

NEW ONE-STAGE OPERATING METHOD APPLIED IN CHILDREN IN THE PENIAL FORM OF HYPOSPADIA

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✓ Resume

Purpose. Improving the method of surgery in the penile form of hypospadias and improving postoperative outcomes.

Materials and methods. In 2011-2017, 215 patients aged 3 months to 18 years with distal and middle body forms of hypospadias were operated at the Children's Surgical Clinical Hospital No. 2 in Tashkent. They performed basically two different surgical procedures: Matthew and single-stage neourethraplasty operations developed in the clinic. Of the 170 patients who underwent surgery with a penile form of pelvic curvature without hypospadias, 42 (24.7%) underwent urethraplasty using the Matthew method, and 128 (75.3%) underwent surgery using the new single-stage glanspenial neurotroplasty method we developed.

Keywords: penile form of hypospadias in children, one-stage surgical method, Matthew method.

БОЛАЛАРДА ГИПОСПАДИЯНИНГ ПЕНИАЛ ШАКЛИДА ҚЎЛЛАНИЛГАН БИР БОСҚИЧЛИ ЯНГИ ОПЕРАЦИЯ УСУЛИ

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Фарғона вилоят болалар кўп тармоқли тиббиёт маркази,
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✓ Резюме

Мақсад. Гипоспадиянинг пениал шаклида операция усулини такомиллаштириш ва операциядан кейинги натижаларни яхшилаш.

Материал ва услублар. Тошкент шаҳар 2-сон болалар жарроҳлик клиник шифохонасида 2011-2017 йилларда 3 ойликдан 18 ёшгача бўлган 215 та бемор гипоспадиянинг дистал ва ўрта тана шакллари билан операция қилинди. Уларда асосан икки хил операция усули ўтказилган: Маттью ва клиникада ишлаб чиқилган бир босқичли неоуретрапластика операциялари. Гипоспадиянинг олат эгрилигисиз пениал шакли билан операция бўлган 170 та бемордан 42 (24,7%) таси Маттью усулида уретрапластика қилинган, 128 (75,3%) таси биз ишлаб чиққан янги бир босқичли гланспениал неоуретрапластика усулида операцияси қилинган.

Калит сўзлар: болаларда гипоспадиянинг пениал шакли, бир босқичли операция усули, Маттью усули.

НОВЫЙ ОДНОЭТАПНЫЙ ОПЕРАЦИОННЫЙ МЕТОД У ДЕТЕЙ ПРИ ПЕНАЛЬНОЙ ФОРМЕ ГИПОСПАДИИ

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✓ Резюме

Цель. Совершенствование методики хирургического лечения половой формы гипоспадии и улучшение послеоперационных исходов.

Материалы и методы. В 2011-2017 гг. В Детской хирургической клинической больнице № 2 г. Ташкента прооперировано 215 пациентов в возрасте от 3 месяцев до 18 лет с дистальной и средней формами гипоспадии. Они выполнили в основном две разные хирургические процедуры: операцию Матфея и одномоментную неуретрапластику, разработанную в клинике. Из 170 пациентов, перенесших операцию по поводу искривления полового члена без гипоспадии, 42 (24,7%) перенесли пластику уретры по методу Мэтью, а 128 (75,3%) - операцию с использованием нового разработанного нами метода одномоментной нейротропластики головки полового члена.

Ключевые слова: половая форма гипоспадии у детей, одноступенчатый хирургический метод, метод Мэтью.

Relevance

Hypospadias is a congenital malformation of the penis that is more common in boys. Over the last 30 years, the number of children born with the disease has increased from 1: 450-500 to 1: 125-150 [3]. Due to the increased incidence of this disease in children and the fact that postoperative complications reach 50%, surgical removal of the disease is in the focus of scientists around the world, and this trend continues to this day [1,2,4].

To date, almost all of the single-stage surgeries used to treat hypospadias have been performed using shears for the neouretra. Because the blades are located on the body of the penis, its mobility is extremely high, which helps to keep the skin of the penis from tightening. It is also the closest in structure to the urethra in terms of the skin structure of the urethral leaves [4,5].

At present, multi-stage surgeries of hypospadias are not used by pediatric surgeons and urologists in developed countries, and they have only become of historical significance. Nowadays, for the treatment of this disease, regardless of its form, surgical methods are performed successfully in patients with small head of the penis. Prospective urethral permeability is free, mainly the fact that the distal part is wide enough to determine the outcome of urethroplasty [5].

