นิพนธ์ต้นฉบับ

ผลการผ่าตัดรักษาท่อปัสสาวะเปิดผิดตำแหน่งโดยหน่วยศัลยศาสตร์ระบบปัสสาวะในโรงพยาบาลจุฬาลงกรณ์ ตั้งแต่ปี พ.ศ. 2546-2555

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บทคัดย่อ

วัตถุประสงค์: เพื่อรายงานผลการผ่าตัดรักษาท่อปัสสาวะเปิดผิดตำแหน่งโดยหน่วยศัลยศาสตร์ระบบปัสสาวะในโรงพยาบาลจุฬาลงกรณ์

ผู้ป่วยและวิธีการศึกษา: ทำการศึกษาข้อมูลแบบย้อนหลังจากเวชระเบียนผู้ป่วยจำนวน 66 ราย ที่เข้ารับการผ่าตัดรักษาท่อปัสสาวะเปิดผิดตำแหน่ง ตั้งแต่เดือนมกราคม พ.ศ. 2546 ถึงเดือนธันวาคม พ.ศ. 2555 โดยรวบรวมข้อมูล ชนิดของความผิดปกติ เทคนิคการผ่าตัด ผลการผ่าตัด และภาวะแทรกซ้อนจากการผ่าตัด และทำการวิเคราะห์ด้วยโปรแกรม SPSS Version 16.0.

ผลการศึกษา: ผู้ป่วยมีรูเปิดที่ส่วนปลายอวัยวะเพศ จำนวน 19 ราย มีรูเปิดที่กลางอวัยวะเพศ จำนวน 25 ราย และมีรูเปิดที่ส่วนต้นของอวัยวะเพศ จำนวน 22 ราย การผ่าตัดร้อยละ 53 ใช้เทคนิค Koyanagi และร้อยละ 37.9 ใช้เทคนิค Tubularized incised plate (TIP) สำหรับเทคนิคอื่น ๆ ที่ใช้ ได้แก่ Two-staged repair และ MAGPI ภาวะแทรกซ้อนหลังการผ่าตัดพบ ร้อยละ 43.9 มี urethrocutaneous fistula โดยความสำเร็จของการผ่าตัดไม่มีความสัมพันธ์กับเทคนิคการผ่าตัด ปัจจัยเสี่ยงที่สำคัญต่อการเกิด urethrocutaneous fistula คือ ตำแหน่งของรูเปิดท่อปัสสาวะที่ส่วนต้นของอวัยวะเพศ

สรุป: ความสำเร็จของการผ่าตัดรักษาท่อปัสสาวะเปิดผิดตำแหน่ง ไม่มีความสัมพันธ์กับเทคนิคการผ่าตัด

คำสำคัญ: ท่อปัสสาวะเปิดผิดตำแหน่ง รูรั่ว เทคนิค

Original article

Outcome of hypospadias repair in King Chulalongkorn Memorial Hospital: A ten-year experience.

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Abstract

Objective: To report outcomes after hypospadias repair surgery in King Chulalongkorn Memorial Hospital.

Material and method: Medical records of 66 pediatric patients , who underwent hypospadias repair from January 2003 to December 2012, were retrospectively reviewed. Types of hypospadias, surgical repair technique, postoperative outcomes and complications were obtained andanalyzed with SPSS Version 16.0.

Result: Hypospadias was classified into distal (19 patients), middle (25 patients) and proximal type (22 patients). The two most commonly performed techniques are Koyanagi (n=35, 53.0%) and Tubularized incised plate, TIP (n=25, 37.88%). Other techniques employed are the Two-staged repair (n=3) and MAGPI (n=3). The major complication that occurred in 43.9% of the patients, was urethrocutaneous fistula (22 patients after the Koyanagi technique, 6 after the TIP and 1 after the Two-staged repair). There is no correlation between surgical technique and surgical success rate. A significant risk factor of postoperative fistula is patients with proximal hypospadias.

Conclusion: There is no difference in success rates among the various hypospadias repair techniques.

Keywords: hypospadias, fistula, technique

Introduction

Hypospadias is a common condition with an incidence of 3.2 per 1000 live births[1]. Most of the cases, 65-70% are the anterior type while 20% are the posterior type1. In early descriptions, the goal of surgery was just to correct the penile deformity for sexual intercourse. With current principles, aims of surgical management are: to bring the urethral meatus to the glandular tip, to straighten the penile shaft from curvature for voiding and sexual activity with satisfactory cosmetic result and minimal complications[2,3].

Over 200 corrective procedures have been described[4]. The One-stage repair technique is widely accepted and successfully performed[4-6]. The proximal hypospadias is of the most difficulty to treat. The Two-stage approach is the standard correction technique for the condition, involving the initial correction of penile curvature and preparation of a ventral tissue bed for later 2nd stage reconstruction.

