International Journal of Surgery 22 (2015) 154–158

Contents lists available at ScienceDirect

International Journal of Surgery

journal homepage: www.journal-surgery.net

Original research

Hypospadias and concomitant undescended testis: Comparison of no skin incision with inguinal and scrotal skin incision orchiopexy

Shabnam Sabetkish, Abdol-Mohammad Kajbafzadeh*, Nastaran Sabetkish

Pediatric Urology Research Center, Section of Tissue Engineering and Stem Cells Therapy, Children's Hospital Medical Center, Tehran University of Medical Sciences, Tehran, Iran

HIGHLIGHTS

- The feasibility of no skin incision orchiopexy in children with hypospadias and UDT.
- Using a single subcoronal incision technique.
- Reduced postoperative pain, cosmetic results and shorter operative time.

ARTICLE INFO

Article history:
Received 20 May 2015
Received in revised form
31 July 2015
Accepted 17 August 2015
Available online 3 September 2015

Keywords:
Undescended testes
Orchiopexy
Scrotum
Hypospadias
Single incision

ABSTRACT

Background: To present the feasibility of no skin incision orchiopexy in children with concomitant hypospadias and undescended testis (UDT) by a single subcoronal incision technique. To introduce the creation of subdartos muscle scrotal pouch with no scrotal skin incision.

Methods: From one thousand and twenty-one children with hypospadias, 61 patients presented with concomitant palpable UDT and hypospadias. In group I (N = 34) single subcoronal incision with no scrotal skin incision was applied. In group II (N = 27), multi-incision technique was applied for classical orchiopexy and hypospadias surgery. For hypospadias reconstruction, all patients had classical subcoronal and para urethral plate incision with penile skin degloving according to the location of urethral meatus. Early and late complications, surgical time, hospital stay, and cosmetic results were recorded.

Results: Children with unilateral UDT and hypospadias had one incision in group I and three skin incisions in group II. Patients with bilateral UDT had one incision in group I and five skin incisions in group II. The operation time was significantly shorter in group I (93 ± 11 min) compared with group II (138 ± 17 min) (P = 0.03). Both groups were operated as day care basis; however, the hospital stay was slightly longer in group II (group I = 12 ± 2 h, vs group II = 16 ± 3 h) (P = 0.07). All testes were satisfactorily positioned into the bottom of the scrotum without development of any testicular atrophy.

Conclusion: Single subcoronal penile skin incision is a feasible, safe, and cosmetically satisfactory technique in patients with hypospadias and concomitant UDT. Reduced postoperative pain, better objective cosmetic results, shorter operative time and comfortable post-operative period are the most significant advantages of this approach.

1. Introduction

Undescended testis (UDT), also known as cryptorchidism, and hypospadias are considered as two common urogenital malformations in young boys [1]. The incidence of hypospadias and concomitant UDT is about 6%–31.6% [2].

The occurrence of hypospadias and concomitant UDT needs early surgical intervention. It should be highlighted that when a patient is diagnosed with hypospadias and concomitant UDT, simultaneous intervention for treatment of these two anomalies would be of great value to prevent multiple surgeries. Additionally, application of a technique with satisfactory cosmetic results, normal appearance, and less postoperative discomfort can be beneficial in patients with concomitant hypospadias and UDT.

The surgical treatment of UDT should be instituted as early as

Abbreviations: UDT, undescended testis; TIP, tubularized incised plate.

* Corresponding author. No. 62, Dr. Qarib's Street, Keshavarz Boulevard, Tehran, 1419433151, Iran.
E-mail address: kajbafzd@sina.tums.ac.ir (A.-M. Kajbafzadeh).

http://dx.doi.org/10.1016/j.ijsu.2015.08.073
1743-9191/

possible due to the fact that the preservation of spermatogenesis is commonly lost after puberty and the occurrence of spermatic cord torsion and strangulated hernia may increase [1]. Reconstruction of the urethra and penis with satisfactory cosmetic and functional outcomes, the least complication rate and reduction in number of surgeries are among the aims of hypospadias repair. Several surgical techniques are presented for hypospadias repair among which the tubularized incised plate (TIP) urethroplasty which is a single stage procedure, has been considered as a technique of choice especially in proximal types [3].

To decrease the probable morbidity of inguinal orchiopexy which needs two incisions [4], single subcoronal incision technique for hypospadias repair and orchiopexy was introduced in the current study. Herein, we introduced the feasibility and safety of no skin incision orchiopexy by a single subcoronal incision technique in patients with concomitant hypospadias and UDT. The creation of subdartos muscle scrotal pouch with no scrotal skin incision was also introduced.

