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Crossed testicular ectopia

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ABSTRACT

Background: Crossed testicular ectopia (CTE) is one of the rare incidental findings during surgical intervention for an inguinal hernia or cryptorchidism, more than 100 cases have been reported in published studies.
Methodology: We collected 7 cases of CTE operated during the period from September 2016 to January 2018 at 4 different university hospitals in Egypt, with the age range from (25 days–3 years); mean age at presentation was 1.6 year. Clinical presentation, intraoperative findings, operative technique and follow-up duration of 3 months up to 2 years were assessed.
Results: Six cases were born full term, and one case was preterm. Four cases born as 1st offspring while 3 cases born as a 2nd offspring.

Three cases associated with Persistent Müllerian duct syndrome (PMDS) (type 2), one case associated with penoscrotal hypospadias (type 3), one case associated with both (PMDS) and penoscrotal hypospadias (type 3), one case associated with congenital inguinal hernia only (type 1), and one case was not associated with a hernia or any associated anomalies.

Three cases discovered accidentally during laparoscopic exploration for undescended testes, two of them had a common vas deferens or union cord.

Surgery was offered to all patients, five cases were operated by Ombredanne's technique; one case was operated by laparoscopic intraperitoneal transposition approach and the last case had one testis atrophied which may be attributed to the ischemic effect of obstructed hernia but the other associated testis was normally vascularized. All testes except one atrophied fixed at ipsilateral subdartos pouch.
Conclusion: CTE may be present in cases of cryptorchidism with or without an associated congenital hernia and may be discovered incidentally during diagnostic laparoscopy for cryptorchidism. It should be suspected in any case of abscent testis with congenital hernia in the same side. Karyotyping is recommended for cases of CTE with PMDS. We cannot find an evidence for relationship between prematurity and CTE as most of our cases were full term.

1. Introduction

Transverse testicular ectopia (TTE) also named Crossed testicular ectopia (CTE), unilateral double testis, testicular pseudoduplication, and transverse aberrant testicular mal-descent, is a rare anomaly in which both testes descend or migrate through a single inguinal canal or hemiscrotum [1].

Familial occurrences have been reported, and it can be associated with other anomalies like persistent Mullerian duct syndrome (PMDS), inguinal hernia, hypospadias, true hermaphroditism, pseudohermaphroditism, scrotal anomalies, seminal vesicle cysts, and renal agenesis [2]. We report our experience with 7 cases of CTE.

1.1. Case (No. 1)

A 3- year old boy from a rural area of Aswan governate, Egypt, presented with right non-palpable testes and left congenital hernia. The child is the 1st offspring, delivered full term with normal vaginal delivery, no antenatal medical trouble, and the mother did not receive any medication during pregnancy. The child parent's have positive

Abbrevation: PMDS, Persistent Müllerian duct syndrome; TTE, Transverse testicular ectopia; CTE, Crossed testicular ectopia; MD, Müllerian duct

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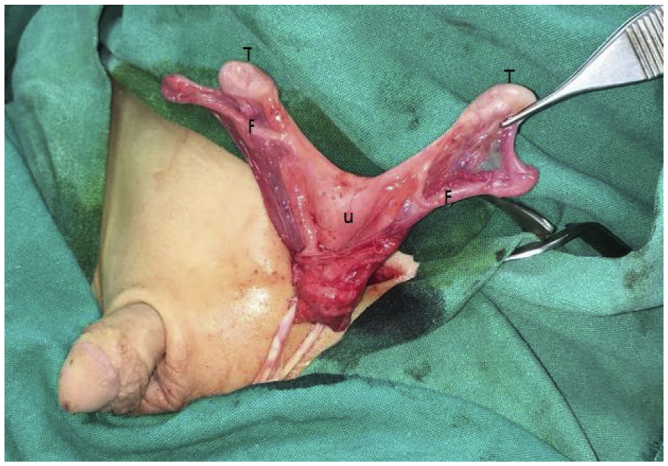

Fig. 1. Showed both testes, uterus, fallopian tubes, upper half of the vagina.

consanguinity, positive family history as his 2nd and 3rddegree relatives had a history of undescended testis and hypospadius. The child hasn't any history of medical illnesses.

A general physical examination was unremarkable. Hematological analysis and biochemistry laboratory data was normal. In external genitalia examination, the right testis was non-palpable and right hemiscrotum was empty, the left testis was palpable at the neck of the scrotum with evidence of left congenital hernia. Our decision was to operate the left congenital hernia first.

The left inguinal incision was made, the left testis with its overlying processus vaginalis was found. After an opening of the tunica, the fluid inside of it drained and well developed left testis was found accompanied with the right testis, when we pulling the cord outward a primitive uterus like structure, together with fallopian tubes and upper part of the vagina were identified. So, we discovered incidentally intraoperative a case of crossed testicular ectopia (CTE) with persistent müllerian duct remnant (Fig. 1). Both testes are equal size, have separate vas deferens, vessels, and epididymis (Fig. 2).

