

## Case Report on Unilateral Testicular Infarction Secondary to Epididymoorchitis

Nazma Matania<sup>1\*</sup>, Mohanvir Kaur<sup>2</sup>, Kanwardeep Kaur<sup>3</sup>, Monika Kalyan<sup>4</sup>

<sup>1</sup>Junior Resident, Department of Pathology, GMC, Patiala, Punjab, India.

Email: matanianazma@gmail.com,

Orcid ID: 0000-0002-6587-4564.

<sup>2</sup>Associate Professor, Department of Pathology, GMC, Patiala, Punjab, India.

Email: mohanvirkaur@gmail.com,

Orcid ID: 0000-0003-1229-3923

<sup>3</sup>Assistant Professor, Department of Pathology GMC, Patiala, Punjab, India.

Email: kanwardeep.kaur588@punjab.gov.in,

Orcid ID: 0000-0002-6822-281X

<sup>4</sup>Junior Resident, Department of Pathology, GMC, Patiala, Punjab, India.

Email: monika.kalyan.39@gmail.com,

Orcid ID: 0000-0002-7468-1107

\*Corresponding author

Received: 19 June 2021

Revised: 09 July 2021

Accepted: 20 July 2021

Published: 21 August 2021

### Abstract

Testicular infarction secondary to chronic severe epididymoorchitis is an uncommon urological emergency in clinical practice. Very few case reports have been written highlighting testicular infarcts as a complication of chronic epididymoorchitis. In epididymoorchitis, it rarely leads to abscess formation and ultimately causes testicular infarction. Ultrasonography is an important modality to detect fluid collection and ischemic changes in addition to physical local examination. In this case report we discuss a case of 37 yrs old male who presented initially with pain in groin region due to epididymitis, later on with scrotal abscess formation and ultimately resulting into testicular torsion. We also discuss the importance of early recognition of warning signs and symptoms of ischemia. High level of clinical suspicion is required in cases of epididymoorchitis. Early medical and surgical reperfusion interventions can be helpful in testicular salvage from their devastating testicular complication of epididymoorchitis.

**Keywords:** Epididymoorchitis, Epididymitis, Testicular torsion etc.

## INTRODUCTION

Acute scrotum provides so many challenges to physician, radiologist and urologist. When a patient presents to clinic with acute scrotum, physician looks for various differentials like torsion of testis, acute epididymitis, acute epididymo-orchitis, torsion of appendix of testis, torsion of appendix of epididymis, infection of scrotum - Abscess of scrotal wall/scrotal erysipelas, gangrene of scrotum-Fournier's gangrene and trauma to scrotum etc.

Epididymoorchitis is one of the commonest differentials for acute scrotum and presents to

physician like testicular torsion. Predisposing factors responsible for complicating this condition to testicular necrosis are diabetes mellitus, UTI, obesity, alcoholism, cirrhosis of liver, any extremes of age, haematological malignancy, autoimmune disorder like Systemic lupus erythematosus, AIDS, malnutrition and immunosuppressive drugs. In our case report patient was having complaint of recurrent urinary tract infection. Incidence of various types of lesions reported by Abul F, Al-Sayer H, Arun N in a review of 40 acute patients hospitalized for acute scrotum showed that the most common etiology of acute scrotal swelling was

epididymitis (60%), followed by testicular torsion, torsion of the appendages, and acute idiopathic scrotal edema in 27.5%, 10%, and 2.5%, respectively.<sup>[1]</sup>

Testicular infections are usually treated conservatively with oral or parenteral antibiotics.<sup>[2]</sup> Unlike testicular torsion, the incidence of testicular infarction secondary to epididymorhitis is low. Only a few case series and review articles of unilateral cases have been reported in the literature.<sup>[3,4]</sup> David Eisner and colleagues were the first to report a case of bilateral testicular infarction secondary to epididymitis.<sup>[5]</sup> Here we are presenting a very rare case report of severe nonresolving epididymo-orchitis ultimately ending into unilateral testicular torsion. To our best of our knowledge, our's is 3<sup>rd</sup> case reported of this nature in published literature. Most recent 2<sup>nd</sup> case report was reported by Keat et al. in their Case report of bilateral testicular infarction due to severe bilateral epididymo-orchitis: A catastrophic complication causing castration.<sup>[6]</sup>

### Case Report

A 37 yrs old male presented with complaint of pain in left testis from 1 month. Pain in testis was mild in intensity initially and associated with urinary complaints like urgency, burning micturition and poor stream formation. Patient visited local hospital for same complaint and started on oral antibiotics. Despite taking the antibiotic treatment patient developed sudden onset of pain with increased intensity and fever on the very next day, hence referred to civil hospital. After admission, patient was started on parenteral antibiotics and investigated. On USG abdomen left testis measuring 4.7 X 3.1 X 3.1 cm (volume -24 cc) appeared bulky and edematous with moderate collection in scrotum with few thin septations. Normal