In severe forms of hypospadias, a significant reduction in postoperative complications was achieved using the buccal urethroplasty method [6]. In proportion to the proximal location of the meatus, the size of the prostate gland and the size of the penile hollow body decrease [7]. The absence of hair follicles in the urethra prevents, firstly, the formation of stones and stones in the newly formed urethra in the future, and secondly, causes very few scars after surgery [8].

However, this alone is not sufficient to reduce complications, as suturing of neouretra sutures in various surgical procedures, circulatory failure due to vascular injury in a piece of skin obtained, and multiple head injuries lead to an increase in postoperative complications [9].

Usually the width of the incised urethral area is insufficient for neourethraplasty. Prolonged holding of the catheter in the bladder after surgery can result in skin-urethral leakage after catheter removal due to scarring in the incised urethral area. In patients with a small head of the penis, a single-stage surgical procedure was performed using an additional piece of skin taken from the incision to enlarge the incised urethral area. Reduced complications from 18% to 5.1% [10].

The reason for such emphasis on kermak sheets is that kermak sheets have been fully used for plastics in cases of recurrence of complications after one or more surgeries to eliminate hypospadias [11].

The main cause of postoperative complications was observed in patients with a small head of the penis, regardless of the method of urethroplasty. In the TIP method, the urethral site cut at the head of the penis resulted in neouretra stenosis due to the subsequent development of scarring. Although this method is popular among pediatric urologists around the world for its simplicity, convenience, and cosmeticity, it has been analyzed that it cannot be used in patients with a small penis head. As a result of implantation of a free piece obtained from the penile incision in the GTIP method, the head of the penis was enlarged and complications were reduced.

Mathieu noted in his findings that hypospadias could not be used in moderate body shapes due to circulatory disturbances in the skin fragment obtained by the method and the sutures in the head of the penis [10,12].

In the ectopic meatus, the blood supply to the skin layers is not fully formed. Regardless of the degree of androgen-determined genesis of the genital system, in patients undergoing androgen stimulation in the preoperative period, the size of the penis increases, the deep layer of skin, as well as the development of subepidermal blood vessels reduces postoperative opening of the neouretra [13].

In distal body forms of hypospadias, a transverse skin fragment taken from the incision was used for single-stage surgery. Subsequent improvements to these methods have resulted in high functional and aesthetic results using the proximal form [14].

Purpose. Improving the method of surgery in the penile form of hypospadias and improving postoperative outcomes.

Materials and methods

In 2011-2017, 215 patients aged 3 months to 18 years were operated on with distal and middle forms of hypospadias at the Children's Surgical Clinical Hospital No. 2 in Tashkent. They performed basically two different surgical procedures: Matthew and single-stage neourethraplasty operations developed in the clinic.

Of the 170 patients who underwent surgery with a penile form of pelvic curvature without hypospadias, 42 (24.7%) underwent urethraplasty using the Matthew method, and 128 (75.3%) underwent surgery using the new single-stage glanspenial neurotroplasty method we developed. Before surgery, all patients underwent general blood and urine analysis, blood biochemical analysis, ultrasound examination.

The method of glanspenial neurotroplasty developed in our clinic (patent for invention № IAP 05305, 2016) is performed as follows.

128 (75.3%) children underwent surgery by glanspenial neurotroplasty, in which the external opening of the urethra was located in the body part of the penis. After appropriate cleaning of the operating area with antiseptic solution, the outer hole of the urethra at the head of the penis is cut parallel, leaving 0.2-0.3 cm by the lateral.

The parallel incision should form a future neourethra to the proximal side and correspond to the length that reaches the crown when sewn back.

The diameter of the incision corresponds to the size of the urethra at the age of the patient (Fig. 1a). An age-appropriate tube is placed in the bladder and secured to the apical part of the head of the penis. From the hypospadias hole to the proximal side, the blood vessels are carefully separated along with the subcutaneous soft tissue without injury (Fig. 1b). A piece of skin is formed. On the inner edge of the parallel incisions, a piece of skin formed over the urethra is sutured to the skin with nodular sutures. The second layer is knotted on top (Fig. 1c). The neourethra is then checked for leaks. The remaining piece of skin is pulled back over the neourethra and sutured to the border of the head (Fig. 1g).

The skin is cut in a circle between the skin and the mucous membrane, and the skin is cut along the midline in the area of the penis. The resulting two skins are taken to the scalp, examined for hemostasis and transferred to the ventral surface of the penis. (Figure 1d). With these two skin cuts, the wound is closed by suturing with nodular sutures (Fig. 1e). The wound is treated with 3% iodine solution. Non-traumatic atraumatic Vikril 6/0 thread is used during the operation. An aseptic bandage with glycerin is placed on the wound for 5 days and a diamond blue is applied for 3 days. The tube is removed on the 8th day of surgery and urinated.

