Urologia Internationalis

Case Report

Urol Int 2023;107:539–542
DOI: 10.1159/000529809

Received: October 13, 2022
Accepted: February 6, 2023
Published online: April 4, 2023

Unilateral Suprainguinal Ectopic Scrotum: Case Report and Literature Review

Hengyou Wang Daxing Tang Xiang Yan

Department of Urology, National Clinical Research Center for Child Health, Zhejiang University School of Medicine, The Children's Hospital, Hangzhou, China

Keywords
Ectopic scrotum · Scrotoplasty · Rotation flap · Case report

Abstract
Ectopic scrotum is an infrequent congenital scrotal anomaly. Different surgical methods of correcting ectopic scrotum have been used, but none have produced optimal cosmetic results for all types. We describe a case of left ectopic suprainguinal scrotum in a 14-month-old boy who had an undescended left testicle and a left-sided scrotal skin tag. Single-stage rotational flap scrotoplasty and unilateral orchiopexy were performed; however, we modified the surgical technique of scrotal rotation by excising the intervening longitudinal skin. Eight months after surgery, the repositioned scrotum had a better appearance, and the affected testicle was similar in size to the contralateral one. In comparison with other surgical methods, pedicle flap rotation of the ectopic scrotal skin with excision of the intervening longitudinal skin may produce a better cosmetic outcome.

Introduction

Congenital scrotal anomalies are uncommon. There are four categories of scrotal anomalies, including penoscrotal transposition, bifid scrotum, accessory scrotum, and ectopic scrotum [1]. Ectopic scrotum, the anomalous position of one hemiscrotum along the inguinal canal, is extremely uncommon [2]. The location of ectopic scrotum can be suprainguinal, infrainguinal, or perineal, and the suprainguinal type is the most common [3]. Different surgical methods of correcting ectopic scrotum, such as rotation flap, inverted Y incision, Z-plasty, or excision of the ectopic hemiscrotum, have been used, but none have produced optimal cosmetic results for all types [4]. We report a new surgical procedure for the treatment of ectopic suprainguinal scrotum: single-stage scrotoplasty and orchiopexy.

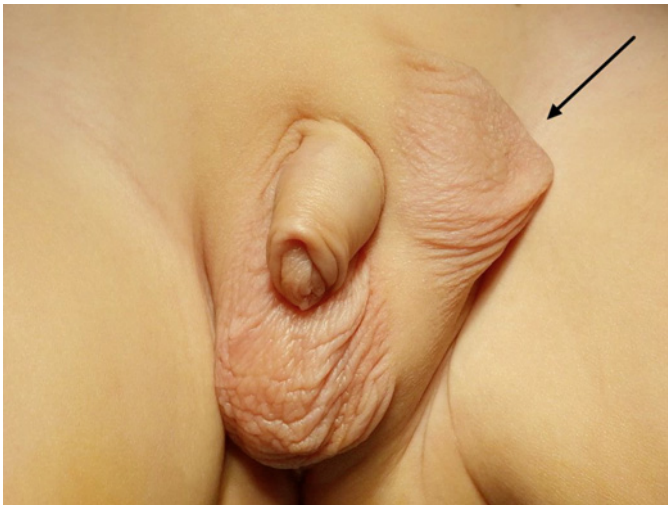

Fig. 1. Appearance of ectopic scrotum.

