

Triple Trouble: Acute Appendicitis with Right Testicular Torsion and Concurrent Right Inguinoscrotal Hernia- A Case Report

Mohd Shafiq Rahman*^{ORCID}

Hospital Segamat, Johor, Malaysia.



Citation Rahman MS. Triple Trouble: Acute Appendicitis with Right Testicular Torsion and Concurrent Right Inguinoscrotal Hernia- A Case Report. Case Reports in Clinical Practice. 2024; 9(2): 52-56.

Running Title Appendicitis with Testicular Torsion and Inguinoscrotal Hernia

**Article info:**

Received: February 22, 2024

Revised: March 16, 2024

Accepted: April 28, 2024

Keywords:

Appendicitis; Torsion; Scrotum; Testis; Hernia

ABSTRACT

Acute appendicitis commonly presents with right iliac fossa pain. However, it may present with right scrotal pain and swelling, which may be confused with other scrotal pathologies such as orchitis, scrotal abscess, and testicular torsion. Acute appendicitis in children and adolescents may present with scrotal pain due to inflammatory intraperitoneal fluid tracking down into the scrotal sac via a patent processus vaginalis. In rare cases, acute appendicitis may present concurrently with testicular torsion, making the diagnosis much more challenging. Herein, we present an even rarer case of acute appendicitis with right testicular torsion and concurrent right inguinoscrotal hernia.

Introduction

Appendicitis is the most common surgical emergency in the world. The reported incidence is approximately 233 per 100,000 per year [1,2]. The lifetime incidence risk of getting appendicitis ranges from 6.7% to 8.5% [1,2]. It may occur at any age, but it is rare in the extremes of age groups [3]. Appendicitis is usually caused by the obstruction of the appendiceal lumen by faecolith, parasites, lymphoid hyperplasia, and foreign bodies [3]. The luminal obstruction will cause an increase in intraluminal pressure and reduction of

blood flow, inciting inflammation and ischaemia. Acute appendicitis usually presents with right iliac fossa pain. However, in rare cases, appendicitis may present with acute scrotal pain. Such cases were first reported by Wilkin et al. in 1985 [4]. Appendicitis presenting as scrotal pain may be confused with orchitis, testicular torsion, or scrotal abscess, making the diagnosis challenging, especially in places where resources are limited. In rare cases, acute appendicitis may present concurrently with acute testicular torsion, as reported by Akhtar et al., making the diagnosis even more challenging [5]. Herein, we present an even rarer case of acute appendicitis with right testicular torsion and concurrent right inguinoscrotal hernia.

*** Corresponding Author:****Mohd Shafiq Rahman**

Address: Hospital Segamat, Johor, Malaysia.

E-mail: mrshafiq1689@gmail.com

This case occurred in a district hospital without any subspecialty services.

Case Presentation

A 25-year-old male with no prior medical illness presented to the Emergency Department with a 1-day history of suprapubic pain. It was associated with right scrotal swelling and pain of similar duration. No dysuria or haematuria was reported. He also complained of 2 episodes of vomiting over the last two days, associated with watery stool. He denied any fever or trauma.

Upon assessment, his blood pressure (BP) was 105/61 mmHg with a heart rate of 61 bpm. The patient was afebrile. Abdominal examination revealed right scrotal swelling measuring 3 x 3 cm. It was erythematous. Tenderness was elicited over the suprapubic and right iliac fossa regions and over the scrotal swelling. Cough impulse was negative. Cremasteric reflex was present. Urinalysis showed a pH of 6 with no other significant abnormality. The white blood cell (WBC) count was $13 \times 10^3/\mu\text{L}$, haemoglobin (Hb) $12.5 \times 10^6/\mu\text{L}$, and platelet (PLT) count $180 \times 10^9/\text{L}$. The renal profile was within normal range. Abdominal X-ray revealed no significant abnormality and no dilated bowel.

Urgent ultrasonography of the scrotum and inguinal

area was performed. The right testis was mildly enlarged and slightly hypoechoic compared to the left side, measuring 1.9 x 3.4 x 3.3 cm. No flow was demonstrated on color Doppler. Mild peripheral vascularity with mild hydrocele was noticed. Targeted ultrasound of the right iliac fossa was also performed as the patient complained of pain during the procedure. It showed a dilated appendix with surrounding free fluid suggestive of acute appendicitis.

