as direct injury to the vas deferens or testicular vessels.<sup>17</sup> Recently the age at which surgery is performed, with a threshold of 13 years, was recognized as a risk factor.<sup>18</sup>

It remains uncertain whether the risks of infertility and malignancy in acquired cryptorchidism are the same as in congenital cryptorchidism. The risk of cancer in acquired cryptorchidism might be lower than in congenital cryptorchidism as in acquired cryptorchidism, neonatal gametocytes have transformed normally before the abnormality develops.<sup>19</sup>

Also, that these testes descended normally and later ascended to the superficial inguinal pouch might mean that they have a more favourable fertility potential.<sup>20</sup>

The overall success defined as a testis in scrotum with no atrophy, is 74-92 %, depending on the anatomical position of the testis before surgery<sup>21</sup>. Some studies showed that testes were found in 6 of 12 and 10 out of 13 patients respectively, previously not found by exploration<sup>22</sup>. However, the success rate of laparoscopy is more than 90% and complications are rare<sup>23</sup>. The factor that might have contributed to the high success rate in our study is the strict adherence to the surgical principle of laparoscopic orchidopexy. Minimizing thermal injury by careful dissection around the cord is one reason. In conclusion, laparoscopy is clearly superior to conventional method for managing impalpable testes<sup>24,25</sup>, and the other thing we add here no need to place sutures around the internal ring after pulling through the testes down to the scrotum.

### Conclusion:

Laparoscopic orchidopexy is the treatment of choice for undescended testes and should be done as the neonate gets 7 months old. The older the child the less will be the benefit of bringing the testis to its normal position.

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