Torsion of the appendix testis in an undescended testis: a case report

Leslie Nicolay, MD, Jordan Gitlin, MD, Lane S. Palmer, MD

Division of Pediatric Urology, Cohen Children's Medical Center of New York, Hofstra North Shore-Long Island Jewish Medical School, Lake Success, New York, USA

NICOLAY L, GITLIN J, PALMER LS. Torsion of the appendix testis in an undescended testis: a case report. *Can J Urol* 2013;20(3):6805-6807.

We present the first case of torsion of an appendix testis in a cryptorchid testicle. The difficulties in history, physical examination and imaging posed by such a presentation are presented as well as management considerations.

Key Words: torsion, appendix testis, cryptorchidism, undescended testis

Introduction

The acute scrotum is responsible for a significant number of emergency room and ambulatory visits. The decision to exercise surgical or non-surgical (rest, anti-inflammatory agents, antibiotics) management is predicated on the discharge diagnosis primarily determined by clinical history, physical examination, and adjuvant imaging studies. In the male with cryptorchidism, determining the etiology of acute pain is more challenging by the limited ability to fully palpate the testis; this may reduce the threshold for surgical exploration. While torsion of an undescended testis and torsion of the appendix testis in a descended testis have been widely reported, torsion of an appendix epididymis of an undescended testis has been reported twice in the literature.[1,2] To the best of our knowledge, this may be the first reported case of torsion of an appendix testis of a cryptorchid testis in the English literature.

Accepted for publication March 2013

Address correspondence to Dr. Lesli Nicolay, Division of Pediatric Urology, 1999 Marcus Avenue, Lake Success, NY 11042 USA

Case report

A healthy 10-year-old boy presented with 5 days of right groin discomfort of acute onset. There was no history of nausea, vomiting or other gastrointestinal symptoms. Additionally, there was no history of fever, dysuria or others signs of infection. The physical examination demonstrated slight erythema in the groin, an empty right hemiscrotum with the presence of a canalicular testis near the external inguinal ring. On palpation, moderate tenderness was localized to the inguinal canal with mild fullness in the area. The differential diagnosis included torsion of an undescended testis, inguinal hernia, testicular tumor, suppurative inguinal lymphadenitis, fat necrosis,

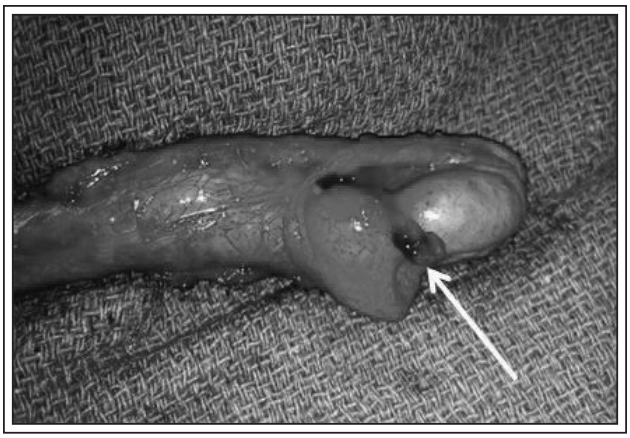

Figure 1. The appendix testis seen on the upper pole of the testis is dark and ischemic consistent with torsion.

and epididymitis. The tenderness was not sufficient to believe that immediate surgical exploration was needed. Instead, the working diagnosis was an inguinal hernia and the surgery was scheduled for the next day. Additional testing, including radiologic (see below) would have been of limited value and was deferred in this case.

Inguinal exploration was undertaken. Upon incising the skin, it was evident that the underlying tissues were edematous extending from above Scarpa's fascia and down around the cord structures. The cord was thickened and adherent to the surrounding tissues. The testis was identified near the external ring surrounded by a small reactive hydrocele. Upon opening the tunica vaginalis, the testis was noted to be normal in color and consistency and the spermatic cord was intact. The appendix testis, however, was dark and ischemic consistent with torsion, Figure 1. The torsed appendix testis was removed and a standard orchidopexy completed. Postoperatively, the edema and induration resolved. The testis remained palpable within scrotum without recurrence of pain at 6 months.

Discussion

The diagnosis of torsion of the appendix testis is one of the most common causes of acute scrotal pain in adolescent males. The etiology of groin pain in a boy with cryptorchidism expands the differential diagnosis. Torsion of an undescended testis has been reported many times and include testes located in the groin[3,4] and in the abdomen.[5] However, there have been only two previously reported cases of torsion of an appendage in an undescended testis reported in the last 50 years. Lang, in 1961, reported a 15-year-old child with pain in the right iliac area without fever. He had an empty hemiscrotum with tenderness over the right inguinal canal. At exploration, a smaller but otherwise normal right testis was found in the canal with a small gangrenous torsed appendix epididymis. Excision of the appendage and orchidopexy were performed.[1] Krukowski and Auld in 1983 reported on a 9-year-old boy presenting with iliac fossa pain with vomiting. There was an empty right hemiscrotum along with tenderness and swelling in the canal. At exploration, the testis was found in the superficial pouch with significant inflammation and edema of the surrounding tissues; a torsed appendix epididymis was found and excised. Orchidopexy was also performed.[2] Krukowsi and Auld refer to five prior cases of torsion of the appendix testis in cryptorchid testis but the source of these cases is not provided and could not be identified despite a diligent attempt to locate them in the literature and older textbooks. Thus, our case may be the first reported torsion of the appendix testis of an undescended testis

Testicular torsion or a torsed testicular appendage must be considered in a patient with a cryptorchid testis presenting with symptoms of abdominal, groin and/or testicular pain. Further differential diagnosis should also include hernia, epididymitis, stone, and/or trauma. The tenets of evaluation: history, physical examination and imaging, can be altered by the malposition of the affected testis. Specifically, the history of acute onset of pain will be the same but the ability to localize the pain to the testis or epididymis may not be possible and the patient may not report any scrotal swelling or erythema since the testis is located above the scrotum. The physical examination may be limited and may even be misleading in children with an undescended testis. The exact points of tenderness may be difficult to discriminate among the testis, epididymis and the area of the junction between the two, where the appendix testis often is situated. In this case, the testis could only be palpated on its most inferior portion and was not particularly tender. The "blue dot sign" would be unreliable when the testis is located above the scrotum. The cremasteric reflex should remain intact, although it may not be recognized due to the high lying position of the maldescended testis.

The shortcomings of the history and physical examination are similarly seen with sonographic imaging. The limitations of ultrasound to accurately identify the presences or absence of a non-palpable testis are well documented.[6] Theoretically, gray-scale images of the testis will be normal and perhaps an increase in size and possible heterogeneity of the appendage; however, this finding is not universally seen. The Doppler rarely demonstrates flow in a normal or

torsed appendage, but there can be normal to increased periappendicular blood flow, but these findings are not pathognomonic.[7-9] Nuclear scintigraphy may be of utility to document the presence of flow to each testis. The position of the testis may influence the clarity of the images and thus its interpretation.

Conclusion

Torsion of the appendix testis in an undescended testis is very uncommon. However, if after a thorough clinical history, physical examination and imaging, a diagnosis is not made with certainty, surgical exploration should be strongly considered to make the diagnosis and potentially avert a missed torsion. □

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