

Emphysematous epididymo-orchitis: A rare entity

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ABSTRACT

Emphysematous epididymo-orchitis is a rare cause of an acute scrotum and is a surgical emergency. Diagnosis is clinically difficult, and sonography with a high-frequency probe is useful to pick up gas shadows in the scrotal wall or testicular substance. A diabetic patient presented with fever, urinary tract infection, and an acute scrotal swelling. The patient needed orchidectomy and scrotal debridement. As in emphysematous pyelonephritis, this condition occurs in diabetics, and patients may need surgery. There is a need to perform sonography in all diabetic patients with an acutely inflamed scrotum, because detection of gas shadows makes surgical intervention more likely.

Key words: Diabetes mellitus, *E. coli*, emphysematous, epididymo-orchitis, gas shadow, infection

INTRODUCTION

Urinary tract infections in diabetics are a common occurrence, and they may be complicated by the presence of gas producing organisms. Emphysematous infection of the kidney is well known, but such infections are rare in the testis and epididymis. These infections are often referred to the surgeon, because of the likelihood of surgical intervention. Both emphysematous pyelonephritis and epididymo-orchitis may not be detected clinically and ultrasound or computed tomography (CT) may be needed for the diagnosis. The presentation of epididymo-orchitis with gas bubbles in the scrotum is very rare, and one case that has been reported was secondary to seminal vesicle involvement by diverticulitis of the colon.^[1]

E. coli is known to cause emphysematous pyelonephritis. However, there are no case reports of emphysematous epididymo-orchitis caused by *E. coli* with a normal seminal vesicle.

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CASE REPORT

A 52-year-old man was brought to emergency with a 3-day history of pain and swelling in the left scrotum with fever [Figure 1]. He was a known diabetic on oral hypoglycemic drugs. There was no history of obstructive voiding. His vital parameters showed tachycardia, normal blood pressure, and temperature of 100°F. Clinical examination of the scrotum showed inflamed left scrotum and tender and enlarged left testis and epididymis. Per rectal examination showed that the prostate was normal in size and consistency, with its upper limit just reachable. Blood hematology showed leucocytosis with pus cells on urine microscopy. Random blood sugar was 154 mg/dl and glycosylated hemoglobin was 7.8%. He gave a history of previous urinary tract infection, and the culture had shown *E. coli*. An ultrasound of the scrotum was done, which showed gas shadows in the left epididymis and testis with inflammation in the skin of the scrotum and fluid in the tunical sacs [Figure 2]. A CT scan of the abdomen and the pelvis showed the pockets of gas in the scrotum and testis, but the seminal vesicles and the sigmoid colon were normal [Figure 2]. The upper urinary tracts were normal.

The patient was taken up for surgery in view of the gas shadows in the testicular substance and poor response to clinical parameters after intravenous antibiotics. There was extensive inflammation in the scrotum with gas bubbles, extending through the tunica into the substance of the testis [Figure 1]. The inflammatory process involved the testicular parenchyma. A left orchidectomy was performed, following which the patient made an uneventful recovery.

Pus sent for culture from the testis showed *E. coli*.

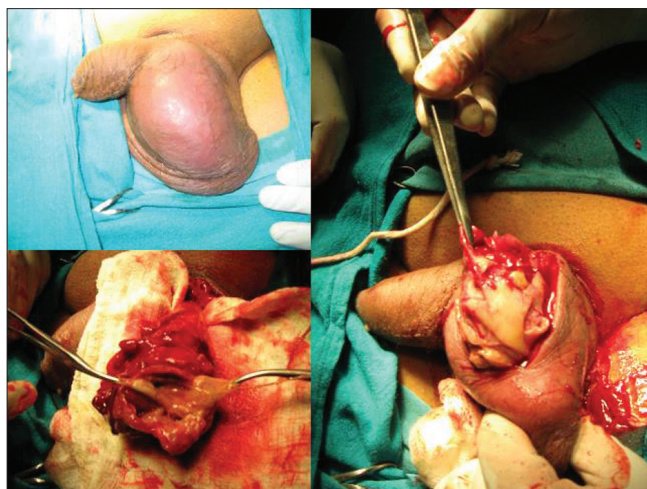


Figure 1: Clinical presentation with acute inflamed scrotum with per operative image showing destroyed testicular tunica and parenchyma

Histopathology of the excised testis showed acute epididymo-orchitis with areas of necrosis and thrombosis in veins.

DISCUSSION

Infections of the epididymis and testis with gas forming organisms are very rare. Fournier's gangrene can involve the perineum with gas formation but classically spares the testis and epididymis. An online search revealed one case of emphysematous epididymo-orchitis, secondary to seminal vesicle involvement in diverticulitis of the sigmoid colon.^[1] However, our patient had normal outline of seminal vesicles with preserved fat planes and no evidence of diverticulitis on CT scan.

Pus from the testis cultured *E. coli*, which has been cultured previously in cases of emphysematous pyelonephritis but has never in emphysematous epididymo-orchitis.

There is not much information available about the best modality for the treatment of this condition. Initially, most cases merit high-dose broad-spectrum antibiotics till the results of culture sensitivity are available. Aspiration of pus with a wide bore needle may be tried in early cases. As in case of emphysematous pyelonephritis, surgery should be contemplated when conservative measures fail.

Diabetes mellitus could have a role in the pathogenesis of the condition as in emphysematous pyelonephritis. Such

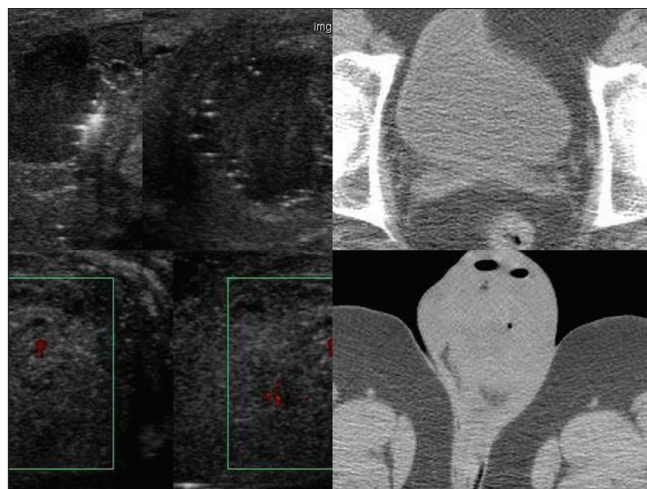


Figure 2: Radiology of the patient showing in clockwise sequence, gas bubbles in the testis and scrotum seen on ultrasound, CT images showing preserved fat planes around the seminal vesicles, gas bubbles seen in the scrotum and substance of the testis, and increased vascularity of the testis seen on Doppler images

fulminant infections have also been described in patients with AIDS.^[2]

The differential diagnosis of a bright, highly reflective tissue interface on ultrasound^[3] of the testis, with distal acoustic shadow, can be either emphysematous infections like Fournier's gangrene or emphysematous epididymo-orchitis, or testicular shrapnel, testicular germ cell neoplasm, or testicular microlithiasis. CT scan can be a useful adjunct to the diagnosis. With the availability of ultrasound in most emergency departments, there is a case for applying the ultrasound probe on diabetic patients with an acutely inflamed scrotum to rule out emphysematous infection.

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