Laparoscopy Assisted versus Standard Inguinal Orchiopexy for High Palpable Undescended Testes

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Background/Purpose: In high palpable undescended testes, many surgeons perform inguinal orchiopexy routinely. Some surgeons prefer a totally laparoscopic approach. Technically, this is not always possible. However, laparoscopy could still be valuable in dissecting the testicular pedicle before proceeding to the standard inguinal orchiopexy. The purpose of this study was to evaluate the advantages of such strategy.

Patients and Methods: The study included thirty-eight children, with 48 high palpable undescended testes treated by the author over 2 ½ years. These were divided into two groups. Group [I] comprised 34 high palpable undescended testes, treated by the standard-inguinal orchiopexy without laparoscopy. Group [II] comprised 14 high palpable undescended testes treated by laparoscopy assisted orchiopexy. Both groups were compared with regard to the need to divide the spermatic vessels, level of fixation of the testis (at the bottom of the scrotum or at a higher level), the need for second stage operation and testicular volume during follow-up.

Results: In group [I], 3 cases (8.8%) required sectioning of the spermatic vessels; 8 cases (23.5%) required a second stage, 5 cases (14.7%) had high testicular fixation, and 5 cases (14.7%) showed testicular volume reduction during follow-up. In group [II], only 1 case (7%) required spermatic cord sectioning.

Conclusion: In high palpable undescended testes, laparoscopic dissection of the testicular pedicle before standard inguinal orchiopexy is helpful. It gives the length required for bringing the testis into proper scrotal-position, avoids compromising vascularity of the testis or expose cord structures to injury and might completely eliminate the need for a second stage intervention with its potential complications.

Index Word: laparoscopy, Cryptorchidism, Testis, Male

INTRODUCTION

The role of laparoscopy in impalpable testes is well established. For high palpable undescended testes [HPUD] (high into the inguinal canal), routine inguinal orchiopexy is the standard approach performed by many pediatric surgeons. Other surgeons prefer a totally laparoscopic approach. Technically, this is not always possible. However, laparoscopy could still be valuable by dissecting the testicular pedicle before proceeding to the standard inguinal orchiopexy. In this study, we evaluate the advantages of such a strategy.
MATERIAL AND METHODS

Thirty-eight children with 48 high canalicular testes were treated by the author over a period of 2 ½ years (from October 2002 until April 2005). The age ranged between 6 months and 12 years (mean= 4.4 years). Thirty-four testes were treated by the standard inguinal approach (group [I]), whereas 14 testes were treated by the laparoscopy-assisted technique (group [II]), this comprised laparoscopic mobilization of the vascular pedicle before proceeding with the standard inguinal orchiopexy. Both groups were compared retrospectively with regard to the need to divide the spermatic vessels (Fowler-Stephens technique), level of fixation of the testis (at the bottom of the scrotum or at a higher level), the need for a second stage operation and the testicular volume during the follow up period (range 3-24 months). Data were analyzed using the contingency tables and the Chi-square test. P value less than 0.05 was considered significant.

RESULTS

Division of the spermatic vessels had to be carried out on 3 occasions in group [I] (8.8%), and in 1 case in group [II] (7%). Eight cases in group [I] (23.5%) required a second-stage intervention, versus none in group [II] (statistically significant, p<0.05). Five cases in group [I] (14.7%) had their testes fixed in a position higher than the scrotal bottom. Five cases in group [I] (14.7%) showed reduction in the testicular volume during the follow-up period (3 – 24 months). Table I summarizes the results.

<table>
<thead>
<tr>
<th></th>
<th>Group I (n: 34)</th>
<th>Group II (n: 14)</th>
<th>P</th>
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</thead>
<tbody>
<tr>
<td>F-S</td>
<td>3 (8.8%)</td>
<td>1 (7%)</td>
<td>0.85</td>
</tr>
<tr>
<td>Two-stage</td>
<td>8 (23.5%)</td>
<td>0</td>
<td>0.047</td>
</tr>
<tr>
<td>Higher fixation*</td>
<td>5 (14.7%)</td>
<td>0</td>
<td>0.13</td>
</tr>
<tr>
<td>Reduction in test. Vol.</td>
<td>5* (14.7%)</td>
<td>0</td>
<td>0.13</td>
</tr>
</tbody>
</table>

Group I= standard inguinal orchiopexy; Group II= laparoscopy-assisted, F-S= Fowler-Stephens technique, Reduction in test.vol.= testicular volume reduction during follow-up, *= higher than the bottom of the scrotum, **= 4 of them had 2-stage orchiopexy, P= p value.

