CASE REPORT

Corpus cavernosum abscess after Winter procedure performance

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SUMMARY

A 23-year-old male patient with sickle-cell disease reported his third episode of priapism complicated by the presence of a corpus cavernosum abscess after the performance of a Winter procedure 20 days prior to his presentation. While in hospital for 11 days, two penile needle aspirations and three surgical drainages were performed with associated antibiotic therapy. He evolved with erectile dysfunction refractory to drug therapy and his infectious condition improved. An early penile prosthesis implantation followed after the use of a vacuum pump in an attempt to decrease the fibrotic process of the corpora cavernosa. Final results were positive.

BACKGROUND

Priapism in patients with sickle-cell disease is usually related to sickle-cell crises triggered by infectious conditions. In our case, the patient did not show any sign of systemic infection, and priapism was attributed to a local infectious process secondary to the Winter procedure complication.

There are very few reports on corpus cavernosum abscess cases given the fact that they are very rare events. The appearance of such events as infectious complications after needle aspiration performances are even rarer, and thus an early diagnostic suspicion is advisable followed by surgical treatment and a proper antibiotic therapy with a possible evolution to penectomy.

The penile prosthesis implantation for the treatment of erectile dysfunction associated with this complication is performed in an attempt to decrease the fibrotic process of the corpora cavernosa, aiming better surgical conditions and the return to sexual activity.

CASE PRESENTATION

A 23-year-old Caucasian male patient presented with redness and swelling of the penis for 20 days and a painful penile erection and fever of 38.5°C of 48 h duration. Personal antecedents: sickle-cell disease in use of hydroxyurea (1 g/day) and two previous episodes of priapism in the past 3 months prior to this presentation. In his last episode of priapism (20 days before the current case), Winter procedure was performed. Physical examination: good general state, pale, hydrated, acyanotic, afebrile, normal pulmonary and cardiac auscultation (RR: 16 ipm; HR: 90 bpm) and normal abdomen. Genital tract: fully erect penis with glans erythema and painful at palpation. No testicular alterations.

At admission, a penile puncture at the base was performed with a drainage of 150 mL, and there was an improvement in pain along with a partial detumescence of the penis. Antibiotic therapy was introduced (ceftriaxone) and a gasometry of the corpora cavernosa and laboratorial examinations were performed revealing: pH 7.2 (7.35–7.45); partial pressure of oxygen 40 mm Hg (80–100 mm Hg); partial pressure of carbon dioxide 62 mm Hg (35–45 mm Hg); haemoglobin (Hb) 8.8 g/dL (12.0–15.0 g/dL); haematocrits (Ht) 26.7% (36–46%); and leucocytes 18 900/mm³ (4500–11 000/mm³) with no shift to the left.

On the first hospitalisation day (HD), the patient presented with a new episode of painful penile erection and fever. A new corpora cavernosa puncture at the base of the penis, unsuccessful, and at the distal portion with pus excretion was performed. The collected material was sent to the laboratory for culture.

On the second HD, he showed a worsening in the inflammatory process, in the distal third of the penis with an area of fluctuation to palpation. The patient underwent puncture drainage and new laboratorial examinations were performed for re-evaluation.

On the third HD, the presence of an inflammatory process in the distal penile shaft and glans was detected. He was afebrile and the new laboratorial examinations showed: leucocytosis 22 000 leucocytes/mm³, bands 8%; Hb 6.5 g/dL; Ht 19.8% and platelets 450 000/dL. The patient received two concentrates of red blood cells and the antibiotic therapy with ceftriaxone was maintained. After the performance of a CT scan highlighting the penile inflammation and infection area and showing no impairment of the corpora cavernosa (figure 1), a new surgical drainage was recommended, with insertion of a Penrose drain without opening the corpora cavernosa.

On his fifth HD, the patient presented with worsening of leucocytosis (33 000 leucocytes/mm³), and an ultrasound of the penis revealed asymmetric corpora cavernosa with increased dimensions (the right one in particular), and a well-delimited heterogeneous area (measuring 0.9×1.1 cm) with punctiform foci of high echogenicity. A surgical drainage with bilateral cutaneous cavernostomy was carried out once an abscess was found in the corpus cavernosum (figure 2).