The patient was diagnosed with acute appendicitis with likely missed torsion of the right testis. Clinical reassessment after ultrasound showed tenderness at the right iliac fossa with no more tenderness on the right scrotum. The scrotal swelling observed during the initial assessment was no longer present.

Diagnostic laparoscopy was performed urgently. After insufflation of CO₂, a right-sided inguinoscrotal hernia was noticed (Figure 1). The appendix was dilated and inflamed with minimal free fluid at the right iliac fossa (Figure 2). An appendectomy was performed. In view of no available expertise, Lichtenstein tension-free mesh inguinal hernia repair was done instead of laparoscopic hernia repair. The hernia sac was identified (empty sac) and ligated. We then proceeded with scrotal exploration with an incision made at the median raphe. No torsion was identified; however, the right testis appeared dusky. Despite giving 100%



Fig. 1. Incidental finding of right inguinoscrotal hernia after insufflation of CO₂.

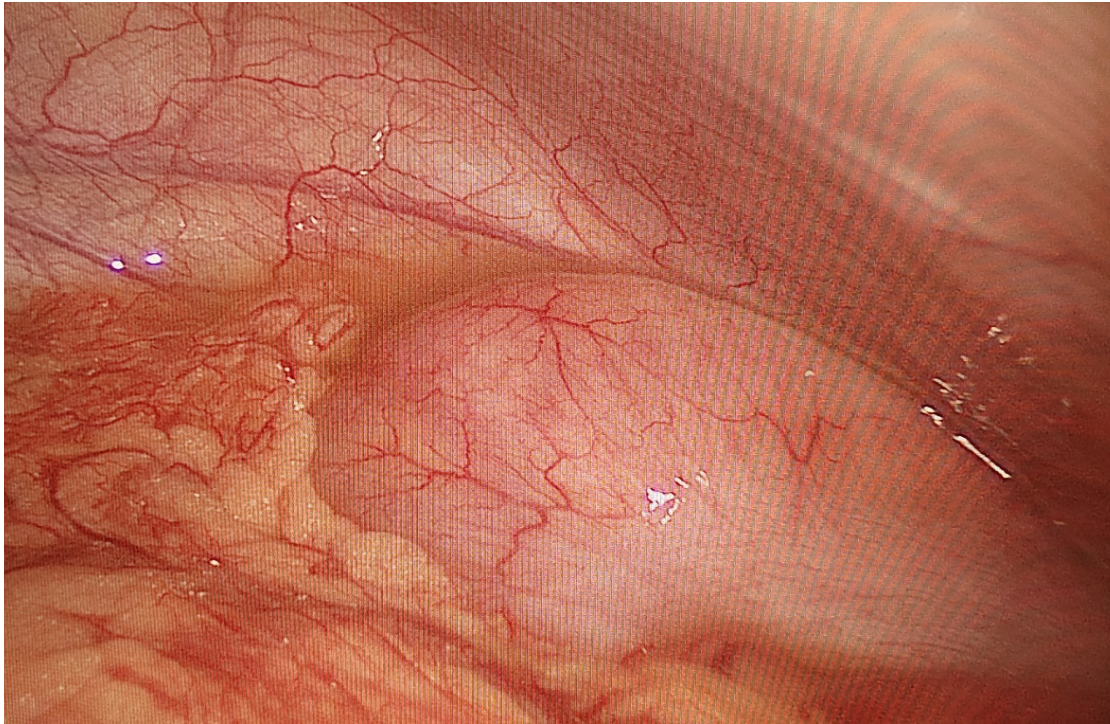


Fig. 2. Free fluid visualized at the right iliac fossa



Fig. 3. Non-viable testis upon inspection

oxygenation with warm compression, the right testis appeared non-viable (Figure 3). Right orchidectomy and left orchidopexy were performed. A detailed explanation was given to the patient after the surgery regarding the intraoperative findings. He was also taught how to perform testicular self-examination prior to discharge. The patient was discharged well two days after the operation. Histopathological examination (HPE) of the appendix and right testis confirmed the diagnosis of acute appendicitis and right testicular torsion.

