CASE REPORT

RIGHT TRANSVERSE TESTICULAR ECTOPIA: A CASE REPORT

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ABSTRACT

Transverse testicular ectopia is a rare anomaly in which both testis lie in one hemiscrotum. We report a case of an 18-month old boy with the right transverse testicular ectopia that presented to our outpatient clinic with left indirect inguinal hernia and a right non-palpable testis. The patient was operated on left herniotomy, and orchidopexy of both testes was made to the respective hemiscrotum after mobilization of the spermatic cord. Transverse testicular ectopia was almost always diagnosed intraoperatively. We also describe its embryology, the investigation to detect it early, the surgical management, and the review of previously reported cases.

INTRODUCTION

Case Presentation

A 1 year and 6 months old male child from Metama, north Gondar area, presented to the Surgical Out Patient Department (S-OPD) on May 3, 2010, with a complaint of swelling over the left inguinal area that lasted one year. The mother noted that the mass increased in size upon crying and relatively diminished at times by itself. The swelling did not have associated pain, change in color, fever, difficulty of urination or problem on passage of feces and flatus. He had no other site body swelling; no history of chronic cough, abdominal distension, or chronic diarrhea. He was completely immunized according to the Ethiopian Immunization Program (EPI) protocol; had good nutritional and developmental history. He was from a family of 6 numbers none of whom had a similar problem.

On examination, he looked healthy, well-nourished, and interactive. His anthropometrical measurements showed moderate stunted height (H/A); otherwise, his weight for age (W/A), weight for height (W/H), mid-upper arm circumference (MUAC) and head circumference were all in the normal range. His vital signs: PR= 100 beats per min, RR= 26 breaths per min, and T^0=36.6^{0}c.

The abdomen at presentation was not distended, had no visible veins, moved with respiration. Bowel sound was normoactive and soft at palpation, with no superficial or deep tenderness. There was non-tender ill-defined mass in the left inguinal area that didn't show change on crying nor was it reducible. On Genitourinary examination, the left testis was palpable in the scrotum, but the right hemi-scrotum was empty and no testis was palpable.

With these clinical findings, he was diagnosed to have left indirect inguinal hernia and right undescended testis and was admitted on May 06, 2010 for elective operation.

He was operated on May 14, 2010 and during the operation, the left inguinal exploration revealed a normal testis within the left scrotum associated with an indirect inguinal hernia. During dissection, the right testis was found in the left inguinal canal. Each testes was noted to have its corresponding spermatic cord with two vasadeferentia which were separated. The two testes were of good size and identical in appearance, each with its own vascular pedicle. After left inguinal herniotomy, the right testis with an adequate long spermatic cord, was brought to the right hemi- scrotum after skeletonization through suprapubic subcutaneous tissue down to the scrotum to form a tunnel, and both testis were placed in the respective hemi-scrotum and anchored in the Dartos pouch prepared.

After the operation, he had abdominal ultrasound examination which showed normal abdominal organs

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study. Size of kidneys was 6.6 cm*3.3 cm left and right, respectively. They were in normal site with normal echo texture.

DISCUSSION

Normally, the testis is located in the scrotum at birth. Ectopic testis have been reported at different sites, including the superficial inguinal pouch, suprapubic, femoral and perineal areas, and at the base of the penis. Transverse testicular ectopia, also named *testicular pseudoduplication*, *unilateral double testis*, and *transverse aberrant testicular maldescent* is a rare congenital anomaly in which both gonads migrate toward the same hemiscrotum. The ectopic testis may lie in opposite hemiscrotum, in the inguinal canal or at the deep inguinal ring. An inguinal hernia is invariably present on the side to which the ectopic testis has migrated[1].

Transverse testicular ectopia was first described by Von Lenhossek, who in 1886, observed this form of ectopic testis during an autopsy performed by his father [2]. Subsequently, Jordan reported the case of an 8 years old boy operated for left inguinal hernia [3]. The first case published in English literature was reported in 1907 by Halstead [4] followed by a hundred other cases.

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 gubernaculums testis terminates in 5 tails that are attached to the bottom of the scrotum, the front of the pubis, the perineum, the scarpa, the triangle in the thigh, and the region of the inguinal ligament just medial to the anterior superior iliac spine [5,6]. Gupta and Das [7] postulated that adherence and fusion of the developing wolffian ducts took place early and that descent of one testis caused the second testis to follow it. Gray and Skandalakis [8] felt that since, in most cases, both ducts are separate, a crossing over must have occurred later. Kimura [9] suggested that if fusion of the ducts was present, it could be assumed that the two testis arose from the same genital ridge and that true crossing of the testis occurred only when a separate ductus deferens reached each testis. So far, adherence and fusion of developing wolffian ducts, an aberrant gubernaculums, testicular adhesions, a defective internal inguinal ring, and traction on a testis by persistent mullerian structures are some suggested embryologic explanations [10].

The mean age at presentation was 4 years [11]. In most of the cases, the correct diagnosis was not made preoperatively, and the condition was revealed during herniotomy. Gauderer et al.[11] reported that 65% of cases were diagnosed intraoperatively during an inguinal herniotomy; only a few were diagnosed preoperatively. The clinical findings were usually symptomatic inguinal hernia and a fully descended gonad on one side to which the ectopic gonad has migrated, and an impalpable testis on the other side. Rarely, meticulous examinations may reveal two testes on the hernia side, with an impalpable testis on the contra lateral side.