On the 11th day, the patient was discharged with the following laboratorial results: Hb was 11.5 g/dL; Ht 32.8%; 9500 leucocytes/mm³. The results

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Figure 1 (A) Ectoscopic aspect prior to the tomography of the penis (corpora cavernosa); and (B) tomography for the investigation of penile abscess, highlighting the limited collection over the Buck's fascia.

of the drainage culture performed on the first HD were multi-sensitive coagulase-negative *Staphylococci*. Antibiotic therapy was provided for 21 days.

OUTCOME AND FOLLOW-UP

During ambulatory follow-up care, the patient evolved with erectile dysfunction refractory to drug therapy. In an attempt to maintain the elasticity of the corpora cavernosa and to reduce fibrosis, the use of a penile vacuum pump three times a day until the implantation of a prosthesis was the option taken.

Figure 2 (A) Initial clinical presentation of priapism event; (B) immediate postoperative aspect of penile drainage, keeping the integrity of the corpora cavernosa; (C) intraoperative aspect of the bilateral cutaneous cavernostomy with Kelly clamp transfixation showing latero-lateral connection; and (D) final aspect after surgical drainages, antibiotic therapy and the use of a vacuum pump.

A successful implantation of a semirigid penile prosthesis was performed after 45 days of the discharge from hospital. No early infectious complications were observed.

The patient was under ambulatory follow-up care for 8 months. He has been evolving without signs of infection, and he is back to sexual activity.

DISCUSSION

Priapism is an unusual event, and the incidence estimate varies according to the studied population group. The clinical implications are clear in those groups in which sickle-cell disease, the main risk factor for the occurrence of priapism, is very prevalent.^{1 2} This group encompasses nearly 28% of priapism cases. It is estimated that 42% of adults and 64% of children with sickle-cell disease will eventually develop priapism throughout their lives.²

The consequences of an ineffective treatment of priapism are the permanent erectile dysfunction (in up to 25% of the cases) and the quality-of-life impairment owing to chronic pain and physical deformities.^{1 2} Evidences show that the fibrotic process of the corpus cavernosum starts 4 h after the onset of the symptoms.^{1 2} Despite this fact, Kulmala and Tamella reported that until 24 h before the onset of the symptoms, most of the cases respond to aspiration and α -adrenergic drugs with no fibrotic effects. After this period, patients do not respond to medications and they may develop different degrees of fibrosis.²

Corpus cavernosum abscess is a rare condition among urological diseases.³ *Neisseria gonorrhoeae* is the pathogen mostly associated with this type of abscess.⁴ However, other agents such as coagulase-negative *Staphylococcus aureus* and *Trichomonas vaginalis* have already been identified besides polymicrobial infections.⁵

Corpus cavernosum abscess is a condition rarely described in the literature,⁶ which may be developed after a traumatic event,³ as a complication of cavernosography,⁷ as an unusual presentation of gonococcal infection,⁸ after intracavernosal injection⁹ and due to undetermined causes.^{9 10} Usually it can be treated with drainage and antibiotic therapy.^{9 10 11} Nonetheless, a penectomy may be necessary in the event of persistent infection.

In the current case, the patient underwent multiple surgical approaches, and only in the final imaging examination (penile ultrasound), the presence of a corpus cavernosum abscess was revealed. At this moment, a corpus cavernosum debridement was performed, a procedure that increases the risk of erectile dysfunction.

Although the penile prosthesis implantation in patients with previous local infection cases increases the infection rate, an early

Learning points

- ▶ Early diagnosis of corpus cavernosum abscess is sometimes difficult.
- ▶ Corpus cavernosum abscess is an unusual event, but potentially severe, nonetheless. Therefore, the possible evolution to a penectomy justifies the immediate and aggressive approach in the therapeutic point of view.
- ▶ The infection treatment aims to preserve the organ and its function. However, the literature shows frequent sequels after the infection resolution, especially those related to sexual activities.
- ▶ Erectile dysfunction can be treated with an early penile prosthesis implantation.

implant placement was the treatment of option in an attempt to avoid the use of a Dacron sock, for example, around the prosthesis, a fact that would increase the susceptibility to infections.

In trying to improve the local circulation associated with the reduction of fibrosis and improvement of the postoperative cicatrization process, a penile vacuum pump was used for 10 min, three times a day, until the prosthesis was implanted.

This case presents an unusual episode of priapism secondary to a Winter procedure site infection, which culminated with a corpus cavernosum abscess. Erectile dysfunction was the outcome, successfully treated with an early penile prosthesis implantation. During his ambulatory follow-up care, the patient did not present surgical infection site and reported satisfactory sexual activity.

Competing interests None.

Patient consent Obtained.

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