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Case Report

Cocaine intoxication resulting in ischemic priapism: a case report and literature review

Intoxicação por cocaína resultando em priapismo isquêmico: um relato de caso e revisão da literatura

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ABSTRACT

This work presents a case report on ischemic priapism in a 33-year-old patient, an illicit substance user, who started experiencing priapism hours after using cocaine. A dorsal nerve block was performed with 2% lidocaine and two punctures were performed in each of the cavernous sinuses, draining approximately 54 mL of blood. Afterwards, intracavernous etilefrine was administered. The patient was kept under observation, remaining with priapism for approximately 48 hours, with a poor response to intracavernous medications. Blood gas analysis of the corpus cavernosum and penile ultrasound with Doppler confirmed the diagnosis of ischemic priapism, and the patient underwent surgical treatment, with an Al-Ghorab distal penile gland cavernous shunt. The surgery was uneventful, and the patient evolved well, with relief from pain and significant improvement in penile edema. A literary review was also carried out by searching the keywords "ischemic priapism", "case report" and "cocaine abuse" on the Google Scholar and PubMed® platforms. After this analysis, it was possible to identify cocaine as responsible for the ischemic priapism in a substance user patient.

Keywords: Case reports; Cocaine-related disorders

RESUMO

Este trabalho apresenta um relato de caso sobre priapismo isquêmico em paciente de 33 anos, usuário de substância ilícita, que iniciou com priapismo horas após uso de cocaína. Foi realizado bloqueio dos nervos dorsais com lidocaína 2% e duas punções em cada um dos seios cavernosos, drenando cerca de 54 mL de sangue. Após, foi administrada etilefrina intracavernosa. O paciente foi mantido em observação, permanecendo com quadro de priapismo por cerca de 48 horas, com baixa resposta às medicações intracavernosas. A gasometria de corpo cavernoso e a ultrassonografia peniana com Doppler confirmaram o diagnóstico de priapismo isquêmico, e o paciente foi submetido ao tratamento cirúrgico, tendo sido realizado shunt cavernoso glandar peniano distal de Al-Ghorab. A cirurgia ocorreu sem intercorrências, e o paciente evoluiu bem, com alívio da dor e importante melhora do edema peniano. Também foi realizada revisão literária por meio de pesquisa das palavras chaves "priapismo isquêmico", "relato de caso" e "abuso de cocaína" nas plataformas Google Acadêmico e PubMed®. Após essa análise, foi possível identificar a cocaína como responsável pelo quadro de priapismo isquêmico em paciente usuário da substância.

Descritores: Relatos de caso; Transtornos relacionados ao uso de cocaína

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INTRODUCTION

In Ancient Greece, Priapus, the god of fertility, good fortune, and power, gave rise to the term "priapism" due to his perpetually erect genital organ. Currently, priapism refers to a painful, abnormal, and persistent erection not associated with sexual desire or arousal. Although it can affect individuals of any age, it peaks with a bimodal distribution, being most common in children aged 5 to 10 years and men between 20 and 50 years of age.[1,2]

The penis is composed of three cylindrical bodies: two corpora cavernosa and one corpus spongiosum. The corpora cavernosa are a pair of erectile tissues located dorsally in the penis, enveloped by a dense layer of connective tissue called the tunica albuginea. Most of the blood vessels are located within these tissues, allowing for penile erection. The third body is spongy tissue located ventrally, surrounding the urethra. Erection results from the relaxation of smooth muscle and increased arterial blood flow into the corpora cavernosa, leading to engorgement and rigidity.[3]

When detumescence fails, or arterial flow becomes dysregulated, priapism may occur. Causes of priapism include medications for erectile dysfunction, metabolic disorders, a history of pelvic or perineal trauma, and illicit drug use. Clinically and pathologically, two subtypes of priapism are observed: high-flow (non-ischemic) and low-flow (ischemic), the latter being more dangerous. Regardless of the subtype, priapism should be classified as a medical and surgical emergency, requiring urgent treatment to prevent chronic complications, such as permanent erectile dysfunction.[1,4]

Considering the complexity and implications of this condition, this study conducted a brief literature review based on a case report of ischemic priapism due to cocaine abuse, recorded in an Emergency Department in December 2022. We aimed to determine whether the case aligns with epidemiological data, evaluate the patient's profile, analyze the case progression, and review the specialty of the physician responsible for diagnosing and managing the priapism until definitive treatment. We also recorded possible complications. The study was submitted to the Ethics Committee of the University of Vale do Taquari (Univates) under CAAE 82925924.7.0000.5310.