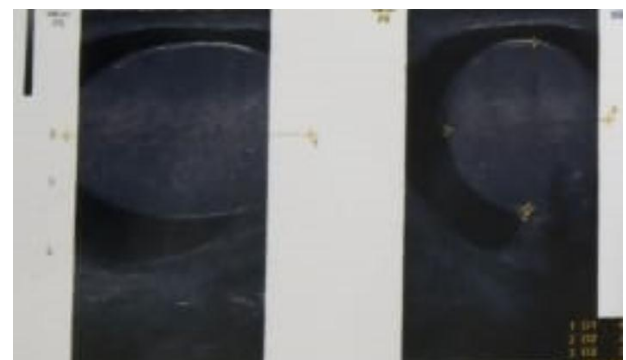
vascularity was noticed in left testis. Left epididymis measuring 17 X 9 mm was also noticed bulky with increased flow. However right testis was largely unremarkable. On USG examination patient was reported left epididymitis with infected hydrocele (Fig:1,2,3,4). Patient didn't responded to treatment well and referred to Rajendra Hospital Patiala. On physical examination patient was hemodynamically stable, scrotum on left side was erythematous, swollen and tender on local examination. Urgent USG abdomen was done in which features of resolving hydrocele were noticed. Then started on broad spectrum antibiotics.



Fig: 1



Fig: 2



**Fig 3:** (Fig:1,2,3 : USG show features of resolving hydrocele)



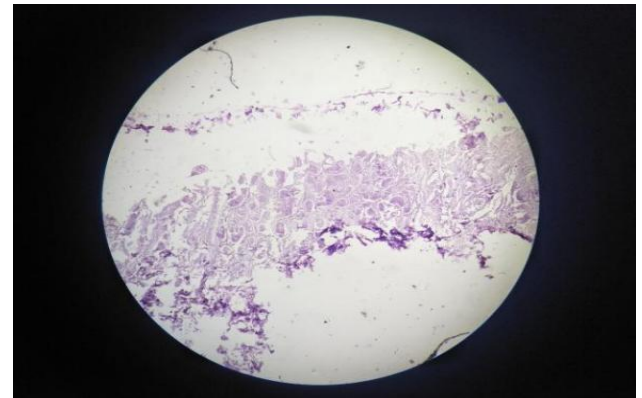
**Fig 4:** On CDFI: Normal vascularity is noted.

After a week patient presented with same complaint again. On USG abdomen examination heterogeneous area predominantly hypoechoic areas with anechoic areas with no vascularity (on CDFI) were found in left testis scrotal wall thickening was also appreciated with increased vascularity of head and body of epididymis.

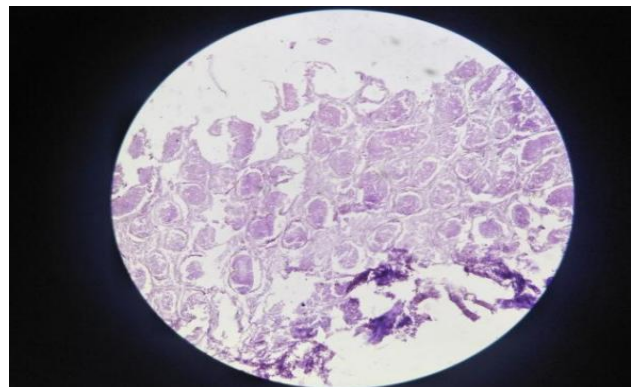
On further imaging MRI was done which showed an enhancing left testis with irregular contour. Abnormally enhancing mass not separately defined from left testis suggestive of left phlegmon/epididymitis/Left sided funiculitis/chronic inflammatory pathology. Immediate surgical exploration was planned with informed consent of patient. On exploration 5ml of pus was drained followed by left orchidectomy as extensive necrosis of testicular tissue was noticed with adhesions. Removed left testicular tissue sent for histopathological examination. Patient started on antibiotics course for 10 days and advised follow up in urology department after 10 days.

