



TORSION OF UNDESCENDED INTRA-ABDOMINAL TESTIS WITH SEMINOMA

Radiodiagnosis

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ABSTRACT

30-year-old male patient came with the history of acute abdominal pain, diagnosed preoperatively on CT as torsion of the enlarged right sided undescended intra-abdominal testis, highly suggestive of testicular neoplasm with torsion, proven to be seminoma on histopathology report. Undescended testis with malignant transformation is well documented, however its torsion is one of the rare causes of acute abdomen. There are very few case reports describing this rare complication from the Indian subcontinent. Presenting this case report to describe rare imaging diagnosis of torsion of undescended intra-abdominal testicular seminoma, presenting as acute abdomen.

KEYWORDS

Testicular torsion, Undescended testis, Ectopic testis, Intra-abdominal testis, Seminoma.

INTRODUCTION:

Cryptorchidism (Undescended testis) is 3.5 – 5 times more prone for development of germ cell tumour, most commonly seminoma, as compared to the scrotal testis. [1]. Such a testis is highly vulnerable to torsion secondary to its free mobility and rapid increase in size. [2]. It is difficult to diagnose the condition preoperatively as the history of cryptorchidism is often concealed by the patient, as in this case. In a male patient with acute abdomen without any previous history of orchiectomy, possibility of torsion of undescended testis should be included in the differential diagnosis. Preoperative CT scanning should be performed in cases of acute abdomen and should include the scrotal region. Presence of an empty scrotal sac with intra-abdominal / pelvic ovoid soft tissue should prompt the diagnosis of undescended testis. Presence of 'swirl sign' or 'whirl sign' of the twisted vascular pedicle of the undescended testis is helpful in clinching the diagnosis of torsion.

Case History:

A 30-year-old male patient presented with acute lower abdominal pain for one day, accompanied by occasional vomiting. No ultrasonography was performed for the patient and was referred directly for contrast enhanced CT of the abdomen and pelvis. The CT scan protocol included a pre and post contrast CT of the abdomen and pelvis, including the scrotum. The CT revealed relatively large sized ovoid well defined mildly enhancing soft tissue mass lesion in the pelvis measuring 8.6 x 9.4 x 7.7 cm (transverse X antero-posterior X supero-inferior) (Figure 1). There was venous engorgement of the vascular pedicle along the right lateral aspect of the mass with 'whirl / swirl sign' suggestive of twisting of the pedicle (Figure 2,3). The right scrotal sac appeared empty with absence of spermatic cord in the right inguinal canal (Figure 4). Mild free fluid was observed in the pelvis. In view of the enlarged and bulky testis possibility of underlying neoplasm like seminoma was likely. No significant pelvic or retroperitoneal lymphadenopathy was noted. These features together are suggestive of torsion of undescended intra-abdominal testicular neoplasm like seminoma.

Further the patient was operated with exploratory laparotomy with excision of the right intra-abdominal testicular mass and it was sent for histopathology confirmation. The histopathology report was suggestive of seminoma of the right undescended testis. The HPE stained sections revealed tumor composed of polygonal cells arranged in sheets. Cells had regular outline, clumped nuclear chromatin, prominent nucleoli and clear cytoplasm, which are separated by thin fibrous septae. The fibrous septae were infiltrated by lymphocytes. Similar features were also observed in the smaller mass involving the epididymis.

A post-operative scan of the patient was performed about 15 days after the surgery which revealed a small hypo-enhancing soft tissue in the right half of pelvis possibly representing a residual thrombosed vascular pedicle, however a short interval follow up study was advised to look for possibility of residual tumor, to assess any change in the size and morphology of the post-operative soft tissue (Figure 5,6)

DISCUSSION:

Torsion of undescended intra-abdominal testis is a rare phenomenon and the first case reported in literature was by Gerster in 1897. [2]. Cryptorchidism with complications like neoplasm, infertility, ischemic and torsion is noted in 1 in 500 men. The risk of neoplasm is 40 times higher in the undescended testis than the normal one. Of the ectopic testis, the abdominal testis is about 4 times more likely to undergo malignant transformation than the inguinal testis. [3]. The cancer of undescended testis peaks between 20 – 40 years of age with pure seminoma being the most common germ cell tumour.

About 1 % of boys have undescended testis by the age of 12 months. Orchidopexy is recommended before 2 years of age, even as early as 6 months of age. Undescended testis of 13 years or more are 2 times at a higher risk of malignant transformation than those who are treated early. [4]

Torsion of the intra-abdominal testis is a rare manifestation leading to acute abdomen in adulthood. It is more common on right side for unknown reasons and lead to confusion with diagnosis is acute appendicitis / appendicular lump. [5]. This may be due to failure in examination of the external genitalia / scrotum and concealing the history of cryptorchidism by the patient at the time of presentation.

