On-line Case Report

A pressing diagnosis – a compromised testicle secondary to compartment syndrome

JW DOUGLAS, JA HICKS, J MANNERS, MC HAYES

Department of Urology, Southampton General Hospital, Southampton, UK

ABSTRACT

Hydrocoeles are a common cause of scrotal swelling and discomfort in a significant proportion of men. We report a case of compartment syndrome within the tunica vaginalis. This is an unusual and previously unreported complication of a hydrocoele.

Keywords: Compartment syndrome – Testis – Testicular – Blood flow

A 55-year-old man with an 18-month history of a right hydrocoele, secondary to mild trauma, presented with a 7-day history of increasing pain and swelling in his right hemiscrotum. His acute symptoms started following further mild trauma. The swelling was progressive and the pain increasingly severe, requiring strong opioid analgesia.

On examination, there was a large, tense, tender right hydrocoele that extended proximally to the external inguinal ring. There were no signs of infection.

An ultrasound scan was performed, including colour Doppler ultrasound. Although the cord appeared normal, intratesticular blood flow was absent (Fig. 1). It was postulated that the intratunical pressure caused by the hydrocoele might be compromising the blood supply to the testis. Under strict aseptic technique, approximately 200 ml of clear, straw-coloured fluid was aspirated from the right hemiscrotum. The patient had immediate improvement of his pain. The next morning repeat duplex ultrasound showed a right testis with an improved vascular flow pattern and features of an inflamed epididymis (Fig. 2).

The following week, the patient underwent an uncomplicated hydrocoele repair. The tunica vaginalis was

thickened and inflamed, consistent with previous aspiration and trauma. Postoperative recovery was uneventful; the patient will undergo a further scrotal ultrasound in 3 months to assess testicular size.

Discussion

A hydrocoele, an abnormal collection of fluid around the testicle within the tunica vaginalis between the visceral and parietal layers, is one of the most commonly diagnosed scrotal swellings. They may be unilateral or bilateral and are said to affect approximately 1% of adult men. A hydrocoele can be idiopathic, congenital (due to a patent processus vaginalis) or secondary to trauma, infection or malignancy. Postulated mechanisms of idiopathic hydrocoele formation include, increased serous fluid secretion, lack of efferent lymphatics and inadequate re-absorption of fluid secreted by the mesothelium.¹ Hydrocoeles can be managed non-operatively with aspiration and sclerotherapy, or surgically, by Jaboulet and Lord's procedures.

Little is known about the effect of a hydrocoele on the vasculature of a testis. Nye *et al.*,² in a study of testicular

Correspondence to: James W Douglas, c/o Secretary to Mr M Hayes, Urology Department, Southampton General Hospital, Tremona Road, Shirley, Southampton, PO16 6YD, UK. T: +44 (0)2380 777222 ext 2406; E: james.douglas@doctors.org.uk

Figure 1 Doppler ultrasound of right testis demonstrating absent blood flow.

blood flow, showed that there is a significant difference in the pulsatility index, resistivity index and testicular size before and after hydrocoele repair. Mihmanli *et al.*³ published a case report documenting absence of diastolic

blood flow prior to hydrocoele repair that was reversed post-procedure.

Although no intrascrotal pressures were measured in the case described, the presence of pain and absence of

Figure 2 Doppler ultrasound of right testis demonstrating good blood flow.

blood flow signifies the unusual diagnosis of a compartment syndrome within the tunica vaginalis compromising the testis. This is an unexpected finding given that the pressure within the hydrocoele would need to exceed tissue perfusion pressures and indeed in this case, the systolic blood pressure. Clearly, traditional elective approach to a hydrocoele repair may have resulted in further compromise of his testicle.

The authors recommend that the management of an unusually painful hydrocoele should include duplex ultrasound to rule out the possibility of a compromised testis. This report demonstrates the need for further

studies assessing the use of duplex ultrasound in such cases.

References

1. Woodward PJ, Schwab CM, Sesterhenn IA. Extratesticular scrotal masses: radiologic-pathologic correlation. *Radiographics* 2003; **23**: 215–40.
2. Nye PJ, Prati Jr RC. Idiopathic hydrocoele repair and absent testicular diastolic flow. *J Clin Ultrasound* 1997; **25**: 43–6.
3. Mihmanli I, Kantarci F, Kulaksizoglu H, Gurses B, Ogut G, Unluer E *et al.* Testicular size and vascular resistance before and after hydrocelectomy. *AJR Am J Roentgenol* 2004; **183**: 1379–85.