CASE REPORT

A 33-year-old previously healthy male sought care at the Emergency Department due to penile pain, described as burning in the distal urethra, associated with dysuria and local edema that began one day prior. The patient denied recent medication use. On examination, the cremasteric reflex was present, and the genital region showed no edema, hematoma, or ecchymosis. He was discharged with treatment consisting of ceftriaxone and azithromycin, with suspected urethritis.

The following day, the patient returned to the Emergency Department complaining of worsening pain and persistent erection. His vital signs were stable, with an axillary temperature of 35.5°C, blood pressure of 120/80 mmHg, heart rate of 75 bpm, respiratory rate of 18 breaths per minute, and oxygen saturation of 97% in room air. Upon further questioning, the patient admitted to using cocaine two days before symptom onset.

Based on the clinical presentation, the diagnostic hypothesis was cocaine-induced priapism. Dorsal nerve block with 2% lidocaine without vasoconstrictor was performed, leading to significant pain relief. Two punctures were also made in each corpus cavernosum, draining a total of 54 mL of blood.

A urologist was contacted and recommended intracavernosal administration of etilefrine (Efortil). After the medication was applied, the patient was kept under observation, with priapism persisting for approximately 48 hours and a poor response to intracavernosal medications. Cavernous blood gas analysis (**Figure 1**) and penile Doppler ultrasound (**Figure 2**) were performed, revealing edematous infiltration of the corpora cavernosa, a right cavernous artery with low-velocity flow (13.2 cm/s), and an impression of low-flow priapism on the right side, without signs of venous thrombosis.

After confirming the diagnosis, the medical team informed the patient of the need for surgical treatment to evacuate the blood, as well as the high likelihood of impotence or erectile dysfunction post-intervention. A distal penile glanular cavernosal shunt (Al-Ghorab procedure) was performed without complications, and the patient experienced pain relief and significant reduction in penile edema. He remained hospitalized for eight days and was discharged with the following recommendations: use analgesic medications as prescribed, apply ice to the genital region four times a day, wear a scrotal supporter for 60 days, and avoid sexual activity for 30 days. Postoperatively, psychiatric follow-up was provided, and the patient confirmed a history of drug and alcohol abuse.

Gasometria Venosa
Método : Eletrodo de Ion seletivo
Material : Sangue Venoso

Data e Horário do exame.....	15:48 07/12/2022	
Complemento de O2.....	Ar ambiente	
PH.....	7,06	
pO2.....	22	mm Hg
pCO2.....	79	mm Hg
HCO3.....	22	mM/L
CO2.....	24	mM/L
Sat. de O2.....	41	%
Excesso de base.....	-11	mEq/L

Figura 1. Gasometria venosa de corpo cavernoso evidenciando acidose metabólica e hipóxia tecidual.

DISCUSSION

Ischemic priapism is the most common type and results from detumescence failure due to immobilization and inefficient relaxation of cavernous muscle. Tissue ischemia is caused by blood stasis due to reduced venous return. Diagnosis is based on clinical presentation and penile examination, and the type of priapism can be classified through cavernous blood gas analysis and Doppler ultrasound.[5,6]

In this study, cavernous blood gas analysis showed metabolic acidosis and decreased oxygen levels (pH 7.06; partial oxygen pressure 22 mmHg; partial carbon dioxide pressure 79 mmHg; bicarbonate 22 mM/L; carbon dioxide 24 mM/L;