The clinical presentation of torsion of the intra-abdominal testis includes episodic abdominal pain, possibly secondary to intermittent torsion and detorsion. Occasional fever and vomiting may be encountered. The testis with torsion may rupture leading to hemoperitoneum and hypovolemic shock.

The imaging modalities used for the diagnosis of undescended testis are USG and MRI. USG is not very sensitive in locating the intra-abdominal testis however, has better sensitivity in evaluating the inguinal testis. MRI is better in locating the intra-abdominal testis and the associated neoplastic process, if any. A CT scan is recommended in the setting of acute abdomen.

In our case, the absence of the right spermatic cord in the inguinal canal and the empty right scrotal sac were useful signs. The 'testicular vascular pedicle' sign by which we can trace the gonadal / testicular vein from the mass upto the IVC or renal vein, was also a helpful sign, suggestive of testicular origin of the mass (Figure 7,8). [6]. 'Whirl / swirl sign' of the vascular pedicle around the mass is indicative of torsion of the vascular pedicle (Figure 3,4).

With increasing availability of CT there is high probability that such cases will be more often diagnosed preoperatively rather than during the surgery, as described in previous case reports.

The preferred choice of treatment in patients with torsion of undescended intra-abdominal testicular seminoma presenting as acute abdomen is orchidectomy with adjuvant chemotherapy and radiotherapy or combination of both depending on presence of lymphadenopathy. In our case, patient was operated with orchidectomy and was further lost to follow up. [7]

CONCLUSION:

Torsion of undescended intra-abdominal testicular neoplasm is a rare entity, however, in a patient with an empty scrotal sac, absence of spermatic cord in the inguinal canal and abdominal / pelvic mass, an intra-abdominal testicular mass should be considered. Torsion of this mass may be the reason for the patient presenting with acute abdomen, which can be demonstrated by a swirl / whirl of vessels in a twisted vascular pedicle.



Fig 1 Large pelvic mildly enhancing mass lesion (arrows)



Fig 2 Twisted and engorged vascular pedicle – Swirl / whirl sign (arrows)

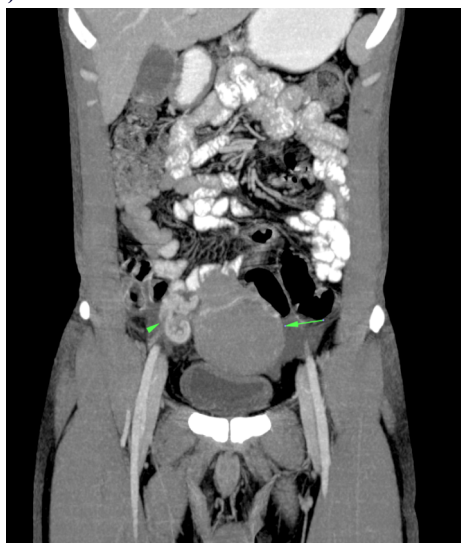


Fig 3 Coronal reformat with engorged and twisted right vascular pedicle (arrowhead) and pelvic testicular mass lesion (arrow)

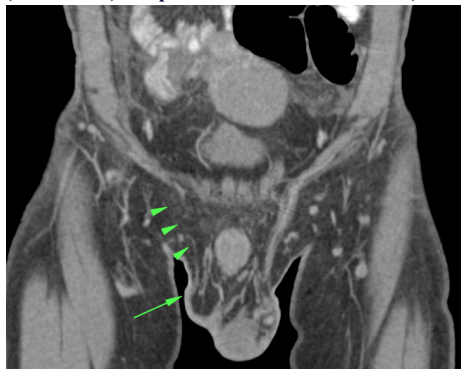


Fig 4 Coronal reformat with empty right scrotal sac (arrow) and absent right spermatic cord in the inguinal canal (arrowheads)



Fig 5 Post-operative nodular soft tissue representing thrombosed vascular pedicle (arrow)

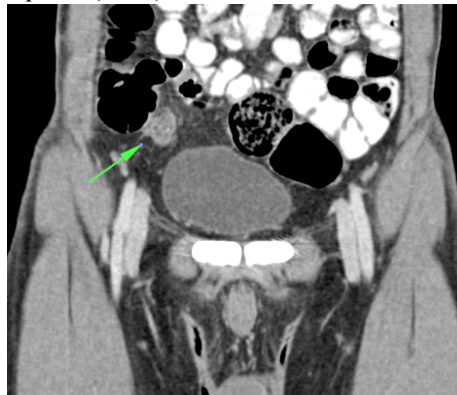


Fig 6 Post-operative nodular soft tissue representing thrombosed vascular pedicle on coronal reformat (arrow)

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