CASE REPORT

Corpus cavernosum abscess from a blind-ending urethra after urinary diversion surgery

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SUMMARY

Corpus cavernosum abscesses are rarely seen in the clinical setting. We report the case of an early diagnosis of corpus cavernosum abscess due to a blind-ending urethra in a 60-year-old man without known risk factors and who was successfully treated by antibiotic therapy alone. In this case, the blind-ending urethra after urinary diversion surgery was considered a risk factor of the abscess formation. If the physician notes that the patient has fever of uncertain cause after urinary diversion surgery, he/she should examine the penis and perineum in consideration of the possibility of corpus cavernosum abscess.

BACKGROUND

Corpus cavernosum abscesses are rarely seen in the clinical setting. This disease is not often diagnosed immediately, and many cases are insufficiently treated by using only antibiotics and are recrudescence. Moreover, some cases eventually require penile amputation.¹ However, in other reports,² early diagnosis allows it to be cured using only antibiotic therapy.

We report the case of an early diagnosis of corpus cavernosum abscess due to a blind-ending urethra in a patient who did not have the known risk factors, such as priapism,³ trauma,⁴ papaverine injection,⁵ foreign body insertion⁶ or cavernous body of penis cystography⁷ and who was successfully treated by antibiotic therapy alone.

CASE PRESENTATION

A 60-year-old man was admitted with several hours of fever, chills and shivering and 1 week of malaise. It was stated in his medical history that he had undergone Hartmann's surgery, bladder and seminal vesicle total extirpation and prostatic segmentectomy for sigmoid cancer. In addition, he had a central vein (CV) catheter port for post-operative chemotherapy.

On admission, he had a temperature of 40°C, blood pressure of 89/56 mm Hg, pulse rate of 93 bpm and a regular respiration rate of 20 breaths/min. Right costovertebral tenderness was noted. Laboratory examinations revealed a white blood cell count 2600 cells/mm³; platelet count 64 000/μl; C reactive protein 11.9 mg/dl; aspartate aminotransferase 32 IU/l; alanine aminotransferase 23 IU/l; blood urea nitrogen 21 mg/dl; creatine 1.12 mg/dl; glycated haemoglobin (NGSP), 5.8%; prothrombin time (international normalised ratio) 1.19; D-dimer, 16.6 μg/ml and bacteriuria. His HIV test was negative and an RPR test for syphilis was non-reactive.

After obtaining blood cultures, he was treated with empirical antimicrobial therapy for sepsis. In consideration of urinary tract infection from an ileal conduit, CV port infection and infectious endocarditis, he was treated with 1 g every 12 h of vancomycin and 4.5 g every 6 h of tazobactam/piperacillin.

On the second day of hospitalisation, he presented sanious pus from the external urinary meatus. The second physical examination revealed inflammatory findings around the scrotum and the perineum. A CT scan using contrast media was performed on the second day of hospitalisation. A CT image of the abdomen and pelvic region revealed a corpus cavernosum abscess (figure 1).

DIFFERENTIAL DIAGNOSIS

Urinary tract infection from an ileal conduit, CV port infection and infectious endocarditis.

TREATMENT

As the abscess had drained spontaneously, he received only antibiotic therapy without requiring additional surgery or drainage. *Escherichia coli* were detected in both sets of blood, culture and pus culture from the external urethral meatus. The

Figure 1 Computed tomography (CT) image of the corpus cavernosum revealing a new low-density area amid enhanced surroundings (B), as compared with CT image from a month before admission (A).

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antibiotic regimen was changed to 1 g every 8 h of cefazolin, to which the isolated *E coli* were sensitive.

OUTCOME AND FOLLOW-UP

His temperature immediately decreased, and the pus from the external urethral meatus decreased gradually. The patient was provided a 7-week treatment after the blood culture was negative. We confirmed the resolution of the corpus cavernosum abscess based on CT imaging. Additional drainage or surgery was unnecessary.

DISCUSSION

Corpus cavernosum abscess is a rare disease. Priapism,³ trauma,⁴ papaverine injections,⁵ foreign body insertion⁶ and cavernous body of penis cystography⁷ are known risk factors for the disease. Perineum swelling with or without pain is the most frequent initial symptom of corpus cavernosum abscess. The common causative pathogens are *Streptococcus*,² *Neisseria gonorrhoea*¹ and *Mycobacterium tuberculosis*.⁸ In addition, the anaerobic bacteria *E coli* and *Klebsiella* are reported as causative microorganisms in Japan.⁹

Early diagnosis of corpus cavernosum abscess is sometimes difficult. Therefore, diagnosis may not be made in a timely manner. In spite of the availability of appropriate antibiotic therapy, many cases require surgery and drainage, and some eventually require penile amputation.¹⁰

This patient did not have the known risk factors. Here, a blind-ending urethra after urinary diversion surgery was considered a risk factor of abscess formation. We believe that the mechanism of infection could have been as follows: (1) As urinary flow decreased after the surgery, *E coli* penetrating from the external urethral meatus multiplied easily and caused the abscess. (2) Furthermore, the corpus cavernosum abscess caused bacteraemia and urinary tract infection of the ileal conduit secondarily.

Pus from the external urethral meatus was found on the second day of hospitalisation. This made the diagnosis of corpus cavernosum abscess easy.

While early diagnosis improves prognosis, late diagnosis results in penile amputation and impaired quality of life. The early diagnosis of corpus cavernosum abscess in this case led to his successful treatment by antibiotic therapy alone. For early diagnosis, it is important to consider corpus cavernosum abscess and to examine the penis and perineum carefully if the patient has fever of uncertain cause after urinary diversion surgery or if there is pus from the external urethral meatus. After the initial cure, careful monitoring should be carried out to detect abscess recurrence over time.

In conclusion, a blind-ending urethra after urinary diversion surgery was considered a risk factor of the abscess formation in

the present case. If the physician notes that the patient has fever of uncertain cause after urinary diversion surgery, the physician should examine the penis and the perineum considering the possibility of corpus cavernosum abscess.

Learning points

- ▶ Corpus cavernosum abscesses are rarely seen in the clinical setting.
- ▶ A blind-ending urethra after urinary diversion surgery was considered a risk factor of the corpus cavernosum abscess formation.
- ▶ Early diagnosis of corpus cavernosum abscess is sometimes difficult. Therefore, in spite of the availability of appropriate antibiotic therapy, many cases require surgery and drainage and some eventually require penile amputation.
- ▶ If the physician notes that the patient has fever of uncertain cause after urinary diversion surgery, the physician should examine the penis and the perineum considering the possibility of corpus cavernosum abscess.

Contributors AK contributed by preparing the manuscript. TK was involved in research, writing and drafting the manuscript. YY and EK reviewed and edited the article. All authors approved the final draft of the manuscript.

Competing interests None.

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