

High scrotal approach for secondary orchidopexy in cases of recurrent and iatrogenic undescended testes

Ahmed E. Fares^{a,b} and Mohamed M. El Barbary^a

Background/purpose Secondary orchidopexy is often difficult due to altered anatomy and dense scarring following previous operation. The aim of this study was to assess the feasibility and results of secondary transcrotal orchidopexy for the palpable recurrent and iatrogenic undescended testes.

Patients and methods The case records of all children who underwent secondary orchidopexy through high scrotal incision during the study period May 2004 to April 2009 were retrospectively reviewed.

Results Redo orchidopexy using the high scrotal approach was used to treat 41 testes during a 4-year period. Eight of these cases occurred after an inguinal hernia repair and 33 cases occurred after a previous orchidopexy. At follow-up, 39 of the 41 orchidopexies (95.2%) testes were found viable. Two testes (4.8%) were recorded to have atrophied.

Introduction

In 1989, Bianchi and Squire [1] proposed that orchidopexy for the palpable undescended testis should start with a scrotal incision, and that an additional groin incision be reserved for the few high testes that will not reach the scrotum after maximal possible mobilization through the scrotal incision [1,2]. The 'Transcrotal Orchidopexy' has the advantage of much less dissection, greater comfort for the patient, rapid healing, excellent cosmesis, and a well-maintained testicular position.

Cartwright and Snyder [3] stated that repeat orchidopexy is often difficult; and altered anatomy and dense scarring are among the major problems.

The investigators started using the high scrotal approach as an initial step for secondary orchidopexy in 2004. Since then, this procedure was the default operation for all cases that underwent secondary orchidopexy for recurrent and iatrogenic undescended testis. The aim of this study was to assess the feasibility and results of secondary transcrotal orchidopexy for the palpable recurrent and iatrogenic undescended testes.

Materials and methods

The case records of all children who underwent secondary orchidopexy through high scrotal incision during the study period May 2004 to April 2009 at the Cairo University Children's Hospital and the Fayoum University Hospital were retrospectively reviewed. Cases that required an additional incision to accomplish the mobilization of the testis were included in the study. Cases with nonpalpable testes were excluded.

Attention was given to testicular position before and immediately after the procedure, complication rate, and

Conclusion This study shows that secondary orchidopexy through a high scrotal incision is a safe, effective, and applicable technique for recurrent and iatrogenic undescended testes. *Ann Pediatr Surg* 7:108–110 © 2011 Annals of Pediatric Surgery

Annals of Pediatric Surgery 2011, 7:108–110

Keywords: high scrotal approach, redo orchidopexy, undescended testis

^aDepartment of Pediatric Surgery, Cairo University, Children's Hospital, Cairo, Egypt and ^bDepartment of Pediatric Surgery, Fayoum University, Fayoum, Egypt

Correspondence to Ahmed Fares, MD, MRCS (England), Department of Pediatric Surgery, Cairo University, Children's Hospital, Cairo, Egypt
Tel: +2 3587 9292; fax: +202 33037096;
e-mail: ahmedelhamf@hotmail.com

Received 17 April 2011 Accepted 23 May 2011

overall outcome as documented at follow-up, which ranged between 6 months and 1 year after operation.

Description of technique

Preoperative position of the testes was confirmed under anesthesia. A skin incision was made in one of the uppermost rugal folds of the ipsilateral hemiscrotum to the affected testis (Fig. 1).

Then, another higher incision was made through the dartos fascia to reach the testis. The adhesions around the testis were dissected first and then through the second incision in dartos fascia retractors were placed so

Fig. 1



Skin incision at uppermost rugal folds of the ipsilateral hemiscrotum.

Fig. 2



Dissection of the testis first.

that dissection would allow the external ring to be identified (Fig. 2).

The external ring was opened at any time if further mobilization of the cord was necessary. Adhesions between the spermatic cord and external ring and other surrounding structures were identified by applying traction on the testis. This maneuver allowed precise identification of the dense fibrous tissues around the cord and avoided injury to the cord structures (vas and testicular vessels).

After separation of the cord, standard orchidopexy principles were followed so that the remnants of cremasteric fibers and processus vaginalis if present were separated from the cord, giving the length necessary for tension-free placement of the testis within the scrotum (Fig. 3).

