Inflammation and infection

Segmental testicular infarction, a rare complication of epididymo-orchitis

Cameron James Parkin a, b, *, Jonathan Kam a, b, Yuigi Yuminaga a, b, Matthew Winter a, b

a Nepean Urology Research Group, Kingswood, NSW, 2747, Australia
b University of Sydney, Camperdown, NSW, 2006, Australia

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ABSTRACT

Segmental infarction of the testicle secondary to epididymo-orchitis is a rare condition which can be difficult to diagnose and can lead to loss of the testis. We report a case of a 72-year-old man who presented with two weeks of worsening pain of his left testis despite oral antibiotic treatment for epididymo-orchitis. A testicular ultrasound initially revealed a suspected intra-testicular abscess. Despite intravenous antibiotics, his symptoms worsened. A repeat ultrasound demonstrated an increase in size of the lesion and a decision was made to take him to theatre. Intra-operative findings instead revealed a segmental area of testicular infarction requiring debridement.

Introduction

Segmental testicular infarction as a result of epididymo-orchitis is an uncommon complication. It can be a difficult diagnostic challenge for urologists as it can mimic an intra-testicular abscess, a testicular tumour or torsion. The underlying pathophysiology of this process is not completely understood and the clinical presentation can vary. Following the clinical examination, ultrasound is the first line investigation of choice. Typically, on ultrasound, a segmental testicular infarct appears as hypoechoic lesion with well-defined borders and an absent blood flow. If there is diagnostic uncertainty, magnetic resonance imaging (MRI) can be considered. Traditionally the management of segmental testicular infarction was to undertake either a radical or partial orchidectomy, however the literature now suggests that this condition can be managed conservatively. If clinical uncertainty remains, an exploration should still be considered.

Case report

A 72-year-old man presented to the emergency department with a two-week history of worsening pain and swelling of his left testis. He had a previous history of aspergillus pneumonia, cavernous sinus thrombosis and prostate cancer which was being managed by active surveillance. He had presented to his General Practitioner one week prior where he had been diagnosed with epididymo-orchitis which was confirmed on ultrasound. He was commenced on a course of oral cephalaxin.

On arrival he was afebrile, and his clinical examination revealed a tender, swollen left testis. His blood results revealed WCC of 10 × 109/L and a CRP of 52mg/L. His urine culture grew Escherichia coli, which was sensitive to cephalaxin, but resistant to amoxicillin.

A scrotal ultrasound was again performed which revealed a hyper-vascular, enlarged left testis with a reactive hydrocele and a 1.8cm well-defined, hypoechoic, avascular lesion within the left lower pole (Fig. 1a and b). This was felt to be consistent with ongoing epididymo-orchitis with a small abscess. The patient was admitted for intravenous antibiotics. Two days later a repeat scrotal ultrasound was performed as the patient’s symptoms continued to worsen. The ultrasound showed that the suspected testicular abscess had grown in size to 2.5cm (Fig. 2).

Given these findings, a decision was made to take the patient to theatre for a scrotal exploration. Intraoperative findings consisted of a reactive hydrocele, severe epididymo-orchitis with necrosis of the head of the epididymis. An intra-operative ultrasound was performed to identify the location of the lesion within the testis. An incision into the testis was made over the lesion, which revealed an area of infarction – rather than the presence of abscess, with a moderately sized intra-testicular haematoma (Fig. 3). The haematoma was evacuated, and non-viable testicular tissue debrided (Fig. 3). Representative sections were sent for histopathology which confirmed a haematoma and features of orchitis, with no evidence of neoplasia or vasculitis. The patient remained in hospital for a course of intravenous antibiotics and was subsequently discharged home when his symptoms improved.

Abbreviations: CRP, C-Reactive Protein; WCC, White Cell Count.
* Corresponding author. Nepean Urology Research Group, Kingswood, NSW, 2747, Australia.
E-mail address: Cameron.Parkin@health.nsw.gov.au (C.J. Parkin).

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Discussion

This case provides an example of how segmental testicular infarction, a rare complication of severe epididymo-orchitis, can masquerade as a testicular abscess. Epididymo-orchitis is a common cause of acute scrotal pain seen in the emergency department. In young men, sexually transmitted infections such as chlamydia and gonorrhoea are typically the most common cause. In older men, such as seen in this case, *E. coli* is the most common pathogen.

Segmental testicular infarction as a result of epididymo-orchitis is a rare complication with limited literature available. The pathophysiology of why this occurs is also not completely understood. Infarction of the testes as a complication of epididymo-orchitis can be segmental or diffuse. Diffuse infarction is more commonly seen in clinical practice. Testicular infarction secondary to epididymo-orchitis is postulated to be due to a combination of factors including, an inflammatory process resulting in lymphatic then venous obstruction, thrombus formation from bacterial toxin production and inflammation of the spermatic cord and then subsequent arterial infarction. The cause of segmental versus diffuse infarction is not fully understood but likely represents the underlying segmental arterial supply of the testis.

Our case study demonstrates that segmental testicular infarction can masquerade as an intra-testicular abscess which is a more common

Fig. 1a. Ultrasound of Left Testicle – Transverse view revealing well defined hypodense area suspicious for an intra-testicular abscess.

Fig. 1b. Doppler Ultrasound of Left Testicle demonstrating hypervascularity of the testis and epididymis (yellow arrow) and a hypodense area with absent blood flow (red arrow).

Fig. 2. Repeat ultrasound demonstrating improvement in hypervascularity but an increase in size in the hypodense region with absent blood flow.

Fig. 3. Intraoperative findings revealing area a segmental area of infarction (black arrow) and evacuation of the intra-testicular haematoma.
complication of epididymo-orchitis. Other rare complications of epididymo-orchitis include testicular rupture, infertility and complete infarction. As demonstrated in our case, diagnosis of intra-testicular abscess versus a segmental testicular infarction as a result of ongoing epididymo-orchitis can be difficult on clinical assessment and ultrasound imaging. In these cases, scrotal exploration and incision and drainage should be considered. MRI has also been suggested as an alternative. In any patient where a testicular malignancy is suspected, tumour markers and an inguinal approach to testicular exploration should be performed.

There is limited evidence in the literature in regard to the management of segmental testicular infarction secondary to epididymo-orchitis. A retrospective cohort study was undertaken at a single centre in Belgium from 1997 to 2006 which reviewed patients with segmental testicular infarction. Of the 19 cases identified, 16 were managed conservatively without an operation and all reported a resolution in symptoms. 3 of the 19 patients underwent an orchidectomy as there was initial concern for a testicular tumour rather than infarct. One should consider surgical exploration in patients who are not responding to conservative measures.

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