



ECTOPIC ABDOMINAL WALL TESTIS: RAREST OF IT'S FORM

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ABSTRACT

Ectopic testes are a rare congenital anomaly. Of all types the abdominal wall testis is the rarest form of ectopia which has been reported. A 15 year old boy with a history of empty right hemi-scrotum since birth. The right testis was ectopically located in the right subcutaneous tissues of the antero-lateral abdominal wall superficial to the anterior abdominal wall muscles. Same findings were confirmed on MRI.

KEYWORDS : Undescended Testis, Ectopic Testis, Abdominal Wall Ectopic Testis.

BACKGROUND

An undescended testis can usually be found along the route of descent, which extends from the lower pole of the kidney, via inguinal canal to the entry of scrotum. When an undescended testis migrates away from its normal route of descent, it is referred to as an ectopic testis.

Ectopic testes are a rare congenital anomaly, differing from undescended testis (cryptorchidism) in that ectopic testis is a congenitally abnormally located testis, while undescended testis are congenitally abnormally located testis within the normal path of descent. Abnormal testicular descent can either be undescended or, less commonly, ectopic, and is found in about 5.9% of males. However, about 80% of undescended testes complete the course of descent by the first year of life only if these remain in their normal pathway of descent. During the trans inguinal phase of descent, the deviation of the testis may occur to an ectopic location.

The common sites for ectopic testes include the superficial inguinal pouch, perineum, opposite side of the scrotum, femoral canal and the pubo penile region. Apart from these sites, pre-peritoneal and extra-corporeal sites have also been noted but are extremely rare. (Figure 1) The abdominal wall testis is the rarest form of ectopia which has been reported and to our knowledge very few cases of this nature has been reported in the available literature to date.

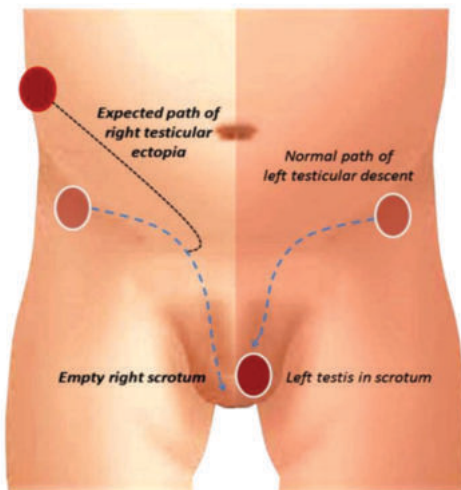


Figure 1. Line diagram demonstrating normal testicular descent (left hemi-abdomen) and ectopically located right abdominal wall testis (expected route of descent in our case).

DISCUSSION:

A 15 year old boy was referred to the Medical Imaging with a history of empty right hemi-scrotum since birth. The right testis could not be palpated in the inguinal region or in the common ectopic sites. The left testis was found in its respective hemiscrotal sac on clinical examination. The boy was otherwise normal and did not have any other complaints.

Initially, inguinoscrotal ultrasound was performed in search of the right testis, which was ectopically located in the right subcutaneous tissues of the antero-lateral abdominal wall superficial to the anterior abdominal wall muscles. The ectopic right testis was otherwise normal-appearing, with adequate Doppler flow signal. Minimal free fluid was seen surrounding testis (figure 2)