Then, the testis was pulled outside the wound. To prevent reascent of the testis, the neck of the dartos fascia was made narrow by placing interrupted absorbable sutures on either side of the cord structures in the middle. The ends of these sutures were left long. Traction on these long sutures upward allowed identification and dissection of the plane between the dartos fascia and skin (Fig. 4).

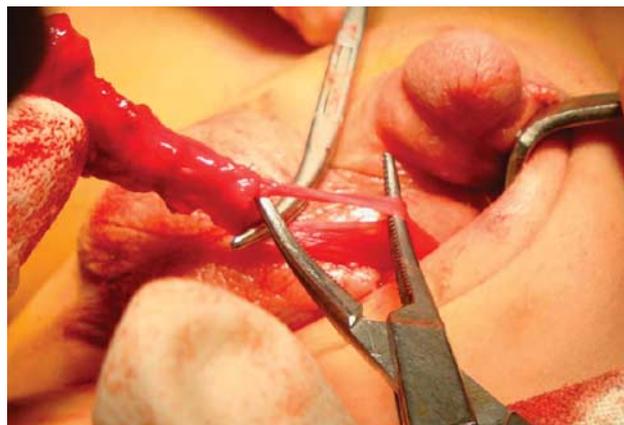
Then, the testis was placed in this extra dartos pouch and the skin was closed by interrupted absorbable sutures.

Steri Strip (3M Egypt, Maadi, Cairo, Egypt) dressings were used to dress the wound. We allowed the child to return to full activity immediately, without restrictions.

Results

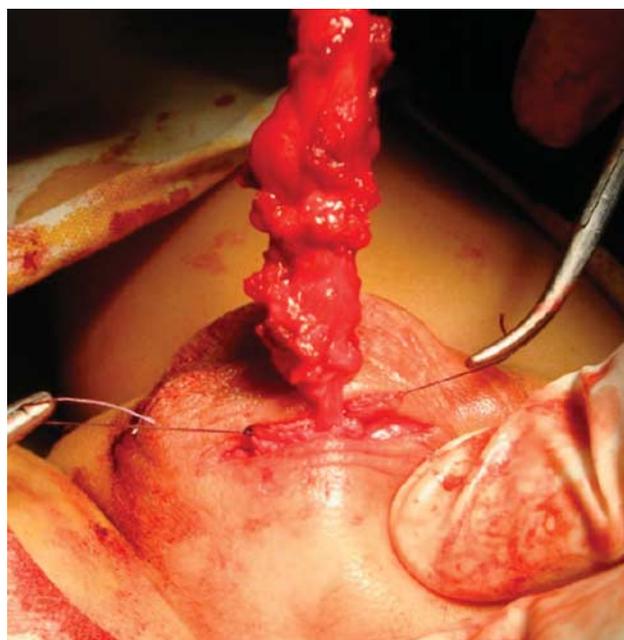
A total of 38 patients who had redo orchidopexy were included in the study. Three patients had a bilateral procedure, yielding a total of 41 orchidopexies. Thirty-three cases had recurrent undescended testes (80.5%) and eight cases (19.5%) had iatrogenic undescended testes after previous inguinal hernia repair. The age range at redo operation was between 2 and 10 years.

Fig. 3



Remnants of processus vaginalis are separated from the cord.

Fig. 4



Narrowing of dartos fascia on either side of the cord.

Before operation, the position of the testes was at the neck of the scrotum in six patients (14.7%), at the external inguinal ring in seven patients (17%), and in 28 (68.3%) patients it was not clearly specified but simply was noted to be 'palpable'. The transcrotal approach was completed in all 41 orchidopexies. Remnants of processus vaginalis were found in 18 out of 33 cases of recurrent undescended testes. An additional groin incision was not needed on any occasion.

No intraoperative complications such as injury to the vas deference or testicular vessels were recorded in any procedures. Immediate or early complications, such as scrotal hematoma or infection, were experienced on seven occasions (17%), including four cases of scrotal hematoma and three cases of infection, respectively.

At follow-up, 39 (95.2%) testes were found viable and two testes (4.8%) were recorded to have atrophied. The testicular position was deemed satisfactory in all viable testes except one (92.8%). The redo procedure was performed transscrotally on that occasion.

