Venous infarction of the testis — a cause of non-response to conservative therapy in epididymo-orchitis

A case report

R. K. RENCKEN, D. J. DU PLESSIS, L. S. DE HAAS

Summary

Acute epididymo-orchitis occasionally responds poorly to conservative measures. Testicular infarction may be one reason for this complication. Ultrasonography and radionuclide scanning can elucidate the cause. A patient with this complication is described.

S Afr Med J 1990; **78:** 337-338.

Case report

A 55-year-old man was admitted to H. F. Verwoerd Hospital with a 3-day history of insidious onset right scrotal pain and swelling. There was no history of previous similar episodes. The left scrotum had also been swollen, tender and painful but had subsided spontaneously 1 day before hospital admission.

A superficial transitional-cell carcinoma of the bladder had been removed by transurethral resection 14 months previously. Two months before this admission to hospital, superficial grade II transitional-cell carcinomas were removed cystoscopically from the prostatic urethra and dome of the bladder. Following this procedure antibiotic therapy was instituted for 10 days. The patient complained of intermittent macroscopic haematuria after the operation. At the time of this admission to hospital, dysuria and frequency were noted. There was no history of a urethral discharge.

The patient was generally healthy and was apyrexial. On clinical examination all systems, with the exception of the genito-urinary, were normal. The right side of the scrotum was enlarged with erythema of the overlying skin. The right testis was moderately enlarged with tenderness on palpation. The right epididymis was enlarged to twice its normal size. It was tender and soft, being easily distinguishable from the testis. The right spermatic cord was markedly indurated and tender. This induration was palpable proximally up to the point where the cord enters the external inguinal ring. The left testis, epididymis and spermatic cord were normal. The rest of the urological examination, including the abdomen and rectum, was normal.

The urine was macroscopically normal, but dipstick evaluation revealed 2+ haematuria. Microscopic evaluation showed multiple red blood cells, multiple white blood cells and a few bacteria; no organisms were cultured. The serum electrolyte and urea values were normal, as was the full blood count.

A clinical diagnosis of right epididymo-orchitis was made. The patient was treated with analgesics, bed rest and intravenous antibiotics (tobramycin, 80 mg 8-hourly, and ampicillin, 500 mg 6-hourly). Although the pain began to subside on this regimen, the induration of the right cord, epididymis and testis remained. Ultrasonographic investigation showed a normal left testis, but the right testis was moderately swollen and oedematous with a non-homogenic tissue pattern. The right epididymis was massively enlarged with echolucent areas representing oedema. The cord was thickened proximally as far as the external inguinal ring. No abscess or tumour could be seen. The possibility of testicular ischaemia was entertained. A technetium-99m sodium pertechnetate flow study of the right testis was performed. This revealed increased perfusion to the right scrotum and a 'cold' area in the position of the testis and epididymis (Fig. 1).

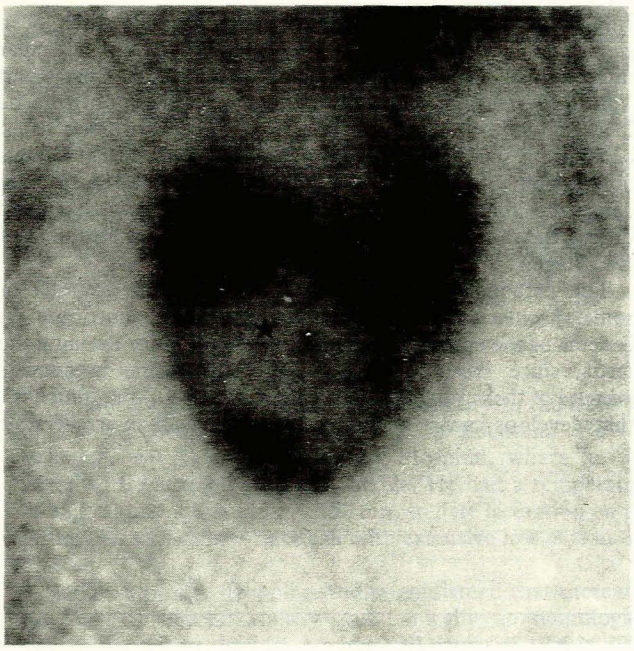

Fig. 1. Radio-isotope scan of right scrotum showing testicular non-perfusion (★).

