

SAPHENO-CAVERNOUS SHUNT: A VASCULAR APPROACH IN THE TREATMENT OF ISCHEMIC PRIAPISM

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Abstract

Priapism is an urologic emergency defined as an erection that persists for more than 4 hours and is unrelated or lasts beyond sexual stimulation. Ischemic priapism, caused by prolonged venous occlusion within the corporal bodies, works as a compartment syndrome that requires prompt resolution in order to preserve erectile function.

We present two cases of ischemic priapism refractory to conventional treatment that were treated with the help of vascular surgeons. In both cases a sapheno-cavernous shunt was effective in achieving detumescence and erectile function recovery. Despite rarely described in literature, this can be a safe and effective technique in the treatment of ischemic priapism.

INTRODUCTION

Priapism consists of a penile erection that persists for more than 4 hours and is unrelated or lasts beyond sexual stimulation¹. It may occur at all ages and incidence is low (0.5-0.9 per 100,000)². Priapism arises from dysfunction of mechanisms regulating penile tumescence and can be classified in three types: ischemic (veno-occlusive, low flow), non-ischemic (arterial, high flow) and stuttering (intermittent). Ischemic priapism is the most common (95%) and is caused by prolonged venous occlusion within the corporal bodies, working as a compartment syndrome and requiring prompt management³.

There are two main goals during priapism treatment. The first is attaining penile detumescence. This will provide relief to the often-severe local pain. The second goal is to preserve function, as erectile function may sometimes become compromised.

CASE REPORT 1

A 62-year-old male, with a past medical history of diabetes and hypertension, presented to the urology emergency department with a painful erection lasting for more than 24 hours. He reported being on trazodone treatment for 10 days. The corporal blood gas analysis revealed acidosis and hypoxia, suggesting ischemic priapism. The corpora cavernosa were aspirated and irrigated with saline and 1 mg of phenylephrine, achieving detumescence. Recurrence was however observed after 24 hours. A corpora-glanular shunt was then performed (Al-Ghorab technique) with initial detumescence. New recurrence was seen after 12 hours.

Vascular surgeons were called to perform a sapheno-cavernous shunt according to Grayhack's technique, with great saphenous vein isolation below the saphenofemoral junction (figure 1) and transposition through a subcutaneous tunnel. A penoscrotal approach with corpora cavernosal iso-



Figure 1

Bilateral approach and isolation of the great saphenous veins through longitudinal incisions on the inner thighs and median penoscrotal incision.

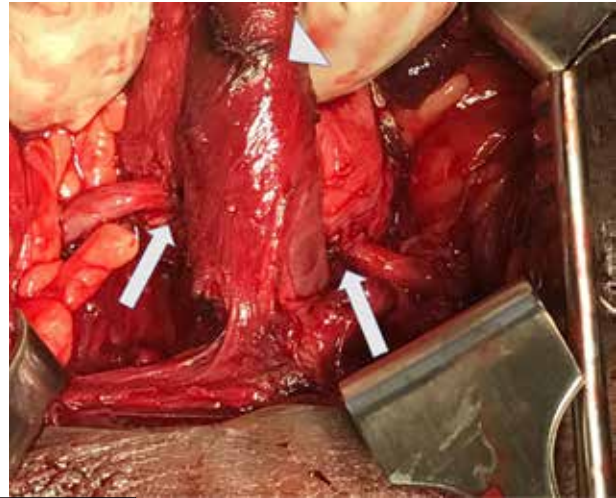


Figure 2

Bilateral anastomosis of great saphenous vein to corpora cavernosal (arrows). Corpora spongiosum (arrowhead).

lation and an end-to-side anastomosis of the great saphenous vein to each corpora was performed bilaterally (figure 2).

After surgery, doppler ultrasound confirmed patency of the shunts and revealed a phasic doppler flow with penile compression at the level of the sapheno-femoral junction (figure 3). The patient was discharged 4 days after surgery. At one-month follow-up sexual function was preserved and bilateral shunt thrombosis was confirmed.

CASE REPORT 2

A 30-year-old male, with a past medical history of illicit intravenous drug abuse was transferred to the urology emergency department after 48 hours of priapism. At admission he presented a painful and erect penis. Blood gas analysis indicated ischemic priapism and penile doppler ultrasound revealed absence of cavernous blood flow. Corporeal aspiration plus irrigation and two corporaglanular shunts (Ebbehøj and Al-Ghorab) were performed without complete penile detumescence.

