CASE REPORT

Idiopathic scrotal fat necrosis: an unusual cause of scrotal pain

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SUMMARY

The clinical differential diagnosis of scrotal pain with a mass in a prepubertal boy is difficult. Often conditions such as testicular torsion and epididymo-orchitis are diagnosed. We present a rare cause of scrotal pain, idiopathic scrotal fat necrosis. This condition has a typical clinical presentation and ultrasound findings that have been described in a limited number of case reports. However, if it is diagnosed correctly and confirmed with ultrasound, we hope that people will be treated without surgical intervention. We present a case of scrotal wall necrosis and a literature review.

BACKGROUND

The clinical differential diagnosis of scrotal pain with a mass in a prepubertal boy is often difficult. Conditions such as testicular torsion, epididymo-orchitis, orchitis and epididymitis often present with minimal clinical signs, often leading to misdiagnosis. Other causes include haematological conditions like scrotal wall haematomas or a haemorrhage from a scrotal angioma. Dermatological causes include scrotal wall cellulitis, stings and bites, and furunculosis or scrotal cysts with acute complications. In addition to these, a rarer cause of scrotal pain with a mass is idiopathic scrotal fat necrosis. This condition was first described in 1939 by Hinman and Johnson¹ and since has only been reported in a small number of case reports.

Idiopathic scrotal fat necrosis has a characteristic presentation, which gives clinicians the opportunity to make a clinical diagnosis that can be confirmed by ultrasound. The sonographic findings are typical and can lead to a treatment plan that involves conservative symptomatic management saving the patient from an unnecessary operation.

We report a case of scrotal pain with a mass in a prepubertal boy who was treated conservatively.

CASE PRESENTATION

A 9-year-old boy presented to the emergency department with a 24-hour history of left-sided scrotal pain. He denied any trauma or exposure to hot or cold. The child presented in minimal distress and no urinary symptoms. Examination of the left testis was normal with no palpable testicular mass. The examination did reveal a posterolateral mass in the scrotum, separate to the testis and cord, measuring approximately 3×2 cm. The decision was made to treat the patient conservatively with analgesia. No antibiotics were given. The urinalysis

revealed no infection. He underwent follow-up ultrasound at 2 weeks after symptom onset, which showed complete resolution of the previously identified mass.

INVESTIGATIONS

Ultrasound showed normal echogenicity and vascularity in both testes. Below the testis, there was a lobulated hyperechoic extratesticular mass, measuring 3.5×1.6×1.8 cm (figures 1–3). The epididymis on both sides appeared normal.

OUTCOME AND FOLLOW-UP

The decision was made to treat the patient conservatively with analgesia. No antibiotics were given. The urinalysis revealed no infection. He underwent follow-up ultrasound at 2 weeks after symptom onset, which showed complete resolution of the previously identified mass.

DISCUSSION

The clinical differential diagnosis of scrotal pain with a mass in a prepubertal boy is often difficult. As outlined above, differential diagnosis includes testicular torsion, which is an acute surgical emergency. Other differentials are of infective causes such as epididymo-orchitis, orchitis and epididymitis that, in this age group, often presents with minimal clinical signs, often leading to misdiagnosis. Other differentials are things within the scrotal wall such as haematomas, dermatological infections and scrotal cysts with acute complications.

A rarer cause of scrotal pain with a mass is idiopathic scrotal fat necrosis. It is characterised by necrosis of the intrascrotal fat adjacent to the perineum, which is typically present in prepubertal boys but not adults.

Idiopathic scrotal fat necrosis has a characteristic presentation, which gives clinicians the opportunity to make a clinical diagnosis that can be confirmed on ultrasound. The classic presentation is of an overweight prepubescent boy, 8 to 14 years old,^{2–5} often with recent exposure to cold.^{1 6–8} There may or may not be an antecedent history of mild perineal trauma. The pain is usually mild to moderate resulting in variable time to presentation but may be up to a week after symptom onset.

Examination usually reveals unilateral or bilateral masses in the scrotum, separate and inferior to the testes.⁸ The overlying scrotum is usually normal but may be slightly erythematous or occasionally oedematous.^{2–4 8} The testes are non-tender

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Figure 1 Left haemiscrotum mass that is separate to the testis. Good testicular flow demonstrated.

and normal in size and can be displaced superiorly.⁸ The patient should be afebrile with normal urinalysis and bloods.^{2-5 8 9}

The majority of cases in the literature were diagnosed on histopathology; however, several articles suggest that this condition can be treated conservatively.^{3 6-8 10} A study by Harkness *et al*¹¹ looked into the typical sonographic appearance of scrotal fat necrosis. The sonographic findings were of a hyperechoic scrotal mass with posterior acoustic shadowing and increased Doppler vascularity. The testes appeared normal and had normal flow. There was mild oedema surrounding the echogenic masses and the inferior aspect of the testes was seen in most cases.¹¹

Our case as well as the literature review performed shows that if the diagnosis is made of scrotal fat necrosis that the treatment should be non-operative. It is important to be able to accurately differentiate scrotal pain that requires immediate surgical intervention from those that can be treated medically; however, we appreciate that this is often challenging.

The case we have presented provides another case of scrotal pain that can be managed with conservative management. The literature search reveals that scrotal fat necrosis has a typical clinical presentation and typical sonographic features. When these are known, the diagnosis can be made of scrotal fat necrosis and the patient can be spared an operation.

Figure 2 Longitudinal ultrasound image of the lobulated hyperechoic extratesticular mass within the left haemiscrotum.

Figure 3 Transverse ultrasound image of the lobulated hyperechoic extratesticular mass within the left haemiscrotum.

Learning points

- ▶ Scrotal fat necrosis should be considered among the possible diagnoses for acute/subacute scrotal pain.
- ▶ The finding of a scrotal palpable nodule without affection of the testis/cord and showing limited inflammation suggests scrotal fat necrosis as a possible diagnosis.
- ▶ Ultrasound is useful for specific diagnosis of scrotal fat necrosis.
- ▶ Scrotal fat necrosis may be treated conservatively.

Contributors SJD and RC both performed an extensive literature search and reviewed the case file. RK was involved in gaining ethical approval and deciding on the treatment of the patient. RC reviewed the ultrasound and the relevant studies around this topic. SJD wrote the first draft of the manuscript. All authors reviewed and edited the manuscript and approved the final version of the manuscript.

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