2. Patients and methods

After institutional review board approval and informed consent obtainment, charts of 1021 patients with different types of hypospadias from April 2006 to November 2013 were reviewed retrospectively. From these, 61 patients (5.9%) were presented with different types of hypospadias (distal, proximal, mid shaft, and chordee) and concomitant UDT (left, right, and bilateral). All children had undergone a meticulous pre-operative examination. This includes physical examination to separate patients with palpable and non-palpable testes, and access the size and position of testis with physical and ultrasound examination.

Patients presented with low (proximal scrotum, distal inguinal canal) testes and those with the highest (proximal inguinal canal) testes and those presented with ambiguous genitalia were excluded to minimize the selection bias. All patients in this series were presented with palpable testes. None of the patients had non-palpable or abdominal testes. The prevalence of different types of hypospadias and UDT are shown in Table 1. It should be also mentioned that as a referral center, all of the patients in this series that were referred with concomitant UDT and hypospadias had shaft chordee or penile torsion as well. So, in this subgroup of patients penile degloving is useful to correct other anomalies as well.

From the 61 patients, 34 patients operated with single subcoronal incision (group I) and 27 children had undergone multi-incision technique (group II). The surgical technique was precisely explained for parents prior to surgery. Some parents did not accept for novel surgical procedure being performed on their children; while other parents accepted the performance of single incision procedure.

Thirty-four of 61 patients (mean age: 13.8 months, range 8–76 months) were operated by the technique of single subcoronal incision. Of the 34 cases, 11 were left-sided, 16 were right-sided, and seven had bilateral cryptorchidism. Twenty-seven (mean age: 15.4 months, range: 6–83 months) underwent the traditional technique for correction of concomitant hypospadias and UDT. Of the 27 patients, nine were left-sided, 13 were right-sided, and five had bilateral cryptorchidism. For correction of unilateral UDT and concomitant hypospadias, one incision was made in patients of group I, while 3 skin incisions was made in group II (one penile skin incision, one inguinal incision and one scrotal skin incision). Correction of bilateral UDT and concomitant hypospadias was performed with 1 and 5 incisions in group I (single subcoronal penile skin incision) and group II (one penile skin incision, two inguinal incisions and two scrotal skin incisions), respectively.

3. Surgical technique

The surgical techniques of both groups were recorded in patients chart in details. Accordingly, after induction of general anesthesia and caudal block in both groups, classical subcronal and para urethral plate incision with penile skin degloving was performed according to the location of urethral meatus. The penis was degloved down to the penopubic and penoscrotal junction with a subcoronal incision. The urethral plate was preserved in all types of hypospadias. After degloving the penis in group I, the inguinal region was approached through the lateral aspect of degloved penis on each side by the application of appropriate Davis right angle retractor in penopubic junction region in order to access the inguinal external ring, the palpable testis, release the chordee, and prepare the penis for artificial erection. The palpable testis was explored through the degloved penile skin incision by retracting the penopubic skin. The testes and spermatic cord were mobilized and dissected free from the adjacent tissues. The hernia sac was dissected free meticulously and herniorrhaphy was performed prior to orchiopexy in patients with inguinal hernia (N = 9). After releasing adequate length of spermatic cord, the tunica vaginalis was opened and the testis was completely explored for concomitant epididymis anomalies. The scrotal dartos muscle pouch was created by everting the scrotal bottom with no scrotal skin incision for orchiopexy. The true dartos muscle pouch was used and wrapped around the testis to secure it. After orchiopexy, the chordee was meticulously checked by artificial penile erection in order to straight the penis. Urethroplasty and glanuloplasty were performed based on the meatal position (TIP, MAGPI, BEAM or Mathieu) for distal hypospadias. Testis position and cosmetic results were assessed by physical examination postoperatively (Fig. 1).

In group II, correction of hypospadias and UDT was performed with traditional techniques as previously described. In this technique, two incisions were made in epsilateral inguinal and scrotal

Table 1
Demographic data of patients in group I and group II.

		Single subcoronal incision (group I)	Multiple incisions (group II)
Number of patients		34	27
Age (Mean)		13.8 months	15.4 months
Follow-up (mean ± SD)		25.12 ± 11.31 months	21.14 ± 9.25 months
Cryptorchidism	Left-sided	11	9
	Right-sided	16	13
	Bilateral	7	5
Testes		41	32
Hypospadias	Proximal	5	4
	Distal	9	8
	Mid shaft	4	3
	Chordee	16	12