Discussion

Secondary undescended (trapped testes) is a recognized complication after inguinal surgery such as hernia repair and previous attempted orchidopexy [4,5].

Failure to perform high ligation and complete excision of the patent processus vaginalis can contribute to failure of primary orchidopexy. Excess tension and inadequate scrotal fixation are often cited as causes leading to failed primary orchidopexy. Another contributing factor may be the failure to reseat the testis in a low scrotal position after repair of an indirect inguinal hernia. Pushing the testis back into the scrotum from above rather than pulling it downward may create a high riding testis [6].

Proper orchidopexy requires identification of the testis, spermatic vessels, vas deferens, and an assessment of the patency of the processus vaginalis [1,7]. The testis also has to be placed within the scrotal sac under no or minimal tension [8].

Redo orchidopexy procedure is more tedious, technically challenging, and takes longer time than the primary procedure; there is an increased risk of injury to the vas deferens or the testicular vessels because of scarring from the primary operation [6].

Reoperation through the inguinal canal is considerably more complex and associated with opportunities for injuries. Cartwright and Snyder [3] and Cartwright [9] stated that repeat orchidopexy is often difficult, and altered anatomy and dense scarring are among the major problems.

All described procedures for repeat orchidopexy involve an initial approach to the testis with subsequent mobilization of the cord structures. Cartwright *et al.* [10] initiated dissection at the level of the testis and then left a strip of external oblique aponeurosis attached to the underlying cremasteric muscle and cord structures.

We found that the high scrotal incision allowed initial dissection of adhesions around the testis before approaching the cord. This order of dissection is recommended to avoid injury to previously scared cord structures. Moreover, this incision provides excellent access to the processus vaginalis and external inguinal ring.

A single high scrotal incision is associated with shorter operative time, less postoperative pain [11], and improves cosmetic outcome.

Conclusion

High scrotal incision allows early entry into unscarred, previously unexplored layers of the canal, which allows a safer mobilization of the testis and then the cord. This study showed that scrotal orchidopexy is a safe, effective, and applicable treatment for recurrent and iatrogenic undescended testes.

We recommend that redo orchidopexy should commence with a high scrotal incision and that an additional groin incision be reserved for those cases where insufficient vascular length is obtained for placement of the testis in the scrotum without tension.

References

- 1 Bianchi A, Squire BR. Transscrotal orchidopexy: orchidopexy revised. *Pediatr Surg Int* 1989; **4**:189–192.
- 2 Iyer KR, Kumar V, Huddart SN, Bianchi A. The scrotal approach. *Pediatr Surg Int* 1995; **10**:58–60.
- 3 Cartwright PC, Snyder HM III. Obstacles in reoperative orchidopexy—and a method to master them. *Contemp Urol* 1993; **5**:56–64.
- 4 Elder JS. The failed orchidopexy. In: Cohen MS, Resnick MI, editors. *Reoperative urology*. Philadelphia: Lippincott-Raven Publishers; 1994. pp. 251.
- 5 Eardley I, Saw KC, Whitaker RH. Surgical outcome of orchidopexy. II. Trapped and ascending testes. *Br J Urol* 1994; **73**:204–206.
- 6 Noseworthy J. Recurrent undescended testes. *Semin Pediatr Surg* 2003; **12**:90–93.
- 7 Jawad AJ. High scrotal orchidopexy for palpable maldescended testes. *Br J Urol* 1997; **80**:331–333.
- 8 Caruso AP, Walsh RA, Wolach JW, Koyle MA. Single scrotal incision orchidopexy for the palpable undescended testicle. *J Urol* 2000; **164**: 156–158. [discussion 158–159].
- 9 Cartwright PC. Reoperative orchidopexy. *Dial Pediatr Urol* 1993; **16**:1.
- 10 Cartwright PC, Velagapudi S, Snyder HM III, Keating MA. A surgical approach to reoperative orchidopexy. *J Urol* 1993; **149**:817–818.
- 11 Dayanc M, Kibar Y, Irkilata HC, Demir E, Tahmaz L, Peker AF. Long-term outcome of scrotal incision orchidopexy for undescended testis. *Urology* 2007; **70**:786–788. [discussion 788–789].