Refractory low flow priapism: treatment with corporo-saphenous vein shunt

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ABSTRACT

Priapism is defined as the pathologic entity characterized by prolonged penile erection that is not related to sexual stimulation. It is classified as ischemic priapism (vein-occlusive, low flow), which is the most frequent, as arterial priapism (non-ischemic, high flow), and as recurrent priapism. Once ischemic priapism is diagnosed, treatment should be started to re-establish cavernous arterial blood flow. There are several therapeutic modalities, including surgical procedures that are indicated in cases in which penile detumescence has not been achieved despite medical treatment. The case of a patient with refractory low flow priapism that merited treatment with corporo-saphenous vein shunt is presented here.

Keywords: Priapism, low flow, refractory, surgical treatment, Mexico.

RESUMEN

El priapismo se define como una entidad patológica caracterizada por una erección prolongada del pene que no está relacionada con la estimulación sexual. El priapismo se clasifica en isquémico (veno-oclusivo, bajo flujo), que es la forma más frecuente, priapismo arterial (no-isquémico, alto flujo) y priapismo recurrente. Una vez diagnosticado el priapismo isquémico debe iniciarse el tratamiento para restablecer el flujo sanguíneo arterial cavernoso. Existen varias modalidades terapéuticas incluyéndose modalidades quirúrgicas, las cuales están destinadas a los casos en los que no se logra detumescencia peniana a pesar del tratamiento médico. Se presenta el caso de un paciente con priapismo de bajo flujo refractario que ameritó tratamiento con shunt safeno-cavernoso.

Palabras clave: Priapismo, bajo flujo, refractario, tratamiento quirúrgico, México.
INTRODUCTION

Priapism is a relatively uncommon medical condition defined as prolonged erection of the penis or clitoris that is not related to sexual activity. The term priapism comes from priapus, the god of fertility in Greek mythology. It is more common in men and typically involves the corpora cavernosa and more rarely the corpus spongiosum. Priapism is classified as low flow (vein occlusive or ischemic) or high flow (arterial and non-ischemic). Low flow priapism is associated with a severe decrease in vein drainage of the corpora cavernosa and is considered a medical emergency that can cause irreversible ischemic changes in the tissues. High flow priapism is less common and involves an excessive flow that is typically secondary to some form of arterial trauma. It is not considered an emergency. Priapism has an incidence of 1.5 x 100,000 individuals per year.

OBJECTIVE

The objective of the present article was to describe a case report of a 23-year-old man with low flow priapism that was refractory to standard treatment.

CASE PRESENTATION

The patient is a 23-year-old man with a past history of high blood pressure of 1 year progression treated with 10 mg oral nifedipine every 8 hours, chronic kidney failure diagnosis of 1 month secondary to bilateral kidney hypoplasia receiving substitutive treatment with peritoneal dialysis, and transfusions (+) without complications. Present illness had 24-hour progression with prolonged and painful erection not related to sexual stimulation. Corpus cavernosum gasometry reported pO2: 0.6 mmHg; pCO2: 124; pH: 6.79 with diagnosis of low flow priapism. Corpora cavernosa wash was carried out with epinephrine with partial response and Winter-type shunt was placed resulting in total detumescence.

At 14 days there was symptom recurrence of prolonged and painful erection not related to sexual stimulation. Corpus cavernosum gasometry reported pO2: 1 mmHg; pCO2: 109; pH: 6.58. Corpora cavernosa wash resulted in 50% detumescence, there was symptom recurrence a few hours later, and Winter-type shunt was again placed with no response, after which El-Ghorab procedure was carried out.

Total detumescence was achieved but symptoms recurred less than 24 hours later (Image 1). Grayhack-type shunt was then placed resulting in total detumescence with no evidence of recurrence (Images 2 and 3). Hematologic origin of pathology was ruled out.

DISCUSSION

Priapism is a relatively rare pathology and is characterized by a pathological condition of penile erection persisting for more than 4 hours in the absence of sexual stimulation. Low flow priapism is a urological emergency that merits early diagnosis and appropriate management to avoid unnecessary interventions and thus reduce resulting erectile dysfunction rates. The principal etiological agents of low flow priapism include hematologic dyscrasias, falciform cell disease, and other hemoglobinopathies, vasoactive drugs, local or metastatic neoplastic disease, hyperlipidic parenteral nutrition, hemodialysis, heparin treatment, Fabry disease, and some neurological conditions such as spinal cord injury or pathology resulting from regional and/or general anesthesia. There have also been
reports of some cases caused by yohimbe extract.\textsuperscript{5,6} High flow priapism is generally preceded by perineal or genital trauma caused by increased arterial flow into the corpora cavernosa. It is also related to vasoactive drugs, penile revascularization surgery, and neurological alterations.\textsuperscript{5,7,8} Clinical symptoms of vein-occlusive priapism are due to little or no flow through the corpora cavernosa. The blood from the corpus cavernosum is hypoxic, hypercapnic, and acidotic and the penis is rigid and painful when palpated.\textsuperscript{9}

Initial treatment of low flow priapism is puncture/aspiration of the corpora cavernosa accompanied with intracavernous application of adrenergic agents (adrenaline).\textsuperscript{10} This provides very good results if treatment is carried out within the first 12 hours of disease progression. If penile detumescence is not achieved with these initial measures more aggressive and invasive treatment should be carried out. In 2006 at the authors’ hospital a technique was described for creating a temporary and controlled fistula by placement of 14Ga puncturecat with equidistant microperforations allowing for total fistula closure at removal that achieved 100% detumescence and better posterior erectile function.\textsuperscript{11} The Ebbehøj technique is a procedure carried out by means of an incision with Nº 11 scalpel through the glans penis to the corpus cavernosum and turning it 90\textdegree, or the Winter technique in which cavernospongious communication is carried out with Trucut biopsy needle. A more aggressive surgical technique for this type of diversion is that proposed by El-Ghorab. It consists of carrying out distal cavernospongious communication through a transverse incision at the dorsal side of the glans penis 0.5-1 cm from the coronal sulcus, removing a portion of albuginea at the distal part of each corpus cavernosum. The final therapeutic method is corporo-saphenous diversion (Grayhack). This procedure is extremely useful in very difficult cases and is a safe procedure with no major complications.\textsuperscript{12-14} Up to 100% detumescence has been reported with this procedure with a 90% erectile dysfunction rate.\textsuperscript{13}

CONCLUSIONS

Low flow priapism treatment with Grayhack shunt was definitive for a case that was refractory to conventional treatment. It should be offered as a final treatment alternative. The present case appears to have been due to calcium antagonist ingestion since underlying hematological disease was ruled out.

BIBLIOGRAPHY