

# Treatment of 52 Cases of Hypospadias by Longitudinal Section of Urethral Plate and Coiled Tube Urethroplasty

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**Abstract:** Objective: To investigate the indications and some problems in the treatment of hypospadias by longitudinal section of urethral plate and coiled tube urethroplasty. Methods: All the children were treated with longitudinal urethral plate section and coiled tube urethroplasty. Results: The penis of all the children showed the appearance after circumcision, with normal erectile function, urethral opening in the right position of the head of the penis, postoperative urethral fistula in 4 cases, urethral stenosis in 3 cases, ventral swollen penis in 5 cases, slight torsion of the penis in 2 cases, and slight downward curvature of the penis in 1 case. Discussion: For distal and middle types of hypospadias with low penile flexion and well-developed urethral plates, longitudinal section urethral plate incision urethral tube urethroplasty has good surgical effect, short operation time and fewer postoperative complications. It is a commonly used surgical method at present.

**Keywords:** urethral plate; longitudinal coiled tube; hypospadias

## 1. Introduction

Hypospadias is a common malformation in children's genitourinary system, with an incidence of about 3/1000, which is roughly the same at home and abroad. There are more than 300 surgical methods. Our hospital has adopted T tubularized incised plate from February 2004 to December 2020. TIP, or Snodgrass, was used to treat 52 cases of hypospadias, and good results were obtained, as reported below.

## 2. Clinical data

In this group, a total of 52 cases were male, aged from 9 months to 12 years old, of which 40 cases were distal type, accounting for 76.9%, 10 cases were middle type, accounting for 19.2%, 2 cases were proximal type, accounting for 3.8%, 45 cases were combined with mild penile downbend, accounting for 86.5%, and 3 cases were combined with moderate penile downbend, accounting for 5.7%. All patients in this group underwent longitudinal urethral plate section and coiled tube urethroplasty. After 2 to 3 years of follow-up, there were 4 cases of urethral fistula, accounting for about 7.7%, and 3 cases of urethral stenosis, accounting for 5.7%. The ventral appearance of the penis was bloated in 5 cases, accounting for 9.6%, the appearance of the penis was slightly twisted in 2 cases, accounting for 3.8%, and the appearance of the penis was slightly bent in 1 case, accounting for 1.9%. All the penises in all cases showed the appearance after circumcision, the erectile function was normal, and the external urethral opening was located in the head of the penis.

## 3. Surgical methods

(1) Parallel incisions were made on the urethral plate from the urethral opening to the navicular fossa with a width of about 0.6-0.8 cm.) 2) About 1.0 cm away from the coronal groove, the foreskin is removed to the base of the penis. If the penis is combined with the downward curvature, the penile white membrane can be compressed on the back of the penis to correct the downward curvature.(3) The two sides of the cephalic flap of the penis were separated, and longitudinal incision was made in the center of the urethral plate to reach the white membrane of the cavernous body of the penis, and the urethral plate was separated on both sides to widen the urethral plate, and a new urethra could be formed by suture around the No. 8-10 silicone urinary tube.(4) The superficial fascia under the penis was taken, or according to the specific situation of the child (when the urethra defect is long), the urethra was covered by a soft tissue flap with vascular pedicle on the back of the penis. (5) A new external urethral orifice was formed by suturing the phallic cephalic flap, and the penis skin was cut and sutured.)

## 4. Results

The penises of all cases showed the appearance after circumcision, the erectile function was normal, and the external

urethral opening was located in the right position of the head of the penis. Postoperative urethral fistula occurred in 4 cases, accounting for 7.7%, and urethral stenosis in 3 cases, accounting for 5.7%, all of which were improved after postoperative urethral dilation. The ventral appearance of the penis was bloated in 5 cases, accounting for 9.6%, the appearance of the penis was slightly twisted in 2 cases, accounting for 3.8%, and the penis was slightly bent in 1 case, accounting for 1.9%.

## 5. Discussion

The incidence of hypospadias is relatively high, and there are more than 300 surgical methods. Today's urethroplasty is preferred when urethral plate is preserved as much as possible, because there are smooth muscle and collagen tissues with abundant blood supply under the urethral plate, rather than poorly developed fiber tissue. For children with well-developed urethral plate, tubularized incised plate (TIP), also known as Snodgrass, is used to treat hypospadias. As long as the surgical children and penile conditions are suitable, the operation time is short, the postoperative appearance of the penis is good, the urethral opening is vertically positioned, and the urination function is good. Fewer complications and so on. According to the surgical experience of our hospital, I have the following points of experience :a: About the surgical indications: distal type and intermediate type hypospadias with low penile curvature, and well-developed urethral plate is the indication for TIP surgery. The better the development of urethral plate, the less the probability of postoperative complications. 1 For patients with mild or moderate penile flexion, the posterior penile membrane compression operation should be used to correct the penile flexion first. For patients with severe penile flexion, Duckett and other surgical methods should be used. For proximal hypospadias, if the urethral plate is well developed and the penile downward curvature is not serious, this surgical method can also be used, but the incidence of postoperative urethral fistula is relatively high. b: About the width of the urethral plate incision: Parallel incisions are made on the urethral plate from the urethral opening to the boat shape. The width of the urethral plate is about 0.6-0.8cm and the weight is about 0.6-0.8cm. After the central section of the urethral plate is longitudinally cut, the urethral plate is widened to about 1.0cm, so that the urethral plate can form a new urethra around the 8-10 urinary tube. Too narrow incision is prone to postoperative urethral stenosis and postoperative urination pain, and it is not easy to wrap around the No. 8-10 urinary tube. After surgery, urethral dilation is easy to occur, and when the incision is too wide, the phallic flap is relatively small, which is easy to affect the blood flow of the phallic flap, and can also cause the appearance of the postoperative phallic head to be small. c: About the covering of the shaped urethra: After the shaped urethra, the surrounding tissue should be used to cover the new urethra to reduce the occurrence of postoperative urethral fistula. During the operation, Buck fascia around the urethra plate was used to cover the urethra, because Buck fascia is easy to free, has rich blood supply, thicker tissue and has good tensile strength. 2 If the urethral defect is long, soft tissue flap with vascular pedicle on the back of the penis can be used to cover the formed urethra, and the soft tissue vascular flap should not be too thick. Some operators use the lateral urethral fascia combined with the dorsal pedicle transfer fascia flap multiple superposition to cover the urethra, to achieve better efficacy, 4 intraoperative coverage should not be too much, at most not more than 2 layers, otherwise the appearance of the ventral penis after surgery is easy to appear bloated, unsightly. d: About the duration of catheter indentation after surgery: silicone catheter is used in our hospital after surgery (silicone catheter is less likely to be blocked than latex catheter), which is generally retained for about 10-14 days and removed. Some surgeons require catheter indentation for about 1 month after surgery to prevent urethral stricture. We believe that urinary tract infection and other complications are likely to occur when urinary catheter is retained for too long. Some surgeons suggest replacing a thinner urinary tube on the operating table after urethroplasty, such as replacing it with No. 6 silicone urinary tube, which can effectively reduce postoperative complications. 3 e: About the problem of postoperative rupture of the penis head: The diameter of the penis, the distance between the coronary groove and the outer urethra after forming, and the type of urinary tube are the risk factors for the fracture of the penis. Therefore, when forming the penis during the TIP operation, in addition to paying attention to fully free the wing flap of the penis, it is safer to pay attention to the forming distance of the crown mouth greater than 4.5 mm. The indwelling of No. 6 urinary tube after operation can also reduce the occurrence of dehiscence of the penis. 5

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