It is well recognized that persistent mullerian duct structures occur in 20% of cases of transverse testicular ectopia. Additional genitourinary anomalies, such as hypospadias, penoscrotal transposition, seminal vesicle cyst, common vas deferens, renal agenesis, horseshoe kidney, and pelvicureteric junction obstruction are reported among patients who have transverse testicular ectopia [12]. Based on the presence of various associated anomalies, transverse testicular ectopia has been classified into 3 types: (*i*) associated with inguinal hernia alone (40-50%); (*ii*) associated with persistent or rudimentary mullerian duct structures (30%); (*iii*) associated with other anomalies without mullerian remnants (inguinal hernia, hypospadias, pseudohermaphroditism and scrotal abnormalities (20%)) [11].

In most of the reported cases, the diagnosis was only made during operation, and not pre-operatively. Our patient was found to have right transverse testicular ectopia during surgery for herniotomy in a child with contra lateral undescended testis. Recently, MRI has been suggested for preoperative location of impalpable testis[13]. Adams Baum, et al [14] recommended routine pelvic and inguinal area ultrasonography in bilateral cryporchidism patients and in patients with inguinal hernia of unusually hard consistency. Fairfax and Skoog [15] reported a 14-month old child with transverse testicular ectopia diagnosed laparascopically.

Although little attention has been given to the treatment, a variety of procedures have been described. Where both testes are found to lie in the scrotum, herniotomy is the only procedure recommended. 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. For such cases, the surgical options are fixing the testis in the same hemiscrotum, transseptal orchidopexy, and laparoscopic mobilization and fixing the testis in its respective hemiscrotum. In our case, the ectopic testis was located in the inguinal canal. After separation from the hernia sac and left cord, the right testis with long cord was brought to the right scrotum and both testes

Long-term postoperative follow up should be routinely recommended because like all dysgenetic testes, infertility and progression to malignancy are relatively frequent with transverse testicular ectopia [16].

CONCLUSION

Transverse testicular ectopia, characteristically accompanied by ipsilateral inguinal hernia and a contra lateral undescended testis, is a rare anomaly usually diagnosed intraoperatively. In such clinical presentations, early suspicion and thorough investigation with ultrasound, laparoscopy and MRI will help to diagnose the disease entity preoperatively and act accordingly. It is thought that it will also be beneficial to keep this rare clinical condition in mind; especially, surgeons who frequently repair inguinal hernias should be aware of the appropriate surgical management options available to them when this condition is unexpectedly identified during inguinal exploration.

RECOMMENDATION

All operating fellow surgeons should be encouraged to report when they encounter such cases because we feel such activities will improve the overall awareness.

CONSENT

A written informed consent was obtained from the patient's parents for publication of this case report. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

AT and BH were involved in the treatment of the patient and wrote and finalized the manuscript. All authors read and approved the final manuscript.

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REFERENCES

1. Golladay ES, Redman JF. Transverse testicular ectopia. Urology 1982;19(2):181-6,
2. Von Lenhossek M. Ectopia testis transverse. Anat Anz 1886; 1:376,
3. Jordan M. Ein Fall Von einsteitigem descensus testiculorum (Ectopia testis transverse). Beitr Klin Chir 1895; 15:245,
4. Halstead AE ectopia testis transversa. Surg Gynecol Obster 1907;4:129-32,
5. Lockwood CB. Development and transition of the testis, normal and abnormal JH Anat 1888;22:505,
6. Lockwood CB. Development and transition of the testis, normal and abnormal. BMJ 1987;1:444,
7. Gupta RL, Das P. Ectopia testis transversa. J Ind Med Assoc 1960;35:547-9,
8. Gray SW, Skandalak's JE, Anomalies of testicular descent in Gray. Skandalabis. Embrology for Surgeons:Philadelphia Saunders, 1972;?:588-9,
9. Kimura. T. Transverse ectopic of the testis with masculine Uterus. Ann Surg 1918; 68:420-5,
10. Bloom DA, Wan J, Key D. Disorders of the male external genitalia and inguinal canal. In: Kelalis PP, King LR, Belman AB(eds), Clinical Pediatrics Urology. Philadelphia: WB Saunders, 1992, PP105-1049,
11. Guaderer MWL, Grisoni ER, Stellato TA, Ponsky JL, Izant RJ. Transverse testicular ectopia. J Pediatr surg 1982;17:43-47,
12. Karnak I, Tanyel FC, Akcorenz, Hicsonmeza A. Transverse testicular ectopia with persistent mullerian duct syndrome. J Pediatr Surgery. 1997;32:1362-64,
13. Lam WW, Le SD, Chan KL, Chan FL, Tam PK. Transverse testicular ectopia detected by MR imaging and MR venography. Pediatr Radiol 2002; 32(2): 126-29,
14. Adamasbaum C, Rolland y, Josso N. Kalifa, G. Radiological findings in three cases of persistent mullerian duct syndrome. Pediatr Radil 1993;23 (1):55-6,
15. Fairfax CA, Skoog SJ. The laparoscopic diagnosis of transverse testicular ectopia. J Urol. 1995;153(2):477-8.
16. Fujita J. Transverse testicular ectopia. Urology 1980; 16:400-402.