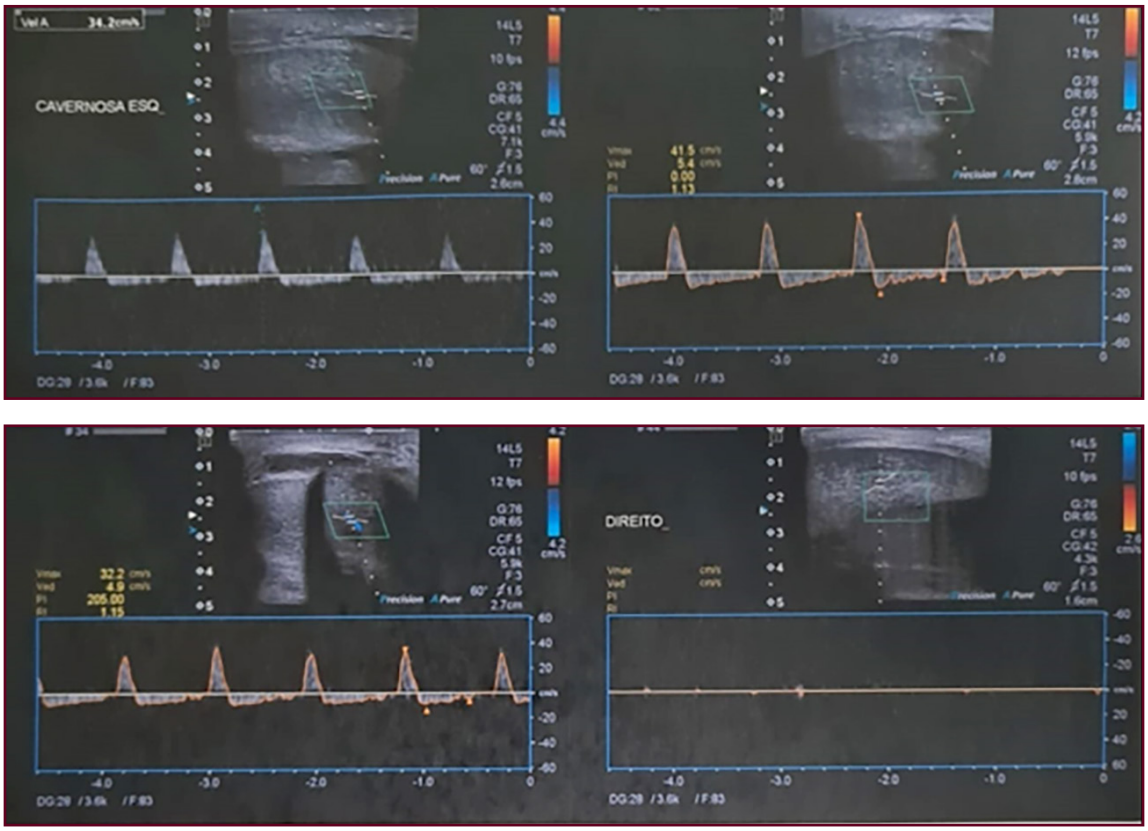

Figura 2. Ultrassonografia peniana com Doppler.

oxygen saturation 41%). Both the gasometry and Doppler ultrasound classified the priapism as ischemic. Determining the type of priapism is crucial for treatment, as delayed diagnosis of ischemic priapism can lead to irreversible damage.[5,6]

Priapism cases are typically managed by urologists, but emergency physicians are also qualified to provide initial care and are capable of managing the condition. For ischemic priapism lasting less than 4 hours, it is recommended to administer a sympathomimetic drug (such as phenylephrine) via intracavernosal injection. These drugs cause smooth muscle contraction in the corpora cavernosa, allowing blood flow to return.[5]

If ischemic priapism has lasted more than 4 hours, sympathomimetic administration is still indicated, but only after aspiration to relieve compression on the corpora cavernosa. If there is no therapeutic response, surgery should be considered.[2]

In this case, the patient was refractory to therapeutic measures and underwent surgery. The poor response and complexity of the procedure may be attributed to the patient's delay in seeking care and the initial omission of cocaine use. In cases where no other apparent causes or predispositions for priapism are identified, and there is suspicion of drug use, urine toxicology may be performed to confirm the etiology.[2]

In conclusion, cocaine use can be considered a cause of refractory ischemic priapism. Delayed specialized care may necessitate more complex therapeutic management. Additionally, specialized follow-up, such as psychotherapy, is needed to stop cocaine use and prevent the recurrence of priapism.

REFERENCES

1. Maddukuri G. Priapismo. Manual MSD. 2022 [citado 2024 Ago 2]. Disponível em: https://www.msdmanuals.com/pt/profissional/distúrbios-geniturinários/sintomas-de-doenças-genitourinárias/priapismo
2. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Ações Programáticas e Estratégicas. Saúde Sexual e Saúde Reprodutiva: os homens como sujeitos de cuidado. Brasília, DF: Ministério da Saúde; 2018 [citado 2024 Ago 2]. Disponível em: https://bvsms.saude.gov.br/bvs/publicacoes/saude_sexual_reprodutiva_homens_cuidado.pdf
3. Moore KL, Dalley AF, Agur AM. Anatomia orientada para a clínica. Rio de Janeiro: Guanabara Koogan; 2019.
4. Lamamri M, Chebbi A, Mamane J, Abbad S, Munuzzolini M, Sarfati F, et al. Priapism in a patient with coronavirus disease 2019 (COVID-19). Am J Emerg Med. 2021;39:251.e5-251.e7.
5. Deveci S. Priapism. 2024 [cited 2024 Aug 2]. Available from: https://www.uptodate.com/contents/priapism?search=priapismo&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1#H2
6. Coelho HR. Priapismo por drogas: relato de caso. Arq Catarin Med. 2022;50(3).