

SURGICAL REPAIR OF URETHROCUTAEOSUS FISTULA IN A MALE WITH PREVIOUS ISOLATED EPISPADIAS - A CASE REPORT

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ABSTRACT

Introduction: Isolated male epispadias is a rare congenital penile malformation that describes a defect of the dorsal aspect of the penis, leaving the urethral plate open. It may associated with urinary incontinence.

Aim: The current case report study is aiming for presenting a successful one stage-surgical repair of a large urethral fistula situated at the dorsum of the penile boy in a patient with a history of isolated epispadias corrected with multiple previous failed attempts. **Subject and method:** The studied case was a 23 years old male who presented to Urology Department in Medicano Hospital in Erbil, at the north of Iraq, in Jan. 2020 with an evidence of urethral fistula at the dorsum of the penis. The patient had a history of congenital isolated male epispadias with failure of previous surgical repair. Clinical examination revealed a large fistula at the dorsum of the penile body with indurated edges and everted urethral wall. The glandular urethral opening was patent. A Foley catheter was introduced from the glandular urethral orifice bypassing the fistula to the bladder. Closure of the edges of the urethral wall around the Foley catheter. A flap was taken from the dartos fascia to cover the site of the closed urethral incision.

Conclusion and Recommendation: Complete excision of the scar tissue and utilization of more than one layer of flap over the closure site are advisable for repair of urethrocutaneous fistula.

KEYWORD: Epispadias, Urethrocutaneous Fistula.

INTRODUCTION

Isolated male epispadias (IME) is a rare congenital penile malformation. In its isolated presentation, it consists in a defect of the dorsal aspect of the penis, leaving the urethral plate open. It constitutes approximately 10% of all Epispadias cases.^[1] It might be associated with urinary incontinence which is related to the degree of dorsal displacement of the meatus and the underlying underdevelopment of the urethral sphincter.^[2]

The meatal position in IME is variable. Accordingly, anatomical classified according to the location into: penopubic epispadias (PPE) for the most proximal conditions, with or without open bladder neck, penile epispadias (PE), or glandular epispadias (GE) for the most distal variants.^[3]

The Cantwell-Ransley procedure and its modifications is a popular well known surgical procedure that is usually applied for repair. However, distal coronal or subcoronal urethrocutaneous fistula (UCF) is a common complication of this procedure compared to the Mitchell-

Bagli complete penile disassembly Epispadias repair. This is related mostly to the ischemic effect upon the urethral plate of the first procedure compared with the second.^[4] Any defect subjects the procedure to failure. The most common form of which is the UCF and dorsal chordate. Reported fistula rate after cantwell-ransley is 10%.^[5]

Studies concerning the causes of failure of UCF technique in epispadias and hypospadias surgeries stress on the size of the fistula ≥ 2 mm and the lack of surgical experience as the most important causes rather than other presumable factors such as: the age of patients, site of fistula, interval time of two operations, length of neourethra, complications other than UCF and postoperative infection.^[6] Successful management of UCF is related primarily to the size of the defect. Technical considerations are of the next importance including meticulous tissue handling, application of rotational flap technique, proper approximation technique, proper hemostasis and application of diathermy, proper antibiotic cover and dressing.^[4]

As a principle of urethral fistula defect closure an application of a covering layer over the site of closure is mandatory. Dartos flap or tunica vaginalis flap are the commonest and most successful flaps being utilized.^[7,8]

The current case report study is aiming for presenting a successful one stage-surgical repair of a large urethral fistula situated at the dorsum of the penile boy in a patient with a history of IME corrected with multiple previous failed attempts.

Subject and method

The studied case was a 23 years old male. He presented to Urology Department in Medicano Hospital in Erbil, at the north of Iraq in Jan. 2020 with an evidence of urethral fistula at the dorsum of the penis. The patient had a history of congenital IME. The first surgical correction was performed when he was three years old (20 years ago). According to his parents statements the operation resulted in correction of the deformed Glans but a wide dorsal urethral fistula occurred. Two subsequent surgical correction attempts conducted at age of ten and Fourteen with no success. The patient is continent for urine and bowl motion, erection is normal and ejaculation is normal. Family history was negative for epispadias. The patient mentioned that urine stream usually pass through the fistula and sometimes through the external glandular urethral opening when occluding the fistula by hand.

Clinical examination of the penis revealed a large fistula at the dorsum of the penile body just proximal to the coronal sulcus with induration of the edges of the fistula wall and eversion of the urethral wall. Two small openings identified suggestive of small fistulae or sinuses. The glandular urethral opening was patent. The pubic area revealed a dimple like adhesion between the skin and the pubic bone.

Retrograde urethrogram was performed from the glandular urethra and revealed a patent urethral orifice. Ultrasound evaluation for the genitourinary system was normal. No other genital abnormality was reported. (Figure 1).



Figure 1: Clinical appearance of the reported case.

1. A large fistula at the dorsum of the penile body.
2. Induration of the edges of the fistula wall and eversion of the urethral wall with two small openings around suggestive of small fistulae or sinuses.
3. The patent glandular urethral opening.
4. A dimple like adhesion between the skin and the pubic bone in the pubic area.

Decision

A careful discussion of the clinical situation with the patient and his family and a decision for surgical repair with a possibility of utilization of flap or graft and also a possibility for a staged protocol. A consent of agreement concerning the mentioned details was obtained from the patient and his family.

Surgical Repair

Revaluation of epispadias fistula was conducted under general anesthesia. It revealed extensive fibrotic penile skin with adhesion to the urethral wall. Multiple small sinuses were seen through the fibrotic layers. The size of the fistula is approxiy 10 mm. Patency of the glandular urethral orifice was assessed using a probe. In addition, dilatation was performed up to 18 F. Evaluation of the urethra at the site of fistula revealed widely dilated urethral lumen. (Figure 2).



