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Urology

ISOLATED PERIMEATAL GLANS NECROSIS WITH BLADDER OUTLET OBSTRUCTION

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ABSTRACT There are varied etiologies for Ischemia or necrosis of the glans penis such as vascular compromise, complications of vasoconstrictive agents, trauma, or procedure related complications such as post circumcision and penile cosmetic surgeries. Herein, we discuss a 24-year-old unmarried male presented with penile swelling for 10 days, fever with chills, breathlessness, cough for 2 days, and inability to void for 1 day, mixed lower urinary tract symptoms (LUTS) for 8 months. The patient was in septic shock at presentation, primary resuscitation done and was started on vasopressors and broad-spectrum antibiotics. Later patient developed isolated perimeatal glans necrosis with blader outlet obstruction which was corrected in two sessions. Isolated perimeatal glans necrosis secondary to vasopressor support, accompanied by bladder outlet obstruction, is a rare case successfully managed with BMG glans reconstruction and direct visual internal urethrotomy. Early detection and targeted reconstruction techniques ensured a favorable outcome.

KEYWORDS : Catheterisation / catheter care , Endarteritis, LUTS, BMG (Buccal mucosal graft), Bladder outlet obstruction

INTRODUCTION

Ischemia or necrosis of the glans penis is a rare condition that can arise from vascular issues, complications from vasoconstrictive agents, trauma, or procedures such as circumcision and penile cosmetic surgeries. [1-4]. This case report presents a rare instance of isolated perimeatal glans necrosis accompanied by bladder outlet obstruction.

Case Study

A unmarried male in his 20s presented to our emergency department with penile swelling for 10 days, fever with chills, breathlessness, and cough for 2 days, and inability to void for 1 day. He reported mixed lower urinary tract symptoms (LUTS) for 8 months, with an International Prostate Symptom Score (IPSS) of 12/35. Upon presentation, the patient was tachypneic, febrile, and hypotensive. Local examination revealed penile edema and phimosis. Initial laboratory investigations indicated thrombocytopenia (17,000/ microliter), elevated serum creatinine (2.7 mg/dL), and the presence of 10-12 pus cells in urine routine microscopy, while other parameters were within normal limits. High-resolution ultrasonography and Doppler studies of the penis suggested diffuse edema in the skin and subcutaneous tissue, with high-velocity flow (PSV > 20 cm/sec) in both cavernosal arteries and no evidence of arteriovenous fistula [Figure 1]. No hematoma or penile fracture was noted. Ultra-sonography of the kidneys, ureters, and bladder (KUB) revealed significant post-void residual urine (pre-void/post-void = 350/300 mL). In light of shock, the patient received primary resuscitation and was started on vasopressors and broadspectrum antibiotics. An 8 French infant feeding tube was placed as placement of a Foley's catheter was not feasible. The patient showed gradual improvement, but on day 3 of hospitalization, pus was noted at the tip of the glans in the perimeatal region, with demarcation between the distal one-third and proximal two-thirds of the glans, suggestive of isolated perimeatal glans necrosis [Figure 2]. On day 5, urinary retention necessitated suprapubic catheterization after per urethral catheterization failed. A retrograde urethrogram indicated bulbar urethral narrowing [Figure 3]. Due to the glanular perimeatal tip necrosis, debridement with a dorsal slit was performed [Figure 4]. Regular dressing and wound care were administered for 2 months. Subsequently, glans reconstruction using a buccal mucosal graft (BMG) was performed alongside direct visual internal urethrotomy [Figure 5]. Three weeks post-surgery, a pericatheter retrograde urethrogram was normal. The per urethral catheter was removed after the retrograde urethrogram, and the glans reconstruction was healthy [Figure 6]. The suprapubic catheter was removed a week later. Post-operatively, the patient is doing well, with uroflowmetry showing a voided volume of 140 mL, a maximum flow rate of 21 mL/sec, and an average flow rate of 11 mL/sec [Figure 7]. As patient is unmarried and recently engaged this procedure proved to be boon for him as well as for his family and such a cosmetic procedure saved his physical and mental well beingness.