Discussion

Acute appendicitis may present with scrotal pain, mainly on the right side, with concurrent suprapubic and right iliac fossa pain. Dienye & Jebbin reported a case of a 30-year-old fisherman with right hemiscrotum pain, which progressed into lower abdominal pain [6]. However, ultrasound of the abdomen and scrotum was unremarkable, and subsequent assessment showed no more scrotal pain. An appendicectomy was performed after 2 days in view of worsening abdominal pain. Najafizadeh-Sari et al. also reported a similar case in which the patient presented with scrotal, right inguinal, and right lower quadrant pain but with negative findings from the ultrasound to suggest testicular torsion [7]. An appendicectomy was performed, and no scrotal exploration was done.

Most of the literature and guidelines recommend early scrotal exploration in the case of suspected testicular torsion [8-10]. The golden time for surgical intervention and testicular salvage for suspected testicular torsion is 6 hours from the onset of pain. Ringdahl and Teague reported that the testicular salvage rate is 90% if detorsion occurs within 6 hours [11]. The rate reduces significantly to below 10 percent beyond 24 hours. Ultrasound is helpful if readily available and can be performed within 6 hours from the onset of the pain. However, in unexplained, persistent scrotal pain, early scrotal exploration should be performed despite the presence of color Doppler from the ultrasound to rule out torsion-detorsion syndrome of the testis.

In both cases mentioned above, there was no evidence of testicular torsion from ultrasound (presence of color Doppler). The scrotal pain had already subsided, but the abdominal pain was still persistent. There was no longer clinical suspicion of testicular torsion to warrant scrotal exploration. As such, scrotal exploration was not performed in either case.

Shehzad and Riaz reported a case of acute onset of right hemiscrotal pain with vague lower abdominal pain in a 16-year-old male [12]. Because the patient presented within 6 hours from the onset of pain and the right testis was elevated, tender, and swollen, urgent scrotal exploration was performed. Intraoperatively, purulent discharge with patent processus vaginalis was noted. The right testis was normal. A Lanz incision was performed, and it was found that the patient had perforated appendicitis with a pelvic abscess that drained through the patent processus vaginalis into the scrotum.

Interestingly, both acute appendicitis and testicular torsion may occur concurrently, making the diagnosis and subsequent management challenging. Akhtar et al. reported a case of simultaneous acute appendicitis with right testicular torsion in an 11-year-old child with a 12-hour history of right lower quadrant abdominal pain and vomiting [5]. He developed sudden onset of right scrotal pain after vomiting. Examination revealed localized peritonism at the right iliac fossa with a tender, swollen right hemiscrotum. Urgent scrotal exploration revealed a gangrenous testis with intravaginal torsion. A Lanz incision was made to explore the abdomen, which showed an inflamed, oedematous appendix. The authors explained that the simultaneous occurrence could be due to a violent bout of vomiting caused by the appendicitis. This could have generated an intense cremasteric reflex, triggering the torsion. The cremasteric muscle may contract and cause a rotational effect on the testis, leading to testicular torsion [5,13].

In our case, because the patient presented more than 24 hours from the onset of pain and ultrasound supported the concurrent diagnosis of acute appendicitis and missed right testicular torsion, we decided to perform a diagnostic laparoscopy first. This allowed us to assess the presence of any intra-abdominal collection. However, an inguinoscrotal hernia was an incidental finding discovered laparoscopically. Lichtenstein tension-free mesh inguinal hernia repair was performed as no gross contamination or pus collection was observed. Scrotal exploration was then performed to confirm the diagnosis of testicular torsion.

It is possible that in our case, the appendix was trapped inside the inguinal canal (Amyand's hernia) and became inflamed. This may explain the initial clinical finding of tender right scrotal swelling, which could not be detected during ultrasound. We infer that the Amyand's hernia may have spontaneously reduced prior to ultrasound assessment. The non-

viable testis in this case could be explained either by the compression of the vasculature to the testis (spermatic cord) by the inguinoscrotal hernia or by possible torsion-detorsion syndrome. As such, no torsion was identified during the scrotal exploration.