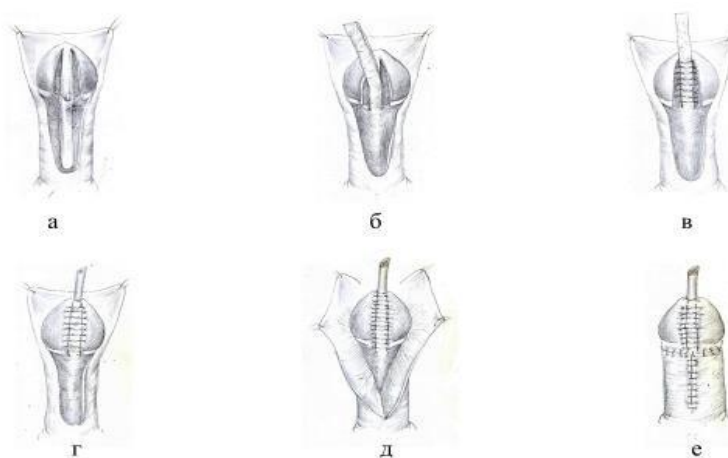


Figure 1. Glanspenial neourethraplasty scales (a- incision line; b- formed piece of skin; c- appearance of neourethra; g- incision of skin sewn back over the neourethra; d- incision of the ventral surface; e- final appearance of the operation).

In Matthew's operation, two parallel incisions are made in the urethral area to the apex of the head. The cut is cut to the hollow body, but the hollow body is not cut. The piece of skin is the length of the future neourethra, and the incision is turned to the top and sutured to the inner edge-

urethral plate. The incision is made at the head of the penis on the lateral side, separated from the hollow body, and the head of the penis is sewn together to form a conical shape, joining the outer edges of the incision.

Conclusion and discussion

Complications of postoperative cutaneous urethral effusion were observed in the early postoperative period (1 month) in 7 (5.5%) of the 128 patients who underwent single-stage glanspenial neourethraplasty. Of the 42 patients who underwent urethroplasty using the Matthew method, 21 (50%) had the following

complications: neomeatus retraction in the early postoperative period (1 month) - 5 (11.9%); in the evening, meatostenosis was observed in 3 (7.1%) patients and skin-urethral effusion in 13 (31%) patients. The type and number of postoperative complications are given in full in the table below (Table 1).

Table 1 Complications after surgery for penile hypospadias in children

	Type of surgery	Urethral effusion		Meatostenosis		Retraction		Total	
		Abs.	%	Abs.	%	Abs.	%	Abs.	%
1	Glanspenial neourethraplastic - clinical method	7	5,5					7	5,5
2	Matthew method	13	31	3	7,1	5	11,9	21	50

Patients were followed for 1 month to 2 years after surgery. Seven complications occurred within 1 month after single-stage glanspenial neurotroplasty surgery. Follow-up for up to 2 years was performed to determine urethral diverticulum formation. If diverticulum is suspected (swelling of the base of the penis during urination, dripping after urination), we recommend an ascending urethrogram. However, the above symptoms and penile curvature, pain in erection, neomeatus stenosis, urinary incontinence after urination, discomfort during and after urination, scarring on the ventral surface of the penis were not observed during follow-up.

The following postoperative complications in the Matthew method were caused by: vascular injury and disruption of blood circulation in the piece of skin obtained for neourethra, which slows down the regeneration process; the risk of opening the seams increases as the edges of the skin sections are pulled and sewn; meatostenosis is observed after surgery due to multiple injuries around the neomeatus.

In the piece of skin obtained for the neourethra in the method we have proposed, the blood vessels are removed without injury and the blood circulation is not disturbed, which enhances the regeneration process. Since the edges of the skin incisions are sutured without pulling, the opening of the sutures is not observed, and meatostenosis does not occur at all when the neomeatus is less injured.

Conclusion

Postoperative complications with single-stage glanspenial neurotroplasty were reduced by 44.5% compared with the traditional Matthew method.

The absence of vascular injury in the skin fragment obtained for the neourethra by the glanspenial neourethraplasty method enhanced the regeneration process, reducing the risk of leakage because the edges of the skin incisions were sutured without pulling.

The lack of complications in the glanspenial neurotroplasty method we proposed in the body type without hypospadias curvature has led to the fact that this method serves as a surgical choice.

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