On histopathological examination examined testicular tissue show extensive areas of necrosis, few viable and non-viable seminiferous tubules exhibiting coagulative

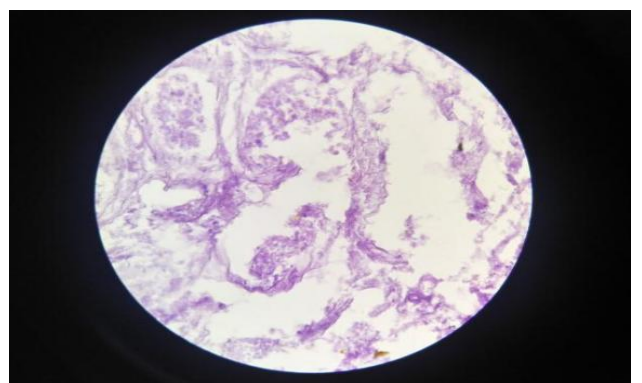
necrosis. Sections from epididymis were also showing necrotic tissue and moderate amount of acute and chronic type of inflammatory infiltrate. Histopathological features were those of epididymorhitis. (Fig: 5, 6,7,8,9 and 10)



**Fig: 5**



**Fig: 6**



**Fig: 7**

**Fig: 5, 6, 7** (4X, 10X, 40X) show coagulative necrosis of seminiferous tubules.



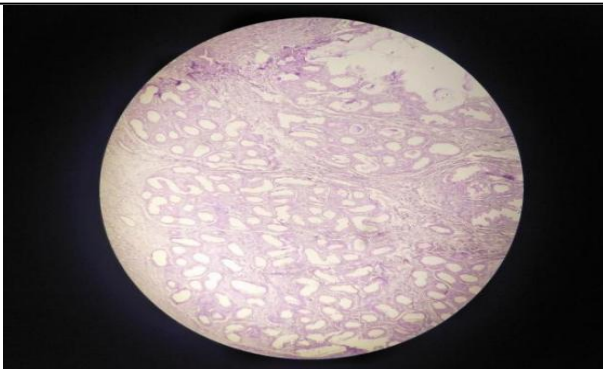


Fig: 8

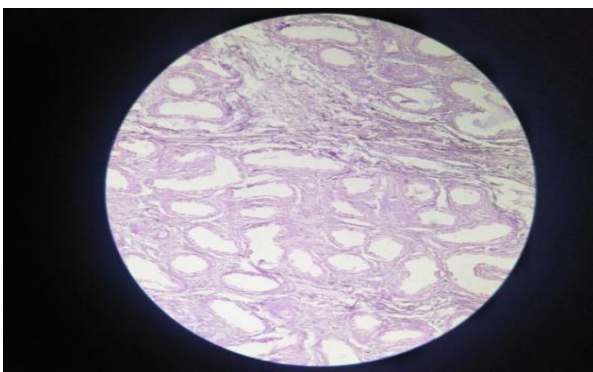


Fig: 9

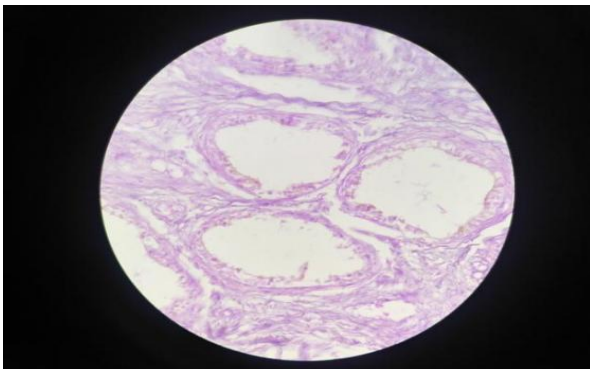


Fig: 10

Fig: 8,9,10 (4X, 10x, 40X) show Coagulative necrosis of tubules in various sections taken from testis.

## DISCUSSION

Non resolving infection despite appropriate treatment acute worsening in pain despite clinical improvement, spermatic cord thickening and tenderness and recurrent epididymo-orchitis are all potential warning signs of ischemia.<sup>[7]</sup> Testicular infarction rate

of 3–5% only was seen in a series of 610 cases reported by Mittermeyer et al.<sup>[7]</sup> On the other hand, Desai et al. studied 33 cases and reported severe testicular complications of frank infarction, suppurative necrosis and late atrophy in 39%.<sup>[8]</sup> In 1991, Eisner and colleagues reported a case of bilateral testicular infarction following bilateral epididymitis.<sup>[9]</sup> The exact pathogenesis of acute epididymo-orchitis causing testicular infarction still remains unclear. The testicular hypoperfusion theory postulates that the poor blood flow is due to compression of the testicular vascular pedicles by the swollen epididymis. Edema within the relatively non-compliant external spermatic fascia causes venous and lymphatic congestion in the testis and cord, promoting arterial occlusion and thrombosis.<sup>[10]</sup> Bacterial exotoxins and inflammatory infiltrates could play a pivotal role in the cumulative testicular edema and swelling.<sup>[11]</sup> While salvage rates for testicular torsions are high, based on clinical presentation and early recognition of signs, the same is not applicable in cases of epididymitis as the onset of testicular vascular compromise is unknown. Doppler ultrasonography of the testis, though not highly sensitive, is still the initial investigation of choice to determine presence of blood flow. Absence of intratesticular blood flow is a fairly reliable indicator of testicular ischemia. Another ultrasonic finding is reduced blood flow to the testis with increased peripheral flow to the scrotum. Other imaging modalities like contrast enhanced ultrasonography (CEUS) and magnetic resonance imaging (MRI) have been suggested to facilitate the diagnosis of testicular ischemia or infarction.<sup>[12]</sup> To relieve testicular compartment syndrome, tunica albuginea fasciotomy has been described as an operative measure and reducing vascular compromise.<sup>[13]</sup>

