

## Transverse Testicular Ectopia Found by Preoperative Ultrasonography

Transverse testicular ectopia, an extremely rare anomaly, is a deviation of testicular descent resulting in unilateral location of both testes, usually associated with an inguinal hernia, with the spermatic cord of the ectopic testes originating from the appropriate side. In most reported cases, the correct diagnosis was not made preoperatively. But we made a diagnosis of transverse testicular ectopia preoperatively by using the ultrasonography in patient with right-side inguinal hernia and left-side cryptorchism. Left testis was found on the right inguinal area and right testis was found in the right scrotum by ultrasonography, so we could make a diagnosis of transverse testicular ectopia. After right inguinal herniorrhaphy, both testes were easily brought down sequentially through the right groin into the scrotum. Left testis was placed in the left hemiscrotum through transcepal incision to the scrotal subdartous pouch.

**Key Words :** Urogenital abnormalities; Testicular diseases; Transverse testicular ectopia; Ultrasonography, Preoperative

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### INTRODUCTION

Transverse testicular ectopia is an extremely rare but well-recognized entity in which both gonads migrate toward the same hemiscrotum (1-3). The clinical findings are usually symptomatic inguinal hernia on one side to which the ectopic gonad has migrated, and an impalpable testis on the other side. In most reported cases, the correct diagnosis is not made preoperatively, but made on the operation table as the patients are performed for repair of inguinal hernia. In most cases, the patients come to the hospital because of cryptorchism on one side, and inguinal hernia on the other side, so the patients are usually very young under one or two years of age. In that case ultrasonography will be very helpful for the diagnosis of crossed testicular ectopia.

### CASE REPORT

A nine-month-old male patient presented to our hospital with left undescended testis and right inguinal hernia. On clinical examination, the left scrotum was empty, and no testis was palpable on the left side. The right inguinal hernia was confirmed, and right testis was palpable in the right scrotum. Ultrasonography was per-

formed and left testis was noticed on the right inguinal area and right testis was in the right scrotum (Fig. 1). On repeated clinical examinations after ultrasonography, the left testis could be palpable on the right inguinal area. So we confirmed the diagnosis as transverse testicular ectopia.



**Fig. 1.** Ultrasonographic findings of crossed testicular ectopia. Notice the left testis located on the right inguinal area.



**Fig. 2.** Operative findings of crossed testicular ectopia. Notice the hernia sac, both gonads with respective epididymides, vasa and blood supply.

During operation, the right inguinal exploration revealed a normal testis within the right scrotum associated with an indirect inguinal hernia. During dissection, the left testis was encountered near the right external inguinal ring. Each testis was noted to have its corresponding spermatic cord, and had two vasa deferentia with the two vasa fused 3 cm proximal to the testes (Fig. 2). The fused part looked like a thick walled structure, and it was inseparable. The two testes were a good size and identical in appearance. Each had its own vascular pedicle and had its own ductus deference, except disconnection of the left epididymis with left testis. After right inguinal herniorrhaphy, both testes were easily brought down sequentially through the right groin into the scrotum. Left testis was placed in the left hemiscrotum through transeptal incision to the scrotal subdartous pouch. We carried out intravenous pyelogram and ultrasonogram. Other anomalies were absent in kidney and urogenital systems.

## DISCUSSION

Transverse testicular ectopia, otherwise known as transverse testicular ectopia, testicular pseudoduplication, paradoxical or transverse aberrant testicular maldescent, unilateral double testis is a rare, but recognized anomaly (4). The first description of the entity is usually attributed to Lenhossek (5), who in 1886 described this form of ectopia as part of an autopsy performed by his father 20 years earlier. Subsequently, Jordan reported a case of an 8-year-old boy operated on for a left inguinal hernia (6). The first case published in English literature was

reported in 1907 by Halstead (7) and followed by 100 other cases (2, 3, 8-10).

A number of theories have been proposed to explain the etiology of ectopic testis. The first serious explanation with this multiple insertion theory is provided by Lockwood when he reported that the gubernaculum testis terminates in 5 tails that are attached to the bottom of the scrotum, the front of the pubis, the perineum, Scarpa's triangle in the thigh, the region of the inguinal ligament just medial to the anterior superior iliac spine (11, 12). Gupta and Das (13) postulated that adherence and fusion of the developing Wolffian ducts takes place early and that descent of one testis causes the second one to follow it. Gray and Skandalakis (14) felt that since in most cases both ducti have remained separate, a crossing over must have occurred later. Kimura (15) suggested that if fusion of the ducti is present, it can be assumed that the two testes arose from the same genital ridge and that true crossing of the testes occurred only when a separate ductus deferens reached each testis.

Testicular ectopia has been associated with an incidence of upper and lower urinary tract anomalies ranging from 2 to 97% (16, 17). Associated genitourinary anomalies including seminal vesicle cyst, persistent mullerian duct structure, and intersex have been reported (3, 17, 18). Malignant testicular transformation has been reported (8, 10); thus the intraabdominal testis should be brought down. Transverse testicular ectopia and horseshoe kidney case has been reported by Golladay in 1982 (9).