A diagnosis of testicular vascular impairment was suggested by the above findings and a small underlying malignancy could not be excluded. Surgical exploration was performed via an inguino-scrotal incision. The scrotal skin and subcutaneous tissue were oedematous. The right testis was pale, soft and moderately enlarged. The epididymis was massively enlarged,

Department of Urology, Medical University of Southern Africa and Ga-Rankuwa Hospital, Pretoria
R. K. RENCKEN, M.B. CH.B., F.C.S. (S.A.), (UROL.)
Departments of Urology and Anatomical Pathology, University of Pretoria and H. F. Verwoerd Hospital, Pretoria
D. J. DU PLESSIS, M.B. CH.B., M.MED. (CHIR.), F.C.S. (S.A.)
L. S. DE HAAS, M.B. CH.B., M.MED. (PATH.)

Accepted 7 Aug 1989.
Reprint requests to : Dr R. K. Rencken, Dept of Urology, Medical University of Southern Africa, PO Medunsa, 0204 RSA.

oedematous and partially enveloped the testis. No abscess cavities could be seen. No bleeding could be elicited from the testis or epididymis. No evidence of testicular torsion could be found. The spermatic cord was markedly indurated up to the external opening, which caused constriction. Above the constriction the cord was normal. A high orchidectomy was performed. The patient's recovery was unremarkable.

Histological examination of the surgical specimen revealed an acute epididymo-orchitis. Widespread venous thrombi of varying ages were present in the spermatic cord (Fig. 2). The picture was that of venous infarction of the right testis and epididymis.

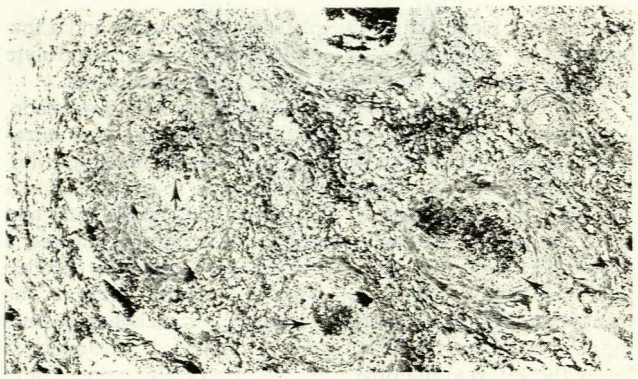

Fig. 2. Photomicrograph of right spermatic cord showing thromboses (arrows) in the testicular veins (H and E × 140).

Discussion

Infarction of the testis after epididymitis has only rarely been reported.[1-3] Mittemeyer *et al.*[4] reported no cases of testicular infarction in a large series of acute epididymitis. Costas and Van Blerk[3] treated 7 cases of vascular impairment of the testis in epididymitis; these were due to venous obstruction of an oedematous spermatic cord at the external inguinal ring. Venous obstruction with resultant testicular ischaemia may occur more commonly than is generally accepted, since it may be missed during the initial episode and present as testicular atrophy at a later stage.[2]

The pathogenesis of this condition has been a matter of some speculation. Four factors are thought to contribute: (*i*) oedema of the epididymis may compress the veins draining the testis, since these vessels are especially prone to damage because of their proximity to the epididymis;[1] (*ii*) the funiculitis that develops causes oedema; this may result in irreversible lymphatic, venous and, eventually, arterial obstruction of the spermatic vasculature;[1] (*iii*) compression by oedema at the external inguinal ring may occur, as discussed above;[3] and (*iv*) bacterial toxins may contribute to the vascular thrombosis by causing endothelial damage.

Our patient showed venous occlusion due to multiple venous thromboses. We speculate that oedema of the cord with the resultant sluggish venous flow aided by the thrombogenic potential of the nearby epididymitis may explain the initiation of the thrombosis.

The investigations of choice in these patients are scrotal ultrasonography and radionuclide scanning of the testis.[5,6] Ultrasonography is imperative in order to exclude the two other important causes of non-response to conservative therapy in epididymitis, namely abscess formation and underlying testicular tumour. Radionuclide scanning is an invaluable instrument in the diagnosis of testicular ischaemia. The picture closely resembles that of a missed torsion, although there is increased lateral activity due to increased perfusion secondary to the hyperaemia of the epididymis.[7]

Most authors agree that urgent exploration via a unilateral scrotal or inguinoscrotal incision is indicated once testicular ischaemia is diagnosed. Various procedures have been described to relieve the obstruction if it is seen at an early stage. An epididymolysis may sometimes produce dramatic relief.[1] Epididymotomy has been shown to give favourable results.[3] A fasciotomy of the spermatic cord may be helpful when a severe funiculitis is present. At times, an incision of the external inguinal ring (through the intercrural fibres of the external oblique aponeurosis) may be all that is needed.[3] Once infarction has occurred, an orchidectomy is indicated.

The diagnosis of testicular infarction due to venous obstruction should be entertained when epididymitis does not respond to conservative therapy. Ultrasonography and testicular radionuclide scanning are the diagnostic modalities of choice.

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