Crossed Testicular Ectopia: A Case Report
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Citation

Abstract
Crossed Testicular Ectopia (CTE) is an extremely rare anomaly in which deviation of testicular descent results in unilateral location of both testes. It is usually associated with an inguinal hernia, with the spermatic cord of the ectopic testis originating from the appropriate side. Most often the diagnosis of CTE is not made until surgical exploration. We report a case of CTE in a 4-year-old boy who presented with right-sided inguinal hernia.

CASE REPORT
A four-year-old boy was referred to our institute with the diagnosis of a large right-sided inguinal hernia since birth. On examination, the patient had a right-sided inguinal hernia and the ipsilateral testis was normally descended; however, the left testis was missed in the scrotal sac on clinical examination. No other obvious genito-urinary abnormality was noted. The patient was explored with right inguinal crease incision for right herniotomy. During the process of herniotomy, thickened and enlarged cord structures were encountered after opening the inguinal canal and, in order to facilitate the dissection, the right testis along with cord structures was delivered into the wound (Fig. 1).

On careful dissection after separation of cord structures from the hernia sac, another well-formed testis-like structure was identified which was subsequently found to have its own separate cord structures (vas deferens and testicular vessels). Both cords were proximally enclosed in a common fascial covering (Fig. 2).

The hernial sac was dissected high, transligated and cut at the deep inguinal ring. The two cords were dissected separately up to the deep inguinal ring (Fig. 3).
The inguinal incision was extended and converted into a mini-laparotomy and no abnormal Mullerian structures were found. The right testis was repositioned into the right hemiscrotum and the left testis was fixed in the left hemiscrotum in the subdartos pouch after making a trans-septal window (Fig. 4).

Since the cord structures were having adequate length no difficulty was encountered in the procedure. The patient made an uneventful recovery. After one year of follow-up both testes are well placed in the scrotum and there is no evidence of atrophy.

**DISCUSSION**

CTE is a rare congenital anomaly that was first reported by Lenhossek in 1886. Very few cases have been reported in world literature so far. The entity has also been named as transverse testicular maldescent and testicular pseudoduplication. The etiology of this anomaly is uncertain but different hypothesis include adherance and fusion of wolfian ducts and aberrant gubernaculum, testicular adhesions, deficit in internal inguinal ring, and traction on a testis by persistent Mullerian structures; the ectopic testis may lie in opposite hemiscrotum, in the inguinal canal, or at the deep inguinal ring. An inguinal hernia is usually present on the side to which the ectopic testis has migrated. Based on the presence of associated anomalies, CTE has been classified into 3 types; associated with inguinal hernia alone (40-50%); associated with persistent or rudimentary Mullerian duct structures (30%); associated with other anomalies without Mullerian remnants such as hypospadias, pseudohermaphroditism, scrotal abnormalities (20%).

The mean age of presentation of CTE is four years. These children usually present with ipsilateral inguinal hernia with contralateral absent testis, however presentation with an obstructed inguinal hernia is also known. In most of the cases, the correct diagnosis was not made pre-operatively as the testis is usually small and high and the condition was revealed during herniotomy, as happened in our case also. However when suspected clinically, MRI and MR venography have been suggested for pre-operative diagnosis. However in experienced hands, laparoscopy is useful for both diagnosis and management of CTE and associated anomalies. The surgical management of CTE is either trans-septal fixation or extraperitoneal transposition orchidopexy. Per-operatively variations in the anatomical position of vas deferentia and abnormalities of its insertion into the testis can occur and the two vas deferentia/spermatic cords may be fused to a variable length.

CTE should also be differentiated from testicular duplication which results from duplication or division of genital ridge, wherein the size of the two testicles is different and they have a common blood supply and vas deferens.

While concluding, we emphasize that CTE should be suspected clinically when unilateral hernia is associated with contralateral cryptorchidism. An appropriate pre-operative evaluation to rule out other potential abnormalities involving genitourinary tract is indicated. However when diagnosed intraoperatively, laparoscopy or minilaprotomy should follow for complete evaluation and management. Long term follow up for risk of development of infertility and testicular malignancy is mandatory.
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