karger@karger.com
www.karger.com/uin

Correspondence to:
Xiang Yan, yanxiang@zju.edu.cn

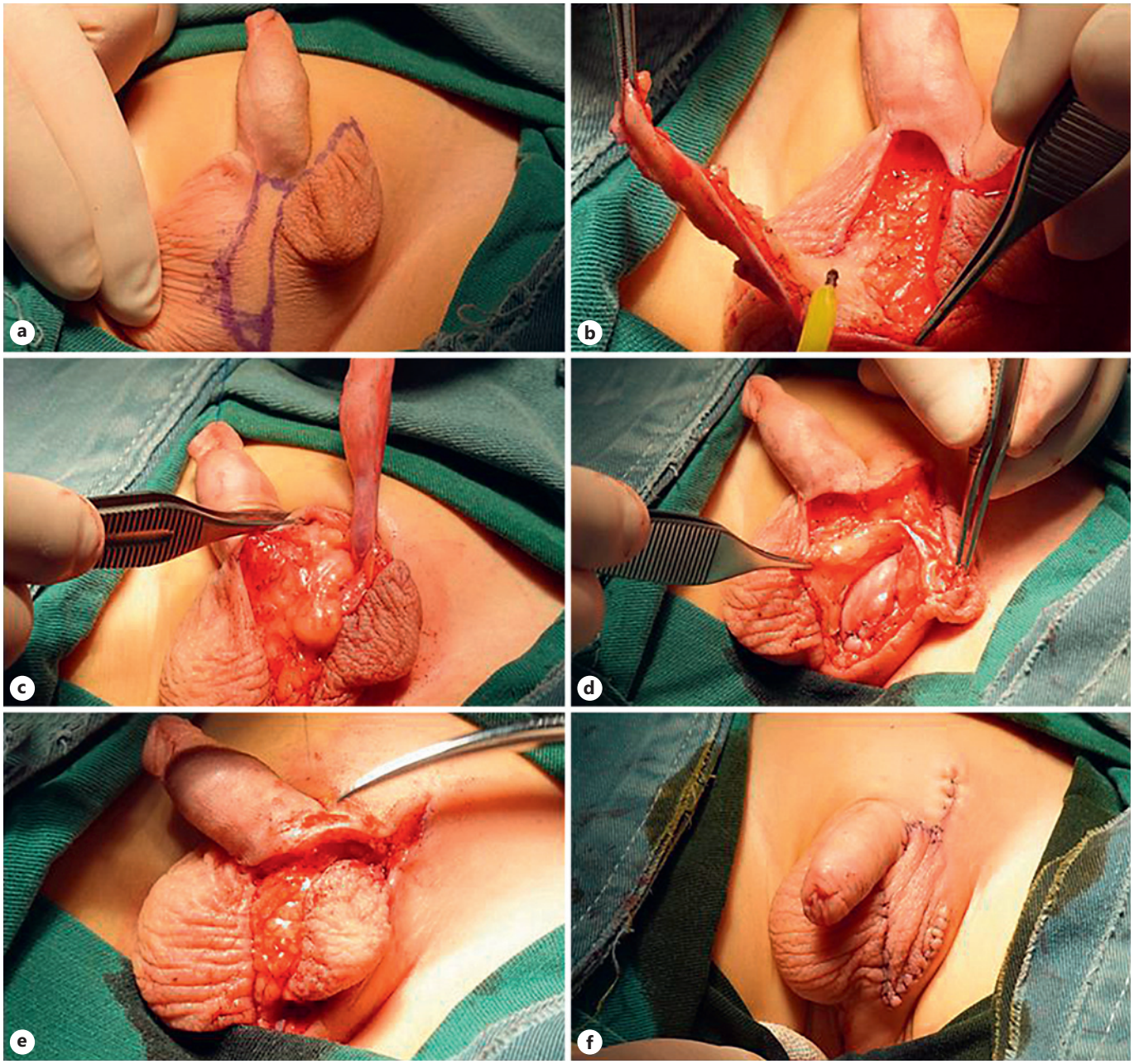

Fig. 2. Surgical procedure: designed the incision (**a**); resected the intervening longitudinal skin (**b**); separated the spermatic cord (**c**); fixed the testis (**d**); rotated the flap (**e**); and sutured the scrotum (**f**).

Case Report

A 14-month-old boy, with no relevant clinical history, presented with a left undescended testicle and a left scrotal skin tag (Fig. 1). Prenatal and maternal medical histories were unremarkable, and his karyotype was 46 XY. He had no history of urinary difficulties or urinary tract infection.

Physical examination revealed that the right hemiscrotum was positioned normally and contained a palpable, normal-sized testicle. A median raphe was present, but no scrotal development was evident on the left side. A sac of skin, containing a nomal-sized testicle, lay over the left inguinal region. The penis was also normal, and no other congenital abnormality was found. Ultrasonography showed that the left testicle was in the sac of skin

Fig. 3. Follow-up appearance.

and that the right and left testicles measured 15 × 8 × 6 mm and 14 × 9 × 6 mm, respectively. No upper urinary tract malformation was found. A diagnosis of left ectopic scrotum was considered after the discussion in the department of urology.

We performed surgery to correct the ectopic scrotum. First, the intervening longitudinal skin between the two halves of the scrotum was resected. Then, we reconstructed the scrotum by rotating the ectopic scrotum into normal position and suturing it to the lateral aspect of the right scrotum (Fig. 2). Before the scrotum was closed, we performed left orchiopexy, placing the repositioned testicle in a dartos pouch within the scrotum without tension. During the operation, no didymo-epididymal disjunction was present. Eight months after surgery, the repositioned scrotum had a better cosmetic appearance, and the repositioned testicle was similar in size to the contralateral one (Fig. 3).

Discussion

The embryologic origins of scrotal anomalies are unclear. A defect in gubernaculum formation soon after conception is hypothesized to be strongly associated with the development of ectopic scrotum [5]. Because the embryologic development of the gubernaculum and of the scrotum are intimately related chronologically and anatomically, ectopy of a hemiscrotum may result from a defect in gubernacular formation that prevents migration of the labioscrotal swellings [3].