Conclusion

In conclusion, acute appendicitis may present with acute scrotal pain. All patients presenting with scrotal pain should be treated as testicular torsion until proven otherwise. Thorough history taking and clinical examination are of paramount importance to ascertain the diagnosis. The timely diagnosis of suspected testicular torsion will ensure early surgical intervention and testicular salvage. In medical centers with available expertise and resources, sonography ultrasound is of vital importance and should be performed urgently prior to any surgical intervention. However, if the diagnosis is uncertain and resources are limited, scrotal exploration is warranted for all acute scrotal pain and swelling, provided informed consent is obtained from the patient.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this article.

Funding

No funding was received to assist with the preparation of this manuscript.

Conflict of Interests

The authors have no conflict of interest to declare.

Acknowledgements

None to be declared.

Inform Consent

Informed consent has been obtained from the patient for the publication of the case report and images. Ethical approval is not required for the publication of the case report as per local hospital policy.

References

- [1] Guan L, Liu Z, Pan G, et al. The global, regional, and national burden of appendicitis in 204 countries and territories, 1990-2019: a systematic analysis from the Global Burden of Disease Study 2019. *BMC Gastroenterol.* 2023 Feb 22;23(1):44. <https://doi.org/10.1186/s12876-023-02678-7>
- [2] Addiss DG, Shaffer N, Fowler BS, et al. The epidemiology of appendicitis and appendectomy in the United States. *Am J Epidemiol.* 1990 Nov;132(5):910-25. <https://doi.org/10.1093/oxfordjournals.aje.a115734>
- [3] Petroianu A, Villar Barroso TV. Pathophysiology of acute appendicitis. *JSM Gastroenterol Hepatol.* 2016;4:1062-6.
- [4] Wilkins SA Jr, Holder LE, Raiker RV, et al. Acute appendicitis presenting as acute left scrotal pain: diagnostic considerations. *Urology.* 1985 Jun;25(6):634-6. [https://doi.org/10.1016/0090-4295\(85\)90300-0](https://doi.org/10.1016/0090-4295(85)90300-0)
- [5] Akhtar T, Das PK, Singh N, et al. Simultaneous acute appendicitis with right testicular torsion. *J Indian Assoc Pediatr Surg.* 2012 Apr;17(2):82-3. <https://doi.org/10.4103/0971-9261.93974>
- [6] Dienne PO, Jebbin NJ. Acute appendicitis masquerading as acute scrotum: a case report. *Am J Mens Health.* 2011 Nov;5(6):524-7. <https://doi.org/10.1177/1557988311415514>
- [7] Najafzadeh-Sari S, Mehdizadeh H, Bagheri-Baghdasht MS, Manoochehry S. Suppurative appendicitis presenting acute scrotal pain: a rare condition may confuse surgeons. *J Surg Case Rep.* 2017 Oct 27;2017(10):rjx215. <https://doi.org/10.1093/jscr/rjx215>
- [8] Öztürk Ö. Importance of Testicular Torsion Management: A Systematic Review. *EJMA.* 2023;3(2):56-60. <https://doi.org/10.14744/ejma.2022.25733>
- [9] Shafi H, Zarghami A, Aliramaji A, Rahimi M. Clinical findings of patients undergone surgery for testicular torsion: a 12-year single center experience in Northern Iran. *Open J Urol.* 2014;4:63-9. <https://doi.org/10.4236/oju.2014.45011>
- [10] Laher A, Ragavan S, Mehta P, Adam A. Testicular Torsion in the Emergency Room: A Review of Detection and Management Strategies. *Open Access Emerg Med.* 2020 Oct 12;12:237-46. <https://doi.org/10.2147/OAEM.S236767>
- [11] Ringdahl E, Teague L. Testicular torsion. *Am Fam Physician.* 2006 Nov 15;74(10):1739-43.
- [12] Shehzad KN, Riaz AA. Unusual cause of a painful right testicle in a 16-year-old man: a case report. *J Med Case Reports.* 2011;5:27. <https://doi.org/10.1186/1752-1947-5-27>
- [13] Seng YJ, Kevin M. Trauma induced testicular torsion: A reminder for the unwary. *J Accid Emerg Med.* 2000;17:381-2. <https://doi.org/10.1136/emj.17.5.381>