DISCUSSION

Genital gangrene linked to vasculitis has been documented, but primarily within the contexts of hypersensitivity vasculitis and Buerger's disease [5,6]. Our patient had no risk factors for peripheral vascular disease, nor was he diabetic, HIV-positive, or a heavy drinker [7]. The probable pathophysiology in this case may involve obliterative endarteritis of the subcutaneous arteries due to vasoconstriction caused by high doses of inotropes. Noradrenaline is commonly used in patients with septic shock as an alpha receptor stimulator; its vasoconstrictive effect on end arteries may reduce perfusion and lead to distal ischemia. This is supported by the gangrene distribution affecting multiple end arteries despite established adequate blood flow: the scrotum is supplied by the external pudendal and perineal arteries, while the penis receives blood from the superficial perineal artery and internal pudendal artery [8]. The underlying conditions of septic shock, hypotension, and multi-organ dysfunction likely exacerbated reduced peripheral perfusion due to inotropic vasoconstriction. Our patient received a high noradrenaline dose of up to 1 mcg/kg/min for 3 days, consistent with intensive care research defining high-dose inotropic support as ≥ 1 mcg/kg/min of norepinephrine equivalent at any time [9]. Our diagnosis of isolated perimeatal glans necrosis with bladder outlet obstruction was clinical, based on physical examination. Management options depend on the extent of necrosis. In our patient, early surgical debridement with dorsal slit was performed, followed later by glans reconstruction using a buccal mucosal graft and direct visual internal urethrotomy.

CONCLUSIONS

Isolated perimeatal glans necrosis secondary to vasopressor support, accompanied by bladder outlet obstruction, is a rare case successfully managed with BMG glans reconstruction and direct visual internal urethrotomy. Early detection and targeted reconstruction techniques ensured a favorable outcome.

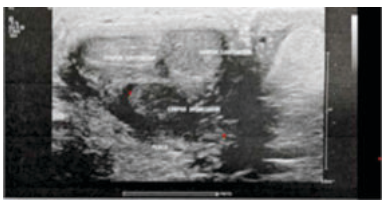

Figure 1 : High Resolution USG & Penile Doppler:

- Penile edema noted
- No e/o hematoma or penile fracture
- PSV > 20 cm/sec
- Pre void – 350ml
- Post void – 300ml
- s/o Bladder outlet obstruction with cystitis

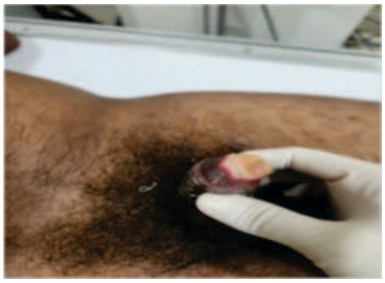

Figure 2: Isolated Perimeatal glans necrosis

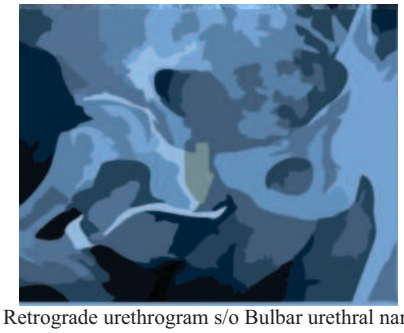

Figure 3: Retrograde urethrogram s/o Bulbar urethral narrowing

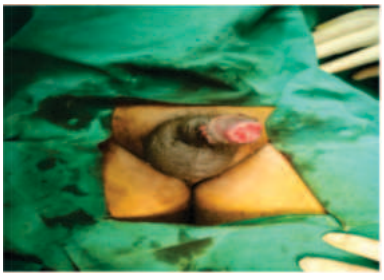

Figure 4: Status post debridement

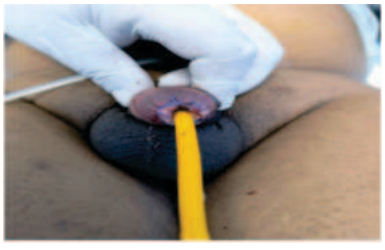

Figure 5: Post op day 3 of glans reconstruction

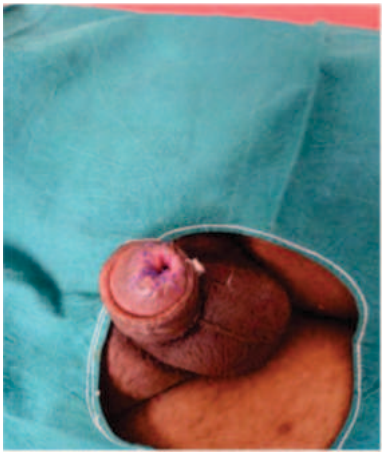

Figure 6: Post op day 21 of glans reconstruction

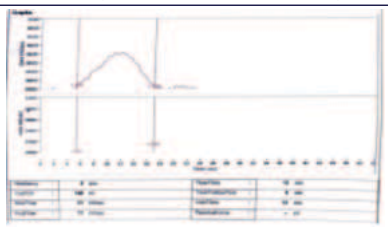

Figure 7: Post Op Uroflowmetry

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