Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Urology B

Penile Strangulation Injury with Extensive Necrosis: A Case of Delayed Presentation and Successful Reconstruction

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DOI: https://doi.org/10.36347/sjmcr.2026.v14i04.034 | **Received:** 17.02.2026 | **Accepted:** 31.03.2026 | **Published:** 21.04.2026

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Abstract | **Case Report**

Penile strangulation injury constitutes a rare urologic emergency that can result in devastating consequences when diagnosis and treatment are delayed. We present a case study of a 42-year-old male patient who developed extensive penile necrosis following three weeks of constriction by a metallic ring placed for the purpose of sexual enhancement. The patient's delayed presentation, attributable to feelings of embarrassment, resulted in severe ischemic injury, necessitating emergency ring removal, broad-spectrum antibiotics, serial surgical debridement, and subsequent reconstructive surgery. This case underscores the pivotal role of prompt recognition and intervention in penile strangulation injuries, emphasizing the potential for favorable functional and aesthetic outcomes even in cases of severe tissue damage when managed with a comprehensive multidisciplinary approach.

Keywords: Penile strangulation, Metallic ring, Ischemic necrosis, Urologic emergency, Delayed presentation, Reconstructive surgery.

INTRODUCTION

Penile strangulation is an uncommon but serious urological emergency associated with a wide spectrum of clinical severity, ranging from transient vascular compromise to irreversible ischemic necrosis. Constricting devices, frequently applied for sexual or autoerotic purposes, disrupt venous and lymphatic outflow in the early stages. Prolonged compression leads to arterial occlusion, tissue ischemia, and gangrene. The extent of injury is closely related to the duration of incarceration, with delayed presentation (often driven by embarrassment or social stigma) being a major determinant of poor outcomes.

Notwithstanding the potential for deleterious complications, timely and appropriate management can preserve both function and cosmesis. In advanced cases, a multidisciplinary approach is imperative, involving urgent decompression, infection control, repeated surgical debridement, and reconstructive procedures.

We present a case of severe penile necrosis that occurred following three weeks of constriction by a metallic ring. This case illustrates both the consequences of delayed care and the potential for successful reconstruction.

CASE PRESENTATION

A 42-year-old male presented to the emergency department with severe penile pain, massive swelling, and progressive black discoloration of the distal penis. He reported placing a metallic ring at the base of the penis for sexual enhancement 21 days prior. Despite being unable to remove the device, he delayed seeking medical attention for three weeks due to intense embarrassment.

Physical examination revealed a metallic constriction ring tightly incarcerated at the penile root. The distal shaft and glans exhibited marked edema, ulceration, and extensive ischemic necrosis with a clear line of demarcation from the viable proximal tissue (Figures 1A–C). While local infection was evident, there were no signs of systemic sepsis.

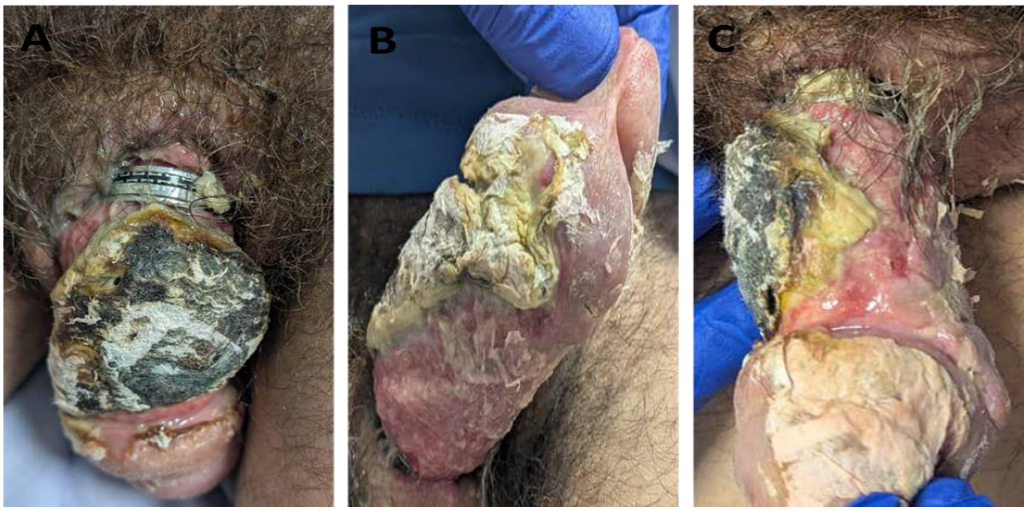

Figure 1: Initial Presentation of Penile Strangulation

Panels illustrate the clinical status of a 42-year-old male after three weeks of penile constriction by a metallic ring. Panel A shows the metallic ring tightly incarcerated at the penile root with significant distal edema. Panels B and C demonstrate extensive ischemic necrosis and gangrenous changes involving the glans and distal shaft, with a clear line of demarcation from the viable proximal tissue.

Management began with emergency removal of the metallic ring, followed by the initiation of broad-spectrum intravenous antibiotics. Over the following days, the patient underwent two sessions of aggressive surgical debridement to excise all non-viable tissue. Once the infection was controlled and healthy granulation tissue was established (Figure 2A), definitive reconstructive surgery was performed. The patient achieved a highly satisfactory postoperative result, restoring both penile anatomy and functional integrity (Figure 2B).

Penile strangulation is a rare emergency where the severity of injury is directly proportional to the duration of incarceration. This case highlights that even after prolonged ischemia (three weeks), a multidisciplinary approach involving prompt decompression and meticulous reconstruction can salvage organ function and cosmesis.