In our Institute, two of the most common techniques are the Koyanagi and the TIP. Koyanagi has described a procedure for the proximal type, using the lateral flaps of the penile shaft and preputial skin. They were mobilized and tubularized ventrally, allowing the operation to be completed in one-stage[7]. But the complication rate, such as urethrocutaneous fistula was high, presumably from a minimal attempt to preserve blood supply of skin flaps. Koff described a modification of the technique, in which the vascularity of the flaps was maintained, resulting in a significant reduction ofthe complication rate[8].

In 1994, placement of the onlay flap over the urethral plate became a preferable approach because of a better vascularized plate in which to construct the neourethra[9-11]. In this study, we intend to report the outcomes of hypospadias surgery and their complications in Chulalongkorn Hospital over the past 10 years.

Material and Method

We retrospectively reviewed 66 patients' medical records, all had undergone surgery between January 2003 and December 2012. Cases of reoperation were excluded. The association between successful outcomes achieved with each technique-successful outcome are to bring the urethral meatus to the glandular tip, to correct the curvature without complication, type of hypospadias, associated anomaly, the presence of chordee, age of patients, caliber of stents, duration of stents and their complications were recorded and analyzed. The types of hypospadias are presented in Table 1.

The two surgical techniquesthat were used most frequently are the tubularized-incised plate (TIP) urethroplasty and the Koyanagi technique. All data were collected and the correlation between the operative outcome, age, type of hypospadias, associated anomalies and surgical technique was evaluated. Statistical analysis was performed using the Chi-squared test and the Unpaired t-test with SPSS program version 16.0. P value was set at $\leq$ 0.05, to be statistically significant.

Table 1. Classification of hypospadias

Type of hypospadias	N	%
Proximal	22	33.3
Middle	25	37.9
Distal	19	28.8

Result

The median age of the patient was 3.68 years (1-14 years). The associated anomalies were undescended testes (n=2), megalencephaly (n=1), macrocephaly (n=1), pathologic club foot (n=1), otopalatodigital syndrome (n=1), VACTREL (n=1), VSD with PA (n=1), ambiguous genitalia (n=1).

Types of hypospadias, surgical techniques and complications are presented in Table 2.

Forty-three patients (65%) had chordee, 25 patients (38%) had middle hypospadias and the major complication was urethrocutaneous fistula.

Factors such as, age (P-value = 0.661), associated anomalies (P-value = 0.973), chordee (P-value = 0.371), suture material(P-value = 0.492), size of suture material (P-value = 0.045 did not significantly correlate with postoperative complications, whereas other factors such as type of hypospadias (P-value = 0.003), surgical technique (P-value = <0.000) and duration of catheter (P-value <0.000) were significantly correlated to an increased rate of postoperative complication.

Discussion

Hypospadias is the most common congenital penile anomaly and one of the most difficult conditions to treat in pediatric urology. There are variations of acceptable surgical correction techniques.

From other study found that there are more complication in the proximal type and in the Koyanagi technique (15-50%) than in TIP (4-60%) whereas in the distal type are 2-24%. When comparing to our study shown the same trend that the significant factors related to postoperative complications are the type of hypospadias, surgical technique and duration of catheter drainage. Although our complication rates are higher the others study can be explained by we are in the learning curve of hypospadias repair.

Table 2. Type of hypospadias, surgical techniques and complications

Type of hypospadias N (%)	Surgical technique N (%)	Complications N (%)	Fistula N (%)	Stricture N (%)
Proximal :	Koyanagi 19 (86)	13 (68)	12 (63)	2 (10)
22 patients (33)	TIP 3 (13)	1 (33)	1 (33)	-
Milddle :	Koyanagi 13 (52)	8 (61)	8 (61)	-
25 patients (38)	TIP 10 (40)	4 (40)	4 (40)	-
	2-stage 2 (8)	-	-	-
Distal :	Koyanagi 3 (15)	2 (66)	2 (66)	-
19 patients (29)	TIP 12 (63)	1 (8)	1 (8)	-
	2-stage 1 (5)	1 (100)	1 (100)	-
	MAGPI 3 (15)	-	-	-

The most common complication after surgery was urethrocutaneous fistula. The vascular supply and tension of anastomosis were the key considerationsof the operation. In our institute, the Koyanagi is a preferable technique to correct proximal hypospadias because a longer tubular flap can be acquired and in chordee correction, the result was better. The disadvantage with the Koyanagi technique is that the flap has a poorer vascular supply. Along with longer anastomosis, the complication of urethrocutaneous fistula can occur. In an attempt to prevent that we tend to extend the duration of catheter drainage in all cases after Koyanagi repair.

Conclusion

Factors that can predict the success outcome are the type of hypospadias, the surgical techniqueand the duration of catheter. In our series, although the number of cases was small, it appearsthat the TIP urethroplasty had more desirable outcomes than other techniques. Further prospective studies with more subjects could be of great value to determine the optimal surgical techniques, predictors of postoperative outcomes, and how to minimize possible complications.

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