DISCUSSION

The high accuracy of laparoscopy assured its position as the diagnostic procedure of choice for the impalpable testes.1,8 This was established as early as by the late 1970's.2,8,10,11 Years later, laparoscopy has broadened its indications. First-stage Fowler-Stephens was performed laparoscopically first,12,13 followed by the laparoscopic one-stage orchiopexy. 5 The laparoscopic second-stage Fowler-Stephens orchiopexy 14 followed steps and finally, the laparoscopic orchiosepy for the high canalicular undescended testes.6,7

Although standard orchiopexy is possible in the vast majority of cases of canalicular testes,15,16 this approach, may lead to a number of extensive surgical procedures and is in need to be revised in consideration of the new interventional possibilities offered by laparoscopy.17

During standard inguinal orchiopexy and in cases where enough cord length is not available, the possible options include high retroperitoneal dissection of the testicular pedicle, division of the spermatic vessels (Fowler-Stephens technique) or fixation of the testis at a higher level than the scrotum bottom, in preparation for a second stage intervention later on.4,12

The decision to perform a standard orchiopexy with high retroperitoneal dissection may appear too optimistic in some cases, due to the real brevity of the cord.18 And, despite all the maneuvers that serve to add length to the cord, inadequate testis position in the standard inguinal orchiopexy has an incidence of as high as 10%. In most of such cases, a second operation would be necessary.4 Such higher testicular position was resorted to in 5 cases (14.7%) in the standard orchiosepy group. The real problem with the two-stage orchiosepy is the increased risk of vas deference and testicular injury. Four cases out of the 5, who showed postoperative reduction in the testicular size in this group, had second-stage intervention. Even during the second procedure, the testes did not look normal, they looked elongated, small, soft and surrounded by extensive fibrosis. Also, because the optimal interval between stages is probably 6-12 months, the technique results in a significant delay in achieving a scrotal environment for the testis.4 By contrast, in the laparoscopy-assisted group, the need to perform two stages were significantly less (p=0.047).
Orchiopexy without division of the spermatic vessels, if possible, should be the treatment of choice because it does not affect the normal testicular vascularity. Division of the spermatic vessels to carry out a Fowler-Stephens repair, have been performed in cases that probably would have not required anything else but a standard operation. Apparent testicular atrophy is the most feared complication.

Laparoscopic orchiopexy has been practiced by some surgeons in the palpable high undescended testes. After mobilization of the vascular pedicle, they push the testis from the inguinal canal through the deep ring, divide the gubernaculum, if present, and bring the testis to the scrotum, either through the internal ring or medial to the epigastric vessels. The operation is concluded laparoscopically without an inguinal incision.

It must be remembered that delivering the testis from the inguinal canal to inside the abdomen is not always feasible. If the testis is non-peeping, or fixed inside the canal, pushing it back into the abdomen is not easy. Actually, most of the totally laparoscopic series were dealing mainly with peeping testes, with only few truly intra-canalicular testes. Reported 19% canalicular testes, of these, 16% were peeping and only 3% were true intra-canalicular testes.

Thus in the HPUT, laparoscopic assisted orchiopexy seems a logical alternative. And in our study, we have shown that laparoscopic mobilization of the vascular pedicle prior to inguinal orchiopexy has helped in reaching higher levels of dissection and getting extra-cord length that would have probably been impossible through the inguinal approach. It significantly decreased the need for staged interventions and in addition, it achieved a lesser vascular trauma, which was interpreted into a lesser apparent testicular atrophy rate. This appears to be related to the fact that, in this technique, the spermatic vessels are isolated together with a parietal strip of the peritoneum and the vas deferens, while in the standard orchiopexy the posterior peritoneum remains intact and the vessels are separated from the peritoneum which results in greater trauma.

CONCLUSIONS

In HPUT, laparoscopic dissection of the vascular pedicle prior to inguinal orchiopexy helps giving the required length to bring the testis down into a proper scrotal position. The technique minimizes vascular injuries resulting into lesser apparent testicular atrophy. It also promises to eliminate the need for a staged procedure, with all its potential complications.

REFERENCES


