

Ectopic Scrotum: A Rare Clinical Entity

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ABSTRACT

Congenital scrotal disorders, including penoscrotal transposition, bifid scrotum, ectopic scrotum, and accessory scrotum are unusual anomalies. We present a case of ectopic scrotum with renal agenesis.

INTRODUCTION

Congenital scrotal disorders, including penoscrotal transposition, bifid scrotum, ectopic scrotum, and accessory scrotum are unusual anomalies [1,2]. We present a case of ectopic scrotum with renal agenesis.

CASE REPORT

A 35-year-old male presented with swelling of the right side of the abdomen. There was no family history of any congenital anomalies. His physical examination showed an ectopic scrotum in the right inguinal area. The left hemiscrotum was in a normal location, and the left testis was contained in the left hemiscrotum. Scrotal raphe did not develop. The right hemiscrotum was located in the right inguinal area, and the right testis was contained in the hemiscrotum. The phallus was normal. His hematological and biochemical tests were normal. His abdominal sonography and renal isotope scan showed agenesis of the right kidney. The patient underwent right scrotoplasty and orchidopexy. The right testis showed normal characteristics. The patient proved asymptomatic during six weeks of follow-up.

DISCUSSION

Congenital scrotal disorders include four groups of anomalies: penoscrotal transposition, bifid scrotum, ectopic scrotum, and accessory scrotum [1,2]. Ectopic scrotum occurs in a variety of locations ranging from perineum and inguinal canal to the medial thigh, but it is mainly found in inguinal, suprainguinal,

infrainguinal, or perineal areas [3,12]. Scrotal development starts with the appearance of paired labioscrotal swellings lateral to the cloacal membrane at the 4-week gestation period [3,17]. The genital tubercle elongates to form the penis and is flanked by these labioscrotal swellings. After 12 weeks, these swelling migrate inferomedially, or, by a different assumption,

Figure 1. Ectopic scrotum with renal agenesis.



KEYWORDS: Ectopic, scrotum, suprainguinal

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Table 1. Comparison of literature findings by author.

| Authors | Area | Renal Anomalies | Other Anomalies | Testis Location |
|---------------------------|----------------|-------------------------|--|-----------------------|
| Adair and Lewis [5] | right inguinal | right renal agenesis | diphallia, chorde, hypospadias, ventral hernia | right ectopic scrotum |
| Flanagan et al. [6] | left inguinal | left renal agenesis | left talipas, duplicated equinovarus, left popliteal pterygium, absent left thumb, right collecting system | left ectopic scrotum |
| Milroy [7] | left inguinal | none | atrophic testes, hydrocele, left inguinal hernia | left ectopic scrotum |
| Han et al. [8] | right inguinal | right renal agenesis | imperforante anus, persistent urachus | right ectopic scrotum |
| Okuyama et al. [9] | left inguinal | none | left inguinal hernia | left ectopic scrotum |
| Ueyama et al. [10] | right inguinal | none | skeletal | right ectopic scrotum |
| Jaeschock and Drewes [11] | right inguinal | none | none | right ectopic scrotum |
| Lamm and Kaplan [12] | right inguinal | right renal agenesis | right inguinal hernia | right ectopic scrotum |
| Guha [13] | left inguinal | none | none | cryptic |
| Elder and Jeffs [14] | left inguinal | left dysplastic kidney | bilateral inguinal hernia | left ectopic scrotum |
| Edler and Jeffs | left inguinal | left hydronephrosis | none | left ectopic scrotum |
| Elder and Jeffs | left inguinal | left renal agenesis | multiple skeletal defects | left ectopic scrotum |
| Jehannin et al. [15] | left inguinal | left renal agenesis | none | nearby |
| Kolandaivalu [16] | right inguinal | none | none | nearby |
| Spears et al. [17] | left inguinal | none | none | cryptic |
| Kim et al. [18] | right inguinal | none | none | right ectopic scrotum |
| Gunayadin et al. [19] | right inguinal | none | imperforate anus | right ectopic scrotum |
| Hoar et al. [20] | right inguinal | dysplastic right kidney | penile torsion, chordee, imperforate anus, cardiac aryth, right vesicoureteral reflux | right ectopic scrotum |
| Lee et al. [21] | left inguinal | left renal agenesis | none | left ectopic scrotum |
| Lee et al. [22] | left inguinal | none | none | left ectopic scrotum |
| Kumar et al. [23] | right inguinal | right renal agenesis | covered exstrophy | right ectopic scrotum |
| our study | right inguinal | right renal agenesis | none | right ectopic scrotum |

they grow toward each other to form the scrotum. The median scrotal raphe is the result of this fusion [17].

On the other hand, a condensation mesenchymatous tissue appears during the fifth week, and then it extends from the mesonephros to the abdominal wall. These tissues develop into the gubernaculum, and the inferior gubernaculum inserts into the labioscrotal swellings to descend into the testis [17].

Because gubernaculum and scrotal embryogenesis are related both anatomically and chronologically, it is advocated that a defect in distal gubernacular formation could prevent the migration of labioscrotal swelling and would result in a unilateral ectopic scrotum [3,14].