Ectopic scrotum has been associated with other genitourinary anomalies, such as cryptorchidism, penile torsion, chordee, hypospadias, diphallia, renal agenesis, and renal dysplasia [6]. For this reason, a thorough physical examination, complete urogenital and upper urinary tract evaluation, and detailed assessment of other systems are recommended in cases of ectopic scrotum in order to exclude the congenital abnormalities [5]. Patients with ectopic scrotum should undergo upper urinary tract imaging with ultrasonography [2]. This imaging study showed that our patient had no genitourinary or other anomalies.

Ectopic scrotum must be differentiated from accessory scrotum. In general, ectopic scrotum contains a testicle and requires repositioning or excising the scrotum with preservation of the testicle [7]. Accessory scrotum is the presence of scrotal skin that is outside its normal location and does not contain a testicle [8]. It is usually treated by simple excision after verification that it contains no testicle [9].

Scrotoplasty and orchiopexy may be performed at 6–12 months of age or earlier if other surgical procedures are necessary for associated anomalies [2]. Ectopic scrotum can be treated with one-stage repair, two-stage repair, and excision of ectopic scrotal tissue. The method of rotation flap is the most common surgical technique, and in our patient, we modified this technique by excising the intervening longitudinal skin. During the operation, we preserved the skin of the lower aspect of the scrotum and rotated the upper skin to the bottom. The ectopic scrotal skin is usually grafted superiorly with an inferior pedicle to the intervening skin which was preserved. In comparison with other surgical methods, our method can reduce the possibility of surgical scars.

In summary, we performed a single-stage rotational flap scrotoplasty and unilateral orchiopexy without any postoperative complications. Pedicle flap rotation of the ectopic scrotal skin with excision of the intervening longitudinal skin may produce a better cosmetic appearance.

Statement of Ethics

Written informed consent was obtained from the parent of the patient for publication of the details of their medical case and any accompanying images. Ethical approval was provided by the Ethics Committee of the Children's Hospital of Zhejiang University School of Medicine (reference No. 2018-IRB-076).

Conflict of Interest Statement

The authors declare that they have no conflicts of interest to disclose.

Funding Sources

This work was supported by the research on application demonstration and evaluation of comprehensive prevention and control technology of birth defects (Grant No. 2018 YFC1002702).

Author Contributions

Hengyou Wang and Xiang Yan were involved in conception and design of the work, analysis and interpretation of data, and drafting the manuscript. Daxing Tang was involved in acquisition, interpretation of data, and revising the manuscript. All authors have read and approved the final manuscript.

Data Availability Statement

All data generated or analyzed during this study are included in this article. Further inquiries can be directed to the corresponding author.

References

1 Park KH, Hong JH. Perineal lipoma in association with scrotal anomalies in children. BJU Int. 2006;98(2):409–12.
2 Palmer LS, Palmer JS. Management of anormalities of the external genitalia in boys. In: Wein AJ, Kavoussi LR, Partin AW, Peters CA, editors. Campbell-Walsh Urology. Philadelphia: Elsevier; 2016. 4. p. 3382.
3 Hoar RM, Calvano CJ, Reddy PP, Bauer SB, Mandell J. Unilateral suprainguinal ectopic scrotum: the role of the gubernaculum in the formation of an ectopic scrotum. Teratology. 1998;57(2):64–9.
4 Alyamani A, Alshomer F, Almodhen F, Almeshal O. The utility of double opposing transposition flaps in the management of inguinal ectopic scrotum: surgical experience and literature review. Cureus. 2021;13(3):e13992.
5 Gardikis S, Kambouri K, Tsalkidis A, Angelidou M, Pitiakoudis M, Vaos G. Inguinal ectopic scrotum in a neonate: case report and literature review. Pediatr Int. 2012;54(4):575–6.
6 Lamm DL, Kaplan GW. Accessory and ectopic scrota. Urology. 1977;9(2):149–53.
7 Daniel G, Coleman R. Staged rotation flap scrotoplasty and orchidopexy in a patient with inguinal ectopic scrotum. J Surg Case Rep. 2015;2015(10):rjv137.
8 Chatterjee S, Gajbhiye V, Nath S, Ghosh D, Chattopadhyay S, Das SK. Perineal accessory scrotum with congenital lipoma: a rare case report. Case Rep Pediatr. 2012;2012:757120.
9 Fitouri F, Chebil N, Ben Ammar S, Sahli S, Hamzaoui M. Accessory scrotum. Fetal Pediatr Pathol. 2020;39(1):90–1.