Emphysematous epididymo-orchitis: an uncommon but life-threatening cause of scrotal pain

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An 80-year-old man presented to the emergency department in August 2016 with a 2-day history of painful scrotal swelling and fever. There was no history of trauma. He had a history of hypertension, diabetes mellitus and bullous pemphigoid, and was taking long-term steroid therapy. Upon presentation, the patient had a fever of 38.8°C and fast atrial fibrillation with a heart rate of 170 beats per minute. Blood pressure was 149/104 mm Hg. Physical examination of the patient revealed scrotal skin erythema and a firm left scrotal swelling that was tender on palpation. No cough impulse could be elicited. His white cell count was 21.8 × 10^9/L and blood glucose level was 21.6 mmol/L. Ultrasound of the left hemiscrotum showed a fluid collection with hyperechoic interfaces and ring-down artefact suggestive of the presence of gas, obscuring the underlying structures (Fig 1). Subsequent non-contrast computed tomographic scan of the pelvis confirmed that the mottled gas and fluid density were confined to the left hemiscrotum (Fig 2a). The left testis and epididymis were poorly delineated. There was no gas density in the subcutaneous layer of the scrotum or perineum or in the intraperitoneal cavity. There was also no evidence of indirect inguinal hernia (Fig 2b). A diagnosis of emphysematous epididymo-orchitis was made. Emergency surgery was arranged a few hours after imaging. Intra-operatively, gas and pus were seen within the left tunica vaginalis. The left epididymis was necrotic and almost destroyed but the left testis was relatively spared with friable tissue and patches of necrosis (Fig 3). Drainage of pus and left orchidectomy were performed. Pus culture revealed *Escherichia coli*. The patient subsequently developed septic shock and died 3 days after the operation.

Emphysematous cholecystitis, pyelonephritis, and cystitis are not uncommonly seen in patients with poorly controlled diabetes mellitus. It is nonetheless rare to see gas-forming infection of the epididymis and testis although this is also reported to be associated with diabetes mellitus.[1-3] Long-term use of steroid in our patient may have been an additional risk factor due to immunosuppression. Based on the clinical presentation and ultrasound findings of our patient,

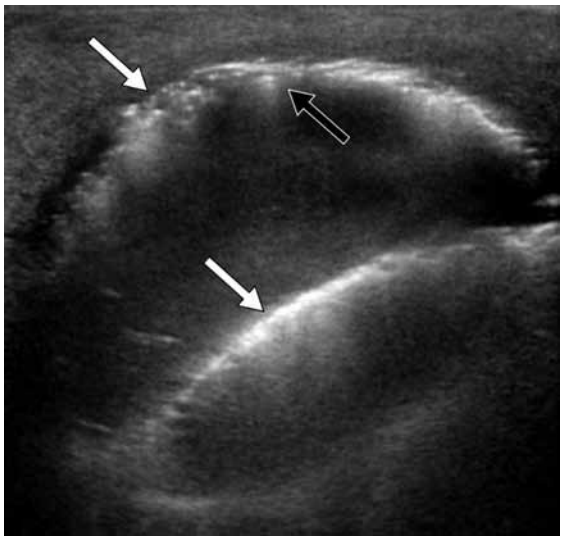

FIG 1. Ultrasound image of the left hemiscrotum showing a fluid collection with hyperechoic interfaces (white arrows) and ring-down artefact (black arrow) suggestive of the presence of gas. Underlying structures including the testis and epididymis were obscured

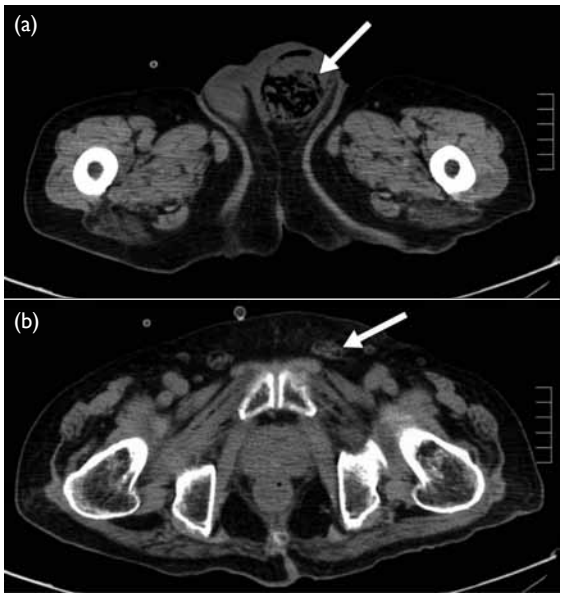

FIG 2. Axial computed tomography of the pelvis showing (a) mottled gas densities confined to the left hemiscrotum (white arrow) with no evidence of gas in the subcutaneous layer of the scrotum or perineum, virtually excluding the possibility of Fournier's gangrene; and (b) absence of bowel loop in the left inguinal canal (white arrow) excluded the possibility of incarcerated indirect inguinal hernia

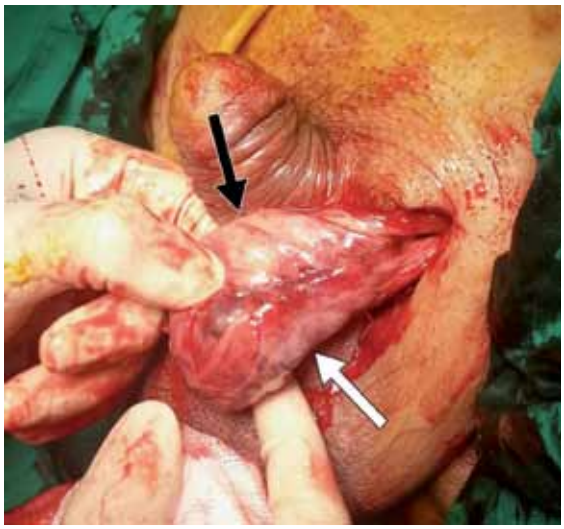

FIG 3. Intra-operative photo showing a grossly inflamed and slightly necrotic epididymis (white arrow). The testis (black arrow) was relatively spared with friable tissue and patches of necrosis

the main differential diagnoses included Fournier's gangrene and incarcerated indirect inguinal hernia. Computed tomographic scan was very helpful in delineating the definitive diagnosis. Gas pockets confined to the scrotal sac without involvement of the subcutaneous layer of the perineum virtually excluded the possibility of Fournier's gangrene. Incarcerated indirect inguinal hernia was excluded due to the absence of bowel loops in the scrotal sac.

When a diabetic patient presents with acute scrotal pain and features of infection, careful examination during the initial ultrasound scan for the presence of gas within the scrotum is essential as this will alter the subsequent management plan as it implies a much poorer prognosis than non–gas-forming epididymo-orchitis.

In conclusion, emphysematous epididymo-orchitis is an uncommon but life-threatening disease. Ultrasound and computed tomographic scan are essential to identify this entity for early treatment.

Author contributions

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