Figure 2: Revaluation of the studied case under general anesthesia.

A Foley catheter (size 16 F) was introduced from the glandular urethral orifice bypassing the fistula to the bladder. Degloving of the penile skin by circumcision starting as V-shaped incision at the margins of the fistula proximally and extending distally in a circular manner 1 cm from the Glans. A tourniquet applied around the penile body proximal to the fistula. Debridement of the scar done and separation from the urethral wall using small McIndoe scissors, excision of the edges of the

fistula including all small sinuses until a healthy urethral wall was reached. Tourniquet released and hemostasis using Bipolar coagulation electrode.

Closure of the edges of the urethral wall around the Foley catheter using 5/0 Vicryl (Polyglactin 910) vertical mattress interrupted sutures. A flap was taken from the dartos fascia of approximately 10 mm with a wide base, from either side of the line of closure and placed in two covering layers over the site of the closed urethral incision and sutured by 5 Vicryl. Anchoring of the proximal part of the penile skin with the base of the penis by polyglactin 910 (Vicryl) 2/0. The penile skin replaced and anastomosed with the skin at the coronal sulcus. (Figure 3) MepilexRsilver coated foam dressing applied on the wound, and a second padded fluffy dressing by sterile Gauze applied.



Figure 3: Surgical repair of the Epispadias

Postoperative care follow up

Postoperatively, meropenem 1 gm intravenous vial was described every 12 hours for three days. Then after, ciprofloxacin oral tablet 500 mg was given for the next 5 days.

At day 8 post operatively, Foley catheter was removed with the dressing. Healing seemed to be perfect with no evidence of stitch disruption or infection was noticed. (Figure 4)



Figure 4: the studied UCF a week after surgical repair

Follow-up of the studied case the patient signified a good satisfaction regarding the outcome of the procedure results.

DISCUSSION

Isolated male epispadias is a rare congenital malformation of the penis. Considered as part of Epispadias and accounting for less than 10% of epispadias types.^[3]

Whatever the type of epispadias is, its repair necessitates surgical correction to restore the penis normally from the functional and cosmetic point of view and to prevent the negative sexual as well as psychological burden on the patient.^[9] Various procedures have been utilized including Cantwell-Ransley procedure and its modification or the Mitchill-Bagli procedure.^[6,10] Urethrocutaneous fistula is a common complication of all these procedures. This might be associated with dorsal chordee.^[4]

Patil et al^[11] had published a study in 2015 regarding the outcome of Cantwell_ Ransley procedure and found that 17.85% of cases developed dorsal UCF.

The repair of urethral fistula following Epispadias surgery follows the same criteria for hypospadias repair and necessitates excision of scar tissue of the fistula wall, proper hemostasis, and application of rotational flap or graft with good dressing and antibiotic cover.^[4]

The patient we are presenting his condition had a large UCF after the first surgical correction procedure that was performed via Cantwell-Ransley procedure as documented by the provided medical records followed by three times surgical repair of the fistula. This lead to the formation of a thick scar of the fistula and induration of the scar with the urethral wall with multiple small associated fistulae. This is related mostly to the ischemic effect upon the urethral plate of the first procedure compared with the second as a cosequence of the Cantwell-Ransley procedure.^[4,12]

The size of the fistula was large of approximately 10 mm in diameter. This is important as it correlates inversely with the chance of success of surgical repair.^[6]

As far as the technique of surgical closure of UCF in our patient is concerned, we followed the exact steps for closure as for hypospadias surgery including proper calibration of the glandular urethral meatus and dilatation, a proper identification of the margins of the fistula and the scar tissue and identification of the normal urethral plate, and a proper hemostasis using bipolar diathermy.

A full debridement of all fibrotic scar and unhealthy tissue with the associated sinuses or small fistulae until a tissue with good vascularity of the urethral plate is reached is mandatory with a good size to be rolled

around a suitable size Foley catheter or a stent.^[13] An interrupted suture technique was utilized for the closure. From our personal experience during hypospadias repair we found that interrupted suture technique using long-term absorbable suture minimizes ischemia and thereby increases chances of successful healing.^[14,15]

Covering of the suture line of the urethral plate by a healthy tissue utilizing a rotational flap is very important to provide protection as a key point of success.^[16] Covering layer techniques are variable. Some advocate the utilization of the dartos tissue with multilayer.^[8] Other surgeons recommend the utilization of the Tunica vaginalis.^[7]

Because of the adequate skin layer and underlying tissue, we utilized two rotational flaps from the dartos tissue layer with a wide base providing a complete double cover of the suture line.^[17]

As a proper dressing is needed, we utilized the MepilexR border dressing, a self adherent silicone foam for the first time in our center based on the conclusion of a Canadian study confirming its validity in hypospadias surgery.^[18] Mepilex layer was applied with a simple gauze covering to prevent irritation by the clothes.

An optimum time to prevent irritation of the suture line by the urine is important. This can be done either by stenting the urethra by Foley catheter or suprapubic cystostomy. The choice between the utilization of the suprapubic cystostomy drainage and the endwilling Foley catheter urethral drainage is controversial with many studies advocate the suprapubic cystostomy.^[19]

It was chosen to use the Foley catheter urethral drainage based upon our experience in the outcome of hypospadias reconstructive surgery. With an optimum ten days to provide proper healing of the fistula. In the meantime injectable antibiotic cover to prevent possible infection and operation failure.^[20]

CONCLUSION

Recommendations

Successful repair of urethrocutaneous fistula in a male with previous epispadias requires complete excision of the scar tissue and meticulous handling of the urethral plate and utilization of more than one layer of flap over the site closure.

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