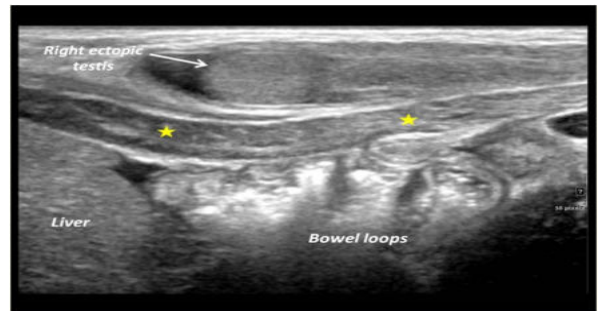
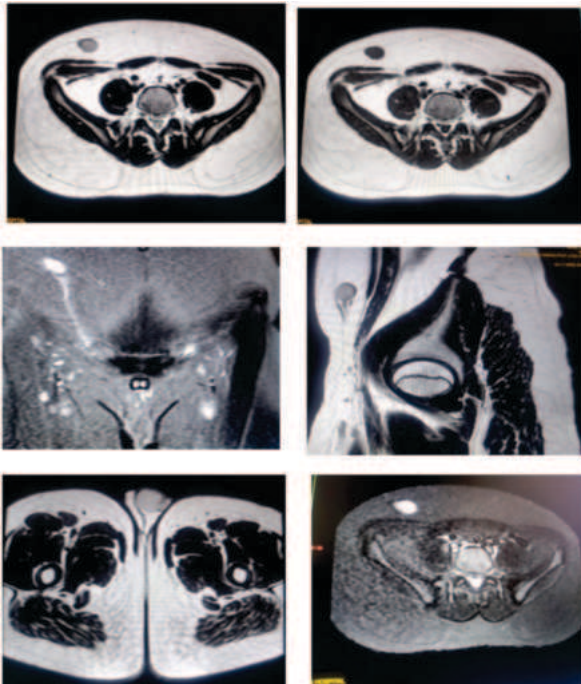


Figure 2. Longitudinal abdominal ultrasound image through the right flank. Ectopic right testis is lying superficial to the musculature of anterior abdominal wall (yellow stars) in extraperitoneal location. Note minimal fluid around the ectopic testis; liver and bowel loops are seen beneath the anterior abdominal wall.

Further for confirmation, MRI was performed to confirm the site of ectopic testis. MRI abdomen was planned without any sedation and T1W and T2W sequences were used in axial, sagittal and coronal planes to further delineate the course of the ectopic right testis. (figure 3)MRI confirmed the sonographically detected ectopic right testis, which was seen lying along the right lateral abdominal wall between the level of the umbilicus and the iliac crest; it was seen beneath the skin, between the subcutaneous tissues and external oblique aponeurosis. No aponeurotic or muscular defect was appreciable underneath the abdominal wall. The testis was contained within a sac-like structure surrounded by fluid and the spermatic cord was traceable from the level of superficial inguinal ring, extending up all the way along the right lateral abdominal wall associated with mild surrounding hydrocele.

The ovoid ectopic right testis was normal in size with relatively hypointense signal intensity on T1W, relatively isointense on T2W and hyperintense on STIR images. The right scrotal sac was empty and collapsed. Imaging features suggested ectopic right testis which was not in the line of normal descent, and was likely arrested during the trans inguinal phase of testicular descent. The left testis was seen within the scrotal sac. The left testis was also normal in size. There was no hydrocele seen on the left side. No features of inguinal hernia were noted. Visualized liver, spleen, gallbladder, pancreas, kidneys, and the urinary bladder were unremarkable for any abnormality. No other gross structural abnormalities were documented.

Testicular descent theories have evolved over time from biphasic to triphasic and then ultimately penta-phasic hypotheses. However, the emphasis has been on the trans inguinal phase, considered crucial for the testicular ectopia. Abnormal testicular descent can either be undescended or, less commonly, ectopic [2] Many hypotheses have been suggested to explain this occurrence. The most famous of these hypotheses is that of the "Tails of Lockwood". Currently, calcitonin gene-related peptide, a neurotransmitter released by the genitofemoral nerve, is believed to help in testicular descent by providing a chemotactic gradient to guide gubernacular migration [3].



MRI abdomen; axial, sagittal and coronal, selected sequences confirmed the presence of ectopic right testis lying in the subcutaneous plane between the fascia and the external oblique aponeurosis of right lateral abdominal wall with minimal fluid in the sac containing the right testis. The left testis is normal in location in left scrotal sac.

CONCLUSIONS

Preoperative imaging is recommended to detect and confirm the ectopic site as well as the morphology of the testis, thereby increasing the chance of surveillance and preservation of an ectopic testis.

Imaging can serve as pre-operative road mapping to localize the exact site for surgical exploration of an ectopic testis if there is no apparent or palpable swelling over the anterior abdominal wall. Imaging can also exclude the possibility of a hernia by delineating the muscular morphology of the anterior abdominal wall.

Conflict of interest

There are no conflict of interest.

Declaration of Patient Consent:

Declaration of Patient Consent, the authors certify that they have obtained all appropriate patient consent forms. In the form the patient has /have given his/her/their images and other clinical information to be reported in journal. The patient understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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