Ischemia of the glans penis following circumcision: Case report and revision of the literature

Pietro Pepe, Francesco Pietropaolo, Giuseppe Candiano, Michele Pennisi

Urology Unit, Cannizzaro Hospital, Catania, Italy.

Summary
Ischemic complications of the glans penis are rare and commonly result from trauma, inadvertent administration of vasoconstrictive solutions, diabetes mellitus, circumcision and vasculitis; we refer about a young man with severe ischemia of the glans penis following circumcision. The patient had undergone circumcision 5 days before in a surgery department under local anesthesia (1% mepivacaine hydrochloride).
The patient noticed a brownish color and edema of the glans penis at 24 h after he opened the wound dressing, but arrived to our hospital only 5 days after circumcision because these findings had progressed. Physical examination revealed the black color or necrotic appearance of the glans penis, and edema on the dorsal penile skin.
The patient underwent antibiotic, antiplatelet, corticosteroid and iperbaric therapy achieving a complete restitution ad integrum.

KEY WORDS: Ischemia of the glans penis; Circumcision complications; Glans penis.

Submitted 1 September 2014; Accepted 30 November 2014

INTRODUCTION
Ischemic complications of the glans penis are rare and commonly result from trauma, inadvertent administration of vasoconstrictive solutions, diabetes mellitus, circumcision and vasculitis (1-6).
We refer about a young man with severe ischemia of the glans penis following circumcision.

CASE REPORT
A 20-year-old man was admitted to our hospital with complaints of black color and swelling of the glans penis. The patient had undergone circumcision 5 days before in a surgery department under local anesthesia (1% mepivacaine hydrochloride) and was discharged 12 hours following circumcision. The patient noticed a brownish color and edema of the glans penis at 24 h after he opened the wound dressing, but arrived to the hospital only 5 days after circumcision because these findings had progressed. Physical examination revealed the black color or necrotic appearance of the glans penis, and edema on the dorsal penile skin (Figure 1a); moreover colorDoppler ultra-

No conflict of interest declared.

Figure 1
Severe ischemia of the glans penis (1a) at clinical admission (5 days after circumcision); normal color and trophism of the glans (1b) after medical treatment (15 days later)
DISCUSSION
Ischemia of the glans penis is a rare condition; the most frequent causes are circumcision, trauma, penile strangulation, and application of vasoconstrictive agents (1-6). Additionally, there are several pathologies which cause granular ischemia or necrosis in adults, including diabetes mellitus (7), acute arterial occlusion, foreign bodies, Fournier’s gangrene, spider bite (8) and topical treatment with 1% gentian violet (9). The ischemia of the glans penis following circumcision commonly results from dorsal penile nerve block with local anesthetics (3, 4) and inadequate surgical technique or devices. The main goal of the treatment is to provide sufficient blood flow and oxygen delivery to the ischemic penis. Burke et al. (3) described ischemia of the glans penis occurring 40 min after dorsal penile nerve block with 0.75% ropivacaine, and successfully treated with an intravenous infusion of iloprost.
Broughton et al. (8) reported that hyperbaric oxygen and methylprednisolone treatment was an effective treatment for a patient with granular skin necrosis due to spider bite. On the other hand, penile necrosis in patients with diabetes mellitus and Fournier’s gangrene may need aggressive surgical debridement and partial penectomy following hyperbaric oxygenation. The literature reports cases in which penoscisillina (PTX), an orally active hemorhological agent which is widely used to treat peripheral vascular and cerebrovascular diseases, was used in the treatment of post-circumcisional ischemia of the glans penis (1, 10); it was suggested that the valuable effect of PTX on ischemia-reperfusion injury might be related to the stimulation of prostaglandin production, and inhibition of the phosphodiesterase activity, which led to cAMP synthesis. Aşlan et al. (10) encountered a similar clinical picture in a case of ischemia of the glans on the third day after circumcision; moreover, Tzeng et al. (11) treated a 33-year-old patient with PTX and hyperbaric oxygen therapy and reported that the ischemia resolved completely.
Recently, Efe et al. (12) reported a case of severe glans ischemia occurred 24 hours after circumcision with local anesthesia (0.1% xylocaine containing ephedrine) in a children 7 years old that was successfully treated with subcutaneous injection of enoxaparin (low-molecular-weight heparin) for 5 days.

In the presented case, although the precise cause of the severe granular ischemia was not known, it might have been secondary to the circumferential nerve block or very firm wound dressing for 24 h; anyway, medical therapy (aspirin, prednisone and antibiotic) combined with hyperbaric oxygen treatment allowed to achieve a complete restituto ad integrum.

REFERENCES

Correspondence
Pietro Pepe, MD
piepepe@hotmail.com
Francesco Pietropaolo, MD
Giuseppe Candiano, MD
Michele Pennisi, MD
Urology Unit, Cannizzaro Hospital
Via Messina 829 - Catania, Italy
Fax ++39 95 7263259