Abstract: The combination of crossed transverse testicular ectopia combined with persistent Mullerian structures in an inguinal hernia is unusual. When it does occur, clearly planned guidelines may help save future fertility and provide a chance for normal gonadal repositioning. A revisit of the paradigm is called for with the introduction of any new modality. We discuss a case which presented at our institution along with review of literature, and discuss the potential learning points from this rare presentation.

Keyword: Transverse testicular ectopia, laparoscopy

Introduction: A 1 year old boy presented with absent testis in the left hemiscrotum since birth. His parents had not felt it in the left side since his birth, and had noticed a normal testis in the right scrotum. We examined this boy and noted a normal penis with a good sized testis located in the right hemiscrotum. The left hemi-scrotum was well formed but empty. There was no palpable gonad in the left inguinal canal or higher in the abdomen.

The family was counselled for a laparoscopic approach for the undescended left testis with intent to identify and fix the left testis in the left hemiscrotum. However – at laparoscopy, (performed with a 5 mm camera at the umbilicus and no additional ports) some structures that seemed like a vas was seen to enter both the inguinal canals. The pneumo-peritoneum also demonstrated a right patent processus vaginalis. The left inguinal canal was explored and no testis was found. The tissue within was sent for histopathology. The left testis was assumed to have atrophied and in the presence of a possible right hernia – the inguinal canal was explored with intent to perform a herniotomy.

During the right inguinal exploration the 2 testes, their corresponding epididymii and vas were found – and between them a rudimentary uterus and its fallopian tubes was identified. The scar of the closed left inguinal canal is also highlighted in the alongside image. (see Fig1)

Testicular volume of both testes were approximately 2 cc each. A pole to pole biopsy was performed of each testes. The uterine and fallopian rudiment was removed completely taking care to preserve the vas under vision. This was particularly difficult as the vas was in close proximity to the rudimentary uterine body and fallopian tube. Each testes and its corresponding vas were easily delivered into the scrotum via the right inguinal canal and they were fixed into the left and right hemi scrota through the transverse septum, via a single separate scrotal incision (Ombredanne’s technique) Postoperatively the histopathology confirmed persistent Mullerian structures and the gonad biopsy confirmed testicular tissue, with no ovarian component.

Discussion: An ectopic testis resides at a location that deviates from its normal path of descent to the ipsilateral scrotum. Transverse testicular ectopia (TTE) is an extremely rare form of ectopic testes. The diagnosis of TTE is made when two testes of identical dimensions descend through the same inguinal canal towards the hemiscrotum. Only around 100 cases of TTE with persistent Mullerian ducts have been reported. (1)

This anomaly noted at autopsy was first reported by Lenhossek in 1886(2). However the first demonstration at surgery was by Halsted in 1907(2). Even though it is possible to make a firm clinical diagnosis in patients with a unilateral empty hemiscrotum and two gonads associated with a hernia on the contralateral side, 65% of the time the diagnosis continues to be made at surgery (3). Never the less TTE needs to be entertained in every case of unilateral or bilateral cryptorchidism with

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a contralateral hernia which is present in 98% of cases (4). The alternate diagnoses to be considered when more than one testis occupies a hemiscrotum are polychorism and crossed perineal ectopictestis (5). Laparoscopy remains the modality, in the management of impalpable testis. It has largely superseded all radiological imaging, with the ubiquitous ultrasound having a sensitivity of around 50% for picking up a nonpalpable abdominal testis or Mullerian derivatives (6). Doppler examination may have a role when the presentation is of an acute scrotum. At least one additional working port other than the 5mm umbilical port would have helped, for establishing the ectopic testis and its laterality, by applying traction to the gonad. In most cases the testicular blood supply is bilateral, rarely the right testicular artery supplied two testes in the left inguinal canal (1). The course of the vas and testicular vessels in relation to the internal inguinal ring needs to be studied. If both cord structures enter the same internal ring the diagnosis of TTE is established. In the rare instance of a unilateral hemiscrotum with 2 testes located in it and cord structures exiting the abdomen through both internal rings, the diagnosis of crossed perineal testicular ectopia is made (5). There are few reports of TTE wherein the vasa are fused to one another before serving each testis (1,3).

Between 20-40% are associated with persistent Mullerian derivatives (PMDS) which may be rudimentary or well formed with a uterine body and the paired fimbriated ends lying intimately with the vasa. There remains a small risk of malignant transformation of PMDS (7), however a conservative excision or splitting of the uterine body alone is advocated (8). A pole to pole gonadal biopsy must be performed if a 46XY karyotype has not been established a priori, or the gonad appears cystic at surgery. Employing the easier transeptal route a testis may be located in each hemiscrotum. The alternate transabdominal orchidopexy has been proposed to mitigate the risk of total castration resulting from damage to both cord structures traversing the same inguinal canal in TTE.

Conclusion:

TTE needs to be suspected especially in the presence of an inguinal hernia with a contralateral cryptorchid testis. The authors feel that close inspection of the content entering into the inguinal canal ipsilateral to the cryptorchid testes, with additional laparoscopic ports if needed, will decrease the possibility of missing this rare association. The testes maybe successfully placed into both the hemiscrotum through the same inguinal canal– hence achieving the psychological goal of an orchidopexy. Long term outcomes, such as fertility and malignancy are more easily addressed if the testes are palpable.

References.