Testicular ectopia usually comes to the surgeon's attention because of a symptomatic inguinal hernia on the side to which the ectopic gonad has migrated. In most reported cases the correct diagnosis was not made preoperatively, but during operation (2). Herniogram may be useful when the diagnosis is uncertain (19). Other nonoperative diagnostic modalities which may be used to localize a nonpalpable testis are: arteriography (20), venography (21), computerized tomography (22), and ultrasonography (23). In our case, ultrasonography proved useful in making a correct diagnosis.

Little attention has been focussed on treatment. A variety of procedures have been described, including a staged procedure to bring the ectopic testis into its correct canal (2). Where both testes are found to lie in the scrotum, herniorrhaphy is the only action required. Where the transverse ectopic testis lies in the inguinal canal or at the external ring, it should be separated from the hernia and moved into the scrotum with its supplying cord structures lying alongside those of the ipsilateral testis. In our case, ectopic testis were located at the external ring. After separation from the hernial sac, the attachments of each testis were dissected from the internal

inguinal ring. This provided of sufficient length for the testes to be brought down to lie in the dartos pouch without tension. Ectopic testis was placed in the left hemiscrotum through transseptal incision to the scrotal subdartous pouch, with a modification of the technique used by Ombredanne (24).

## REFERENCES

1. Doraiswamy NV. *Transverse ectopic testis-case report and review. Z Kinderchir* 1983; 38: 264-8.
2. Gauderer MW, Grisoni ER, Stellato TA, Ponsky JL, Izant RJ. *Transverse testicular ectopia. J Paed Surg* 1982; 17: 43-7.
3. Thevassthsan CG. *Transverse ectopia of the testis. NZ J Surg* 1967; 37: 93-102.
4. Beasley SW, Auldism AW. *Transverse testicular ectopia in association with double incomplete testicular descent. Aust NZ J Surg* 1985; 55: 301-3.
5. von Lenhossek M. *Ectopia testis transversa. Anat Anz* 1886; 1: 376.
6. Jordan M. *Ein fall von einseitigem descensus testicularum (Ectopia testis transversa). Beitr Klin Chir* 1895; 15: 245.
7. Halstead AE. *Ectopia testis transversa. Surg Gynecol Obstet* 1907; 4: 129-32.
8. Lowsley OS, Porras E. *Congenital anomalies of the testis. J Int Coll Surg* 1951; 15: 332-42.
9. Golladay ES, Redman JF. *Transverse testicular ectopia. Urology* 1982; 19: 181-6.
10. Fujita J. *Testicular transverse ectopia. Urology* 1980; 16: 400-2.
11. Lockwood CB. *Development and transition of the testis, normal and abnormal. Brit Med J* 1887; 1: 444.
12. Lockwood CB. *Development and transition of the testis, normal and abnormal. J Anat* 1888; 22: 505.
13. Gupta RL, Das P. *Ectopia testis transversa. J Ind Med Assoc* 1960; 35: 547-9.
14. Gray SW, Skandalakis JE. *Anomalies of testicular descent, in Gray, Skandalakis. Embryology for Surgeons: Philadelphia, Saunders, 1972: 588-9.*
15. Kimura T. *Transverse ectopy of the testis with masculine uterus. Ann Surg* 1918; 68: 420-5.
16. Tolete-Velcek F, Bernsein MO, Hansboug F. *Crossed testicular ectopia with bilateral duplication of the vasa deferentia: an unusual finding in cryptorchism. J Pediat Surg* 1988; 23: 641.
17. Peterson NE. *Association of transverse testicular ectopia and seminal vesicle cysts. J Urol* 1977; 118: 345.
18. Fourcroy JL, Belman AB. *Transverse testicular ectopia with persistent mullerian duct. Urology* 1982; 19: 536-8.
19. Swank RL, Afshani E. *Transverse testicular ectopia: preoperative diagnosis. J Pediatr Surg* 1974; 9: 425.
20. Ben Menachem Y, De Berardinis MC, Salinas R. *Localization of intraabdominal testes by selective testicular arteriography. J Urol* 1974; 112: 493-4.
21. Freeny PC, Cummings KB, Simmons JR. *Selective testicular venography for localization of nonpalpable testis. Urology* 1978; 12: 617-8.
22. Wolverson MK, Jagannadharao B, Sundaram M. *CT in localization of impalpable cryptorchid testes. Am J Radiol* 1980; 134: 725-9.
23. Madrazo BL, Klugo RC Parks JA. *Ultrasonographic demonstration of undescend testes. Radiology* 1979; 133: 181-3.
24. Ombredanne M. *Indications et technique de l'orchidopexie transcrotale. La Presse Medicale* 1910; 2: 745-50.