

# TUBULARIZED INCISED PLATE URETHROPLASTY FOR THE REPAIR OF DISTAL AND MID PENILE HYPOSPADIAS

Inayat-ur-Rehman, Tariq Waheed, Ikram-ud-Din, Muhammad Imran

Department of Paediatric Surgery, Khyber Teaching Hospital, Peshawar - Pakistan

## ABSTRACT

**Objectives:** The objective of this study was to evaluate the results of tubularized incised plate urethroplasty performed for distal and mid-penile hypospadias, without chordee.

**Material and Methods:** This was a prospective and descriptive study performed in Paediatric Surgery Unit Khyber Teaching Hospital, Peshawar from March, 2007 to February, 2008. All patients with distal and mid-penile hypospadias without chordee were admitted through out patients department (OPD). Repair was performed by one surgeon with PDS 6/0 Suture. Feeding tube was used for bladder drainage and it was removed on the 5<sup>th</sup> post-operative day. Patients were followed for 6 months after surgery.

**Results:** Fifty patients were operated. Age ranged between 2 to 6 years. Means age was 3.84 years. The procedure was successful in 39 (78%) patients while 11 (22%) patients developed complications. Three (6%) patients developed meatal stenosis while 8 (16%) patients developed urethrocutaneous fistula. In 3 (6%) patients appearance of the glans was not conical although there was no meatal stenosis or fistula.

**Conclusion:** Tubularized incised plate urethroplasty is a very good, cosmetically acceptable, single stage repair procedure for distal and mid penile Hypospadias.

**Key words:** Hypospadias, tubularized incised plate urethroplasty.

## INTRODUCTION

Hypospadias is one of the most common congenital anomalies occurring in approximately 1:250 to 1:300 male live births<sup>1</sup>. In hypospadias, the abnormal urethral meatus lie somewhere along the ventral surface of the penis, from glans to perineum<sup>2</sup>. Depending upon the severity of hypospadias the patient experiences various degree of functional disability. Sexually the dystopic meatus can cause psychological problems and by causing difficulty in semen delivery can affect fertility. The objective of therapy is to construct a straight penis with a meatus placed at the tip of the glans allowing a forward directed stream and normal coitus<sup>3</sup>. More than 200 procedures have been reported for the repair of this problem. Currently the trend is towards single stage and simple procedures. Tubularized incised plate urethroplasty is one of such procedure. The concept of an intact urethral plate for the repair of distal hypospadias was introduced by King in 1970<sup>4</sup>; in that technique the meatus was placed at the corona and did not reach the tip of glans. Sadlowksi<sup>5</sup> extended tubularization of the urethral plate to the proximal part

of the glans. Firlit<sup>6</sup> described the tubularization of the intact urethral plate upto the tip of the glans, either alone or with a Duplay urethroplasty. Zaontz<sup>7</sup> reported good results with the same technique when the urethral plate is grooved and widened. Similarly the megameatus intact prepuce variant of hypospadias with a deeply grooved urethral plate is repaired via tubularization of the intact urethral plate<sup>8</sup>. Von Horn & Kass<sup>9</sup> described the repair of coronal, anterior penile, mid penile and penoscrotal hypospadias using in situ tubularization of the urethral plate. When a urethral plate is shallow, tubularization may be technically difficult. Rich et al<sup>10</sup> introduced the concept of midline incision of the distal part of urethral plate in conjunction with meatal based flap or onlay island flap procedure to construct a vertically oriented and cosmetically normal neomeatus.

Snodgrass<sup>11</sup> described a distal penile hypospadias repair using tubularization of an entirely incised urethral plate at the midline to be widened and easily tubularized. Snodgrass et al<sup>12</sup> reported satisfactory functional and cosmetic results in a large series of 148 patients.

## MATERIAL AND METHODS

This study was conducted in Paediatric Surgery unit of Khyber Teaching Hospital, Peshawar from March 2007 to February 2008. The patients who had distal and mid penile hypospadias without chordee

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### Address for Correspondence:

**Dr. Inayat-ur-Rehman**

Associate Professor & Incharge  
Department of Paediatric Surgery  
Khyber Teaching Hospital, Peshawar - Pakistan  
Contact: 0300-5920492

and were not operated previously were included in the study.

The suture used was PDS 6/0 and size 6 feeding tube was used to drain the bladder. Patients were kept in the ward and on the 5<sup>th</sup> day, feeding tube was removed. Patients were discharged after passing urine. Patients were followed regularly for 6 months and complications were noted.

## RESULTS

Fifty patients were operated with this procedure. Twenty-seven (54%) patients had distal penile hypospadias while 23 (46%) patients had mid-penile hypospadias. Age ranged between 2 to 6 years with a mean of 3.84 years. The procedure was successful in 39 (78%) patients while 11 (22%) patients developed complications. Three (6%) patients developed meatal stenosis which responded to regular meatal dilatation and they ultimately passed urine with good stream. Eight (16%) patients developed urethrocutaneous fistula. In 3 (6%) patients, fistula was very small and healed spontaneously. Five (10%) patients required closure of the fistula after 6 months. In 3 (6%) patients the appearance of the glans was not conical although they had no functional problem in the form of meatal stenosis or urethrocutaneous fistula. This appearance was acceptable to the parents because there was no functional problem.

## DISCUSSION

Hypospadias is a common congenital problem for which more than 200 methods have been introduced. Many of the distal lesions were earlier repaired by meatal based flip flap procedure. Although this repair produced a glanular meatus, the opening was often rounded in contrast to slit like appearance of a normal meatus. Rich et al<sup>10</sup> introduced the principle of incising the urethral plate in the midline to improve the cosmesis of hypospadias. In 1994, Snodgrass advanced this concept by extending the incision of the urethral plate from meatus to the tip of the glans<sup>11</sup>. This allowed construction of a new urethra from the existing urethral plate. It was suggested that healing may occur through re-epithelialization of the relaxing incision without obvious scarring allowing the incised edges to remain separated<sup>13</sup>. Today tubularized incised plate urethroplasty has become a preferred method for repairing distal hypospadias because of its versatility to repair different meatal variants, the simplicity of operative technique, low complication rate and reliable creation of a normal appearing glanular meatus<sup>14</sup>.

We performed the procedure in cases of distal and mid penile hypospadias without chordee as a primary repair but the technique has also been used as a secondary repair with acceptable results<sup>15</sup>. There

is also debate regarding stenting the urethra in this repair but most of the surgeons including Snodgrass himself recommend stent placement for a week<sup>16,17</sup>.

Initially we used Foley's catheter for bladder drainage but it used to get blocked so then we started with feeding tube which had no such problem. We circumcised the patient at the time of surgery and also used vascularized dartos flap to cover neourethra in order to reduce the incidence of urethrocutaneous fistula. Other authors have also recommended this coverage with good results.<sup>18,19</sup> To avoid meatal stenosis it is important that midline relaxing incision should not extend to the glans tip and it should be confined to urethral plate only. It is also important that completed neomeatus should be a generous oval opening and it should not be sewn too far distally.

Vicryl and PDS both have been used in the hypospadias repair but PDS is preferred because it is monofilament and exerts less drag during repair that is why we also used PDS. Compared to other single stage procedures like flip-flap<sup>2</sup>, tubularized incised plate urethroplasty is more easy procedure with a fistula rate of 16% while flip-flap has a fistula rate of 20%. In our study only 5 patients (10%) required another operation for fistula repair which is acceptable<sup>15,16</sup>.

## CONCLUSION

Tubularized incised plate urethroplasty is a simple and easy repair in distal and mid-penile hypospadias without chordee with good functional and cosmetic results.

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