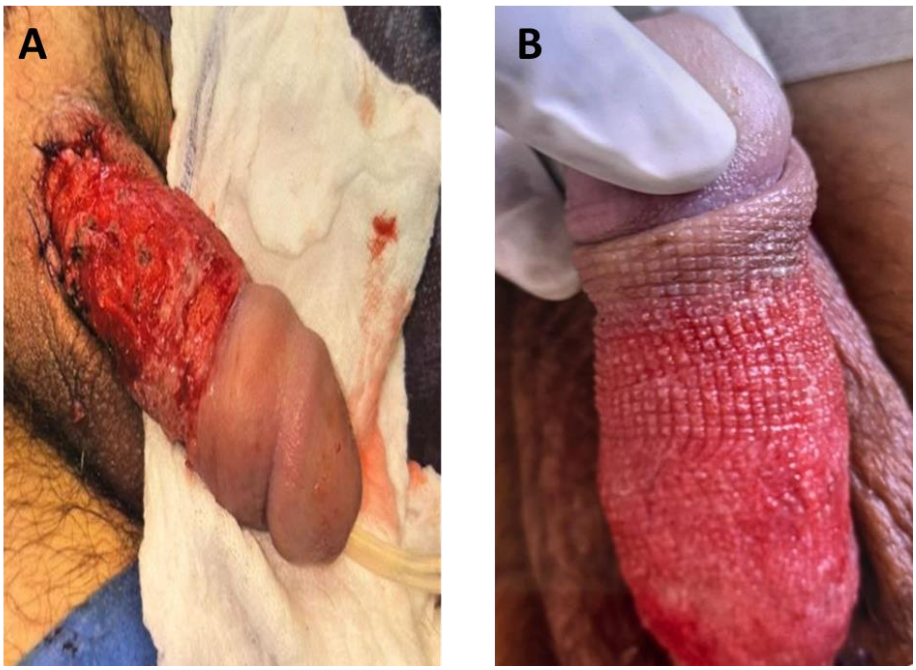

Figure 2: Surgical Management and Reconstructive Outcome

Panel A shows the clinical appearance following emergency removal of the constricting device and serial surgical debridement of all non-viable tissue. Healthy underlying granulation tissue is visible,

providing a stable base for repair. Panel B displays the final postoperative result after definitive reconstructive surgery, highlighting the successful restoration of penile anatomy and a favorable aesthetic and functional outcome despite the initial severity of the tissue damage.

DISCUSSION

Penile strangulation injury is an uncommon urologic emergency that requires prompt evaluation and treatment to avoid disastrous consequences [1]. Constricting devices can result in vascular congestion of the penis, progressive swelling, and eventual gangrene of the penis distal to the constricting device [1]. The literature demonstrates that patients who present with incarceration after 72 hours are more likely to sustain higher-grade injuries than those who seek more timely treatment [2].

The management of penile strangulation injuries follows a stepwise approach: immediate removal of the constricting device, decompression of the constricted penis to facilitate free blood flow and micturition, treatment of infection with broad-spectrum antibiotics, aggressive debridement of necrotic tissue, and subsequent reconstructive procedures as needed [3,4]. The American College of Surgeons guidelines emphasize the need for expedited removal of constricting items to prevent penile ischemia and necrosis [5].

Various removal techniques have been described depending on the type of constricting object, including orthopedic bolt cutters for metal rings, with careful protection of underlying penile tissue during the removal process [1,6]. For cases involving extensive necrosis, as in this patient, a thorough understanding of penile anatomy, aggressive debridement, and appropriate reconstructive techniques are essential for successful management [4].

Penile strangulation can lead to different degrees of vascular obstruction, resulting in several clinical syndromes ranging from mild nonsignificant vascular obstruction that resolves after decompression to severe gangrene of the penis accompanied with impaired renal function [3]. Prompt diagnosis and early treatment are essential to avoid the potential complications of ischemic necrosis and autoamputation [3].

Reconstructive outcomes following severe penile strangulation injuries can be favorable when managed appropriately. Recent systematic reviews of penile glans necrosis have emphasized that early recognition of ischemia significantly improves outcomes, and combination therapies including antibiotics, surgical interventions, and adjunctive treatments may offer benefits in severe cases [7]. Studies have demonstrated that one-stage surgical repair can achieve reasonable immediate and long-term functional and aesthetic results, with patient satisfaction rates as high as 88% following reconstruction for penile injuries [8].

The psychological impact of these injuries should not be underestimated. Devastating injuries can be highly distressing for patients, and focused counseling is often needed to address patient concerns regarding cosmetic outcomes [9]. The most common motive associated with foreign bodies on the penis is sexual or erotic in nature, and embarrassment frequently leads to delayed presentation [2,3].

CONCLUSION

This case illustrates the severe consequences of delayed presentation in penile strangulation injury and demonstrates that even extensive ischemic necrosis can be successfully managed with prompt intervention, aggressive debridement, and appropriate reconstructive surgery. The case underscores the critical importance of early recognition and treatment to prevent irreversible penile ischemia and gangrene. Healthcare providers should maintain a high index of suspicion for penile strangulation injuries and encourage patients to seek immediate medical attention despite potential embarrassment, as timely intervention is essential for optimal outcomes.

Declaration

Conflicts of Interest

The authors declare that they have no competing interests.

Sources of Funding

There are no funding sources to be declared.

Ethical Approval

Ethics approval has been obtained to proceed with the current study.

Ethical approval for this study (Ethical Committee N009-24) was provided by the Ethical Committee Ibn University Hospitals, Rabat Morocco on 22 January 2024

CONSENT

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of the journal.

Guarantor of Submission

The corresponding author is the guarantor of submission.

Acknowledgements: None.

Availability of Data and Materials

Supporting material is available if further analysis is needed.

Provenance and Peer Review
Not commissioned, externally peer-reviewed.

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