The right testis was brought easily to the contra-lateral right hemiscrotum using *trans*-septal orchiopexy (Fig. 3); also, the left testis was brought easily to its left well-developed hemiscrotum. Both testes were fixed in the sub-dartos pouch. We left persistent müllerian duct remnant without excision.

Follow up to the patient for a period of 6 months showed no

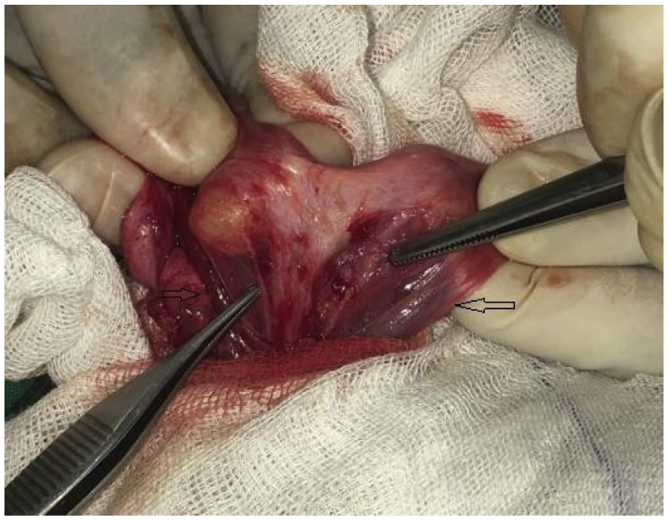

Fig. 2. Both forceps showed both and separate vasa deferentia, both black arrows showed blood vessels.

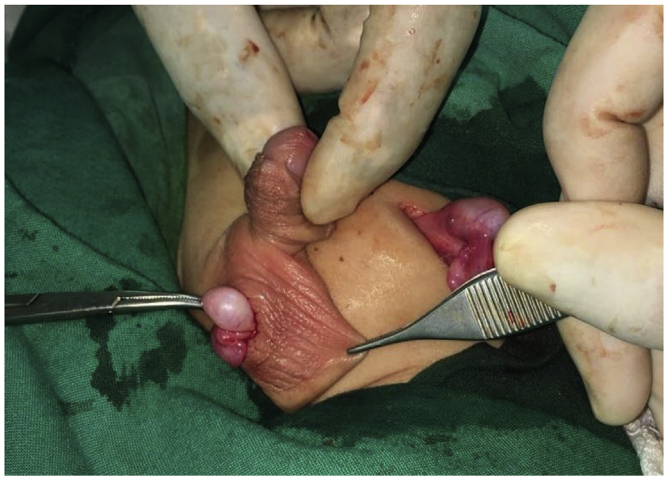

Fig. 3. *Trans*-septal orchiopexy.

postoperative complication. Scrotal ultrasound confirmed the good vasculature for both testes. Karyotyping showed a male 46 XY pattern.

1.2. Case (No. 2)

2.5-year old child presented to pediatric surgery unit, Assiut university hospital with penoscrotal hypospadius, left inguinal hernia with left palpable undescended testis at left inguinal region and right non-palpable undescended testis. The child is the 1st offspring born full term, positive parent consanguinity; no family history of similar anomalies.

Bilateral inguinal ultrasound revealed that both testes are present within the content of the hernia sac at the left inguinal region.

The patient prepared for surgical intervention, herniotomy, and bilateral orchiopexy. Unfortunately, when the patient anesthetized the testicular contents of the left-sided hernia sac was disappeared.

Diagnostic laparoscopy was performed revealed both testes on the left side above the internal ring with the left one entering the hernia sac and the right one beside it. Both testes are of equal size connected by a common stalk about 3–4 cm from the end of both epidedimis. No müllerian duct remnant (Fig. 4).

By using laparoscopy we made crossing to the right testis in the superficial inguinal space, an artery forceps reach the abdominal cavity through an opening in the right empty scrotum until it reaches the medial inguinal fossa which lies medial to inferior epigastric vessels and lateral to medial umbilical ligament, delivery of the right testes done through this opening, accompanied with ligation to the right internal inguinal ring to prevent weakness at this region and subsequent herniation, so, an intra-peritoneal transposition to the right testis accompanied with bilateral subdartos orchiopexy done (Fig. 5).

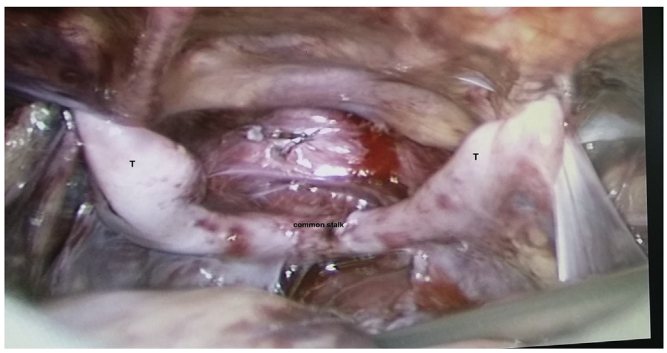

Fig. 4. Diagnostic laparoscopy revealed both testes on the left side above the internal ring connected together with a common stalk.