Candida albicans epididymo-orchitis and fungemia in a patient with chronic myelogenous leukemia

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Epididymitis due to fungi is rare. It is primarily a bacterial disease. In older men Gram-negative bacilli are the most frequent pathogens, while sexually transmitted pathogens such as Chlamydia trachomatis, Ureaplasma urealyticum or Neisseria gonorrhoeae predominate in younger groups (1). The increasing population of immunocompromised hosts has generated a third etiological category due to opportunistic pathogens. Recent reports describing epididymitis in organ...

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Épididymo-testiculite et infection fongique systémique chez un patient atteint de leucémie chronique myélogénique

RÉSUMÉ : Le quatrième cas d’épididymo-testiculite rapporté dans la littérature et le premier cas de guérison avec seulement de faibles doses d’amphotéricine B est décrit. Un homme âgé de 75 ans atteint de leucémie chronique myélogénique s’est présenté avec une enflure testiculaire et épidadyme aigües et de la douleur. L’examen subséquent a suggéré le diagnostic d’épididymo-testiculite causée par Candida albicans. Il fut traité avec succès par administration intraveineuse d’amphotéricine B (dose totale de 500 mg). En se basant sur trois cas rapportés précédemment dans la littérature ainsi que sur celui-ci, plusieurs caractéristiques communes suggérant cette condition ont été identifiées. Ces caractéristiques comprennent un état d’immunosuppression, une candidurie, un aspect ultrasonique spécifique de l’épididyme, ainsi que les caractéristiques cliniques spécifiques à l’épididymo-testiculite.
transplant patients and those infected with human immuno-
deficiency virus (HIV) have reported infection with Nocardia asteroids (2), cytomegalovirus (3) and Haemophilus influen-
zea (4). There have been only three previous case reports of epidemic orchitis caused by Candida albicans in the literature (5-7). Two of the cases reported were treated with azoles (5,6) and the other was treated with a combination of orchiec-
tomy and bladder instillation of amphotericin B (7). We report
the first case of candidal epididymo-orchitis successfully
treated with intravenous amphotericin B alone.

CASE PRESENTATION

A 75-year-old male had stable chronic myelogenous leuke-
mia of two years’ duration maintained on oral chlorambucil.
He was admitted to hospital with a history of mild, nonbloody
diarrhea and subacute diffuse abdominal pain of three to four
days’ duration. Three months earlier a transurethral resec-
tion of the prostate gland for benign hypertrophy had been
performed. No fungi were isolated from his urine at that
time. There was no other history of genitourinary abnor-
malities.

Physical examination was remarkable for fever, diffuse ab-
dominal tenderness with voluntary guarding and an exquis-
itely tender, enlarged (6 × 10 cm) left testicle and epididymis
with overlying scrotal edema. A rectal examination was not
performed due to severe perineal pain.

Initial laboratory results included a neutrophil count of
8300 cells/mm³ and a creatinine level of 520 µmol/L. The
urinalysis showed hematuria, pyuria and moderate protein-
uria. An abdominal ultrasound revealed bilateral ureteric
dilation. Intravenous pyelography showed right hydronephe-
rosis, a possible right ureteric calculus and another stone in
the left renal pelvis. There was no evidence of a fungal ‘ball’
on imaging. Blood and urine cultures were obtained and the
patient was treated initially with intravenous cloxacillin
and gentamicin. Within 48 h these were replaced with cefa-
zolin because of the potential renal toxicity of gentamicin.

The patient subsequently underwent lithotripsy for stone
dissolution with placement of bilateral ureteric stents to re-
lieve obstruction. Analysis of stone fragments showed uric
acid but microbial cultures were not obtained. The patient’s
renal function improved following the insertion of ureteric
stents; however, his scrotal pain and fever persisted. A scro-
tal ultrasound demonstrated marked scrotal wall thickening
as well as several small hypoechoic lesions of the left epidi-
dymis. Gross enlargement of the left testicle was seen with-
out clear evidence of an infiltrative process.

On day five, urine cultures taken on admission grew C albi-
cans greater than 10⁶ colony forming units/L, and simultane-
eous blood cultures were positive for C albicans. Consequently,
the cefazolin was discontinued and intravenous amphotericin
B was started at 35 mg daily and continued to a total dose of
500 mg. The patient’s abdominal symptoms, scrotal swelling
and erythema clearly improved with the initiation of antifun-
gal therapy and were virtually resolved within one week. At
discharge, the serum creatinine was 121 µmol/L and the left
testicle and epididymis were nontender and of normal size.

Clinical examination, cystoscopy and retrograde pyelography
one month later were normal. The patient remained asympto-
matic six months after this admission but required ongoing
management of the leukemia.

DISCUSSION

Until recently, epidemic orchitis due to C albicans was unrecog-
nized. To our knowledge, only three other cases have been re-
ported in the literature. The first report described a HIV 1
seropositive patient who presented with unilateral scrotal
pain and swelling associated with pyuria (5). Cure was
achieved with a six-week course of oral ketoconazole. The
other two cases occurred in diabetic men with urethral instru-
mentation and urinary tract colonization with C albicans. One
of these (6) was cured with six weeks of oral fluconazole, 200
mg daily. Surgical exploration, unilateral orchiectomy and
bladder instillation of amphotericin B were used to effect a
cure in the third case (7). In this case, the diagnosis of inva-
sive fungal epididymitis was confirmed by operative cultures
and histological examination of excised tissue.

Predisposing factors for infection in our patient included ma-
lignancy, immunosuppressive therapy, urolithiasis and ureteric
obstruction with previous urological surgery. Fungal coloniza-
tion of the urine likely preceded the transurethral prostatic resec-
tion and the operative procedure promoted invasive disease.

The sonographic findings considered to be most reliable in
epidymal inflammation include thickening of the scrotal
wall combined with epididymal enlargement (8). In this case,
scrotal ultrasound was useful to confirm epididymal inflam-
mation and exclude an associated abscess.

Based on an extensive review of the literature, this is the
first case of epidemic orchitis successfully treated with low
dose intravenous amphotericin B alone. The treatment ap-
peared very effective with no long term sequelae or relapse.
Fluconazole is known to have greater urinary excretion (9)
than ketoconazole, but in two of the previous cases of orchitis
(5, 6), both fluconazole and ketoconazole had equal efficacy at
six weeks. This suggests that, although urinary colonization
and instrumentation may predispose patients to epididymo-
orchitis, cure of established disease requires use of antifun-
gal agents with good tissue penetration rather than simple
eradication of the organism in the urine. Both fluconazole and
ketoconazole may provide this coverage.

In summary, candidal epididymo-orchitis is a very rare en-
tity with features characteristic of other forms of epididymitis.
In the present case and three other reported cases, scrotal ultra-
sound helped confirm the characteristic local inflammatory
changes. In addition, the isolation of C albicans from the urine
culture prompted consideration of this organism as the epididy-
mal pathogen in this immunocompromised host. We are not
aware of any clinical criteria that reliably differentiates oppor-
tunistic causes of epididymitis from those caused by conven-
tional bacterial agents or sexually transmitted pathogens. In
the immunocompromised patient, other rarer causes of
epididymo-orchitis must be considered in patients who fail to
respond to usual therapy, and appropriate cultures should be
obtained.
REFERENCES