Vascular surgeons performed a proximal sapheno-cavernous shunt according to Grayhack's technique in similar

fashion to what was described in case 1. The procedure was uneventful and sustained penile detumescence was successfully achieved afterwards. Seven days after the procedure, penile doppler ultrasound revealed bilateral shunt thrombosis without priapism recurrence. The patient recovered erections in the first month after surgery.

DISCUSSION

Priapism requires urgent treatment as erection time relates to prognosis. Between 50-90% of patients will develop erectile dysfunction if not treated in the first 24 hours as a result of cavernosal fibrosis^{4,5}. First line treatment consists of corporeal blood aspiration plus saline and sympathomimetic drug's irrigation. In case of failure, surgical treatment with creation of penile shunt's is mandatory. Penile shunts provide a way out for ischemic blood from tunica albuginea of corpora cavernosa, allowing restoration of normal circulation. Distal shunts communicate with either the glans or the corpus spongiosum (Ebbehøj and Al-Ghorab shunts) and are the first line in surgical treatment³. Grayhack's procedure (saphenous-cavernous shunt) can be performed when other alternatives fail to achieve penile detumescence⁶.

In both cases presented, penile detumescence was achieved after creation of sapheno-cavernous shunt with the help of the vascular surgery department. Sexual function was restored during follow-up with documented bilateral shunt thrombosis. Shunt procedures undertaken after a prolonged ischemic period may only achieve pain relief without any benefit in preserving erectile function⁵. However, Grayhack shunts appear to have a lower incidence of erectile dysfunction when compared to distal shunts⁴. According to Moncada et. al. when erectile capacity is not restored within 3 months after Grayhack shunts, ligation of the shunt improves the chances

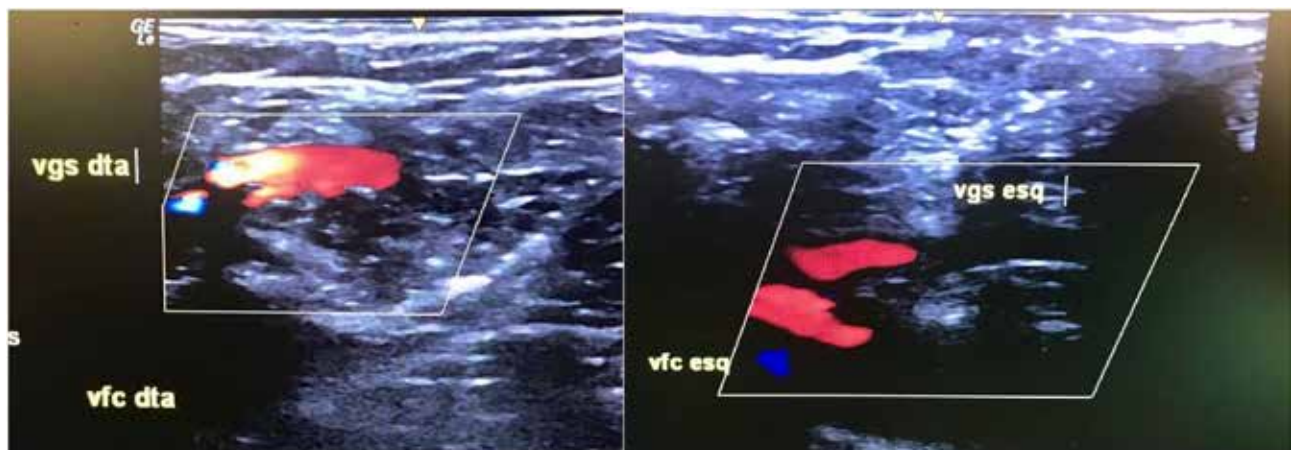


Figure 3

Doppler ultrasound images highlighting the presence of flow to penile compression at the level of the great saphenous vein. vgs dta: right great saphenous vein; vgs esq: left great saphenous vein; vfc dta: right common femoral vein; vfc esq: left common femoral vein.

of function recovery⁷.

Despite being a procedure rarely performed for treatment of ischemic priapism, sapheno-cavernous shunts can be a safe solution. This should be considered in selected cases of recurrent priapism refractory to distal shunts. It is important to bear in mind that this procedure should be performed ideally within the first 36 hours of priapism in order to maximize the chances of erectile function recovery in the long-term.

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