Lockwood described 4 different locations of the distal

gubernacular attachment: the pubic area, saphenous area, superficial inguinal area, and perineal area. Therefore, the testis with the predominant portion of gubernaculum is misdirected to one of these other sides [4].

In most cases of unilateral scrotum, the testis is in the abnormally positioned scrotum. This also supports the statement that gubernaculum, which is present before the labioscrotal swellings, have begun their migration, and it directs testicular descent to the scrotum in this case of superficial inguinal locus [12].

A case with suprapubic inguinal scrotum was reported to be associated with ipsilateral upper tract anomalies, where there is not any renal anomaly with infrainguinal ectopic scrotum [14,15]. Unilateral penoscrotal transposition has been reported previously, 23 times only, in worldwide literature. All of these cases, including our own, have had associations with genitourinary anomalies.

REFERENCES

- Sule, J. D., S. J. Skoog, et al. (1994). "Perineal lipoma and the accessory labioscrotal fold: an etiological relationship." *J Urol* 151(2): 475-477. [PubMed](#)
- Bloom, D. A., J. Wan, et al. (1992). "Disorder of male external genitalia and inguinal canal." In: P. P. Kelalis, L. R. King, A. B. Belman, eds. *Clinical Pediatric Urology, vol 2, 3rd ed.* Elsevier-Saunders; Philadelphia, PA: 1015-1048.
- Shimotake, T., K. Tokiwa, et al. (1990). "Accessory scrotum with lipoma in an infant." *Z Kinderchir* 45(4): 255-256. [PubMed](#) ; [CrossRef](#)
- Lockwood, C. B. (1988). "Development and transition of testis, normal and abnormal." *J Anat Physiol* 22: 254.
- Adair, E. L. and E. L. Lewis (1960). "Ectopic scrotum and diphallia: report of a case." *J Urol* 84: 115-117. [PubMed](#)
- Flanagan, M. J., D. J. Mc, et al. (1961). "Unilateral transposition of the scrotum." *J Urol* 86: 273-275. [PubMed](#)
- Milroy, E. (1969). "Ectopic scrotum. A review of the literature and report of a further case." *Br J Urol* 41(2): 235-237. [PubMed](#) ; [CrossRef](#)
- Han, Y. T., Y. N. Woo, et al. (1971). "A case of unilateral ectopic scrotum combined with ipsilateral renal agenesis." *Korean J Urol* 12(3): 407-409.
- Ueyama, H., M. Miyakawa, et al. (1972). "Unilateral transposition of the separated scrotum--report of a case." *Hinyokika Kyo* 18(1): 16-21. [PubMed](#)
- Okuyama, A., S. Nagano, et al. (1972). "[Ectopic scrotum: report of a case]." *Hinyokika Kyo* 18(1): 22-26. [PubMed](#)
- Jaeschock, R. R. and J. Drews. (1976). "Die Ektopie des Skrotums." *Z Kinderchir* 19: 400-405.
- Lamm, D. L. and G. W. Kaplan (1977). "Accessory and ectopic scrota." *Urology* 9(2): 149-153. [PubMed](#) ; [CrossRef](#)
- Guha, S. C. (1979). "Unilateral ectopic scrotum." *Br J Plast Surg* 32(2): 91-92. [PubMed](#) ; [CrossRef](#)
- Elder, J. S. and R. D. Jeffs (1982). "Suprainguinal ectopic scrotum and associated anomalies." *J Urol* 127(2): 336-338. [PubMed](#)
- Jehannin, B., J. M. Navarro, et al. (1983). "[Unilateral supra-inguinal ectopic scrotum]." *Chir Pediatr* 24(3): 213-215. [PubMed](#)
- Kolandaivelu, G., K. Seeniraj, et al. (1987). "Accessory scrotum." *Br J Urol* 59(4): 363. [PubMed](#) ; [CrossRef](#)
- Spears, T., I. Franco, et al. (1992). "Accessory and ectopic scrotum with VATER association." *Urology* 40(4): 343-345. [PubMed](#) ; [CrossRef](#)
- Kim, B. H., H. J. Jung, et al. (1995). "A case of unilateral ectopic scrotum." *Korean J Urol* 36 (1): 104-106.
- Gunaydin, M., E. Ariturk, et al. (1997). "Unilateral inguinal ectopic scrotum and imperforate anus: a case report." *J Pediatr Surg* 32(9): 1360-1361. [PubMed](#) ; [CrossRef](#)
- Hoar, R. M., C. J. Calvano, et al. (1998). "Unilateral suprainguinal ectopic scrotum: the role of the gubernaculum in the formation of an ectopic scrotum." *Teratology* 57(2): 64-69. [PubMed](#) ; [CrossRef](#)
- Lee, J. W., W. K. Lee, et al. (1999). "A case of unilateral ectopic scrotum with cryptorchidism." *Korean J Urol* 40(1): 126-127.
- Lee, C. B., C. J. Back, et al. (2001). "Two cases of congenital scrotal anomalies: Ectopic scrotum, accessory scrotum." *Korean J Urol* 42(4): 450-452.
- Kumar, V., M. Marulaiah, et al. (2002). "Unilateral inguinal ectopic scrotum with covered exstrophy." *Pediatr Surg Int* 18(5-6): 511-513. [PubMed](#) ; [CrossRef](#)