## CONCLUSION

In cases of epididymo-orchitis, careful close supervision of patient is required. Doppler ultrasonography of testis is one of imaging modalities alongwith MRI and Contrast enhanced ultrasonography which can play a good role in detecting early ischemic changes in such cases. Acute severe infections of testis

should be managed with broad spectrum antibiotics and close observation.

However rarity of infarction of testis secondary to epididymo-orchitis, unlikelihood of diagnosis at the point of resolution and lack of guidelines for managing such rare cases, are all possible causes that can lead to infarction of testis, a catastrophic outcome.

## REFERENCES

1. AbulF, Al-Sayer H, Arun N. The acute scrotum: a review of 40 cases. *Med Princ Pract*. 2005;14(3):177-81. doi: 10.1159/000084636.
2. RhuddA, Moghul M, Reid G. Epididymo-orchitis causing testicular infarction: a serious complication of a common disorder. *J Surg Case Rep*. 2017;2017(10):rjx207. doi:10.1093/jscr/rjx207
3. Fehily SR, Trubiano JA, McLean C, Teoh BW, Grummet JP, Cherry CL, et al. Testicular loss following bacterial epididymo-orchitis: Case report and literature review. *Can Urol Assoc J*. 2015;9(3-4):E148-51. doi: 10.5489/cuaj.2174.
4. Chia D, Penkoff P, Stanowski M, Beattie K, Wang AC. Testicular infarction and rupture: an uncommon complication of epididymo-orchitis. *J Surg Case Rep*. 2016;2016(5):rjw077. doi: 10.1093/jscr/rjw077.
5. Eisner DJ, Goldman SM, Petronis J, Millmond SH. Bilateral testicular infarction caused by epididymitis. *AJR Am J Roentgenol*. 1991;157(3):517-9. doi: 10.2214/ajr.157.3.1872237.
6. Keat WOL, Lechmiannandana S, Manoharana D, Leea SB, Nagalingamb P. Case report of bilateral testicular infarction due to severe bilateral epididymo-orchitis: A catastrophic complication causing castration. *Int J Surg Case Rep*. 2020;73:161-163. <https://doi.org/10.1016/j.ijscr.2020.07.013>
7. Mittermeyer BT, Lennox KW, Borski AA. Epididymitis: a review of 610 cases. *J Urol*. 1966;95(3):390-2. doi: 10.1016/s0022-5347(17)63468-2.
8. Desai KM, Gingell JC, Haworth JM. Fate of the testis following epididymitis: a clinical and ultrasound study. *J R Soc Med*. 1986;79(9):515-9. doi: 10.1177/014107688607900906.
9. Eisner DJ, Goldman SM, Petronis J, Millmond SH. Bilateral testicular infarction caused by epididymitis. *AJR Am J Roentgenol*. 1991;157(3):517-9. doi: 10.2214/ajr.157.3.1872237.
10. AlharbiB, Rajih E, Adeoye A, Allatiefe BA, Abdullah MH. Testicular ischemia secondary to epididymo-orchitis: A case report. *Urol Case Rep*. 2019;27:100893. doi: 10.1016/j.eucr.2019.100893.
11. Ong Lay Keat W, Lechmiannandan S, Manoharan D, Lee SB, Nagalingam P. Case report of bilateral testicular infarction due to severe bilateral epididymo-orchitis: A catastrophic complication causing castration. *Int J Surg Case Rep*. 2020;73:161-163. doi:10.1016/j.ijscr.2020.07.013
12. ParentiGC, Sartoni M, Gaddoni E, Zago S, Campioni P, Mannella P. Imaging of segmental testicular infarction: our experience and literature review. *Radiol Med*. 2012;117(7):1161-75. doi: 10.1007/s11547-012-0798-6.
13. Figueroa V, Pippi Salle JL, Braga LH, Romao R, Koyle MA, Bägli DJ, et al. Comparative analysis of detorsion alone versus detorsion and tunica albuginea decompression (fasciotomy) with tunica vaginalis flap coverage in the surgical management of prolonged testicular ischemia. *J Urol*. 2012;188(4 Suppl):1417-22. doi: 10.1016/j.juro.2012.02.017.

Source of Support: Nil, Conflict of Interest: None declared