



Functional Urology

Arterial priapism in dengue: A case report and literature review

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ARTICLE INFO

Keywords:

Arterial priapism

Adolescent

Vascular leak in dengue

Conservative management

ABSTRACT

Arterial priapism, rare and often traumatic, is generally associated with cavernous arterial lesions. We report an unprecedented case in a 17-year-old adolescent, occurring spontaneously after severe dengue, expanding the understanding of this pathology. No similar association has been previously documented in the literature. The patient was successfully treated with conservative measures, and erections returned to normal. Dengue, by causing vascular leaks, could be a rare trigger for arterial priapism. Further studies are needed to elucidate these mechanisms and potential clinical implications.

1. Introduction

Arterial priapism is a rare condition that accounts for about 5% of priapisms. It is secondary to unregulated arterial blood flow in the corpora cavernosa. This influx is mainly secondary to a lesion of a cavernous artery or one of its branches. The main etiology is perineal trauma following a straddle fall. Lesions resulting from pericoital trauma, pelvic trauma or iatrogenic injuries secondary to a Nesbit procedure or intracavernous punctures have also been described.¹

We report an exceptional case of arterial priapism that occurred spontaneously in a 17-year-old adolescent, recently admitted to the nephrology department for acute tubular necrosis following severe dengue. To our knowledge, no such association has previously been described in the literature.

In this article, we will explore the various aspects of this extraordinary medical case by examining the potential links between severe dengue and arterial priapism in an adolescent.

2. Case presentation

A. S, a 17-year-old student, with no known medical history, has been hospitalized in the nephrology department for five days for acute ischemic and pigmentary tubular necrosis related to severe acute dengue. For about 18 hours, he had a soft, non-painful and persistent erection that occurred spontaneously without any sexual stimulation, without any notion of trauma or any triggering factor motivating the care team to take a urological opinion. On examination, there was a

slightly taut penis at 50° horizontal, supple corpora cavernosa and a soft glans. There was no murmur on auscultation. Sexual stimulation strengthened the erection. We have mentioned arterial or high-flow priapism (Fig. 1 et 2) (See Fig. 2).

In the biology carried out in the context of his dengue, it was noted that AgNS1: positive; IgM: negative; IgG: negative; Creatinine: 1435,27 μmol/L; uremia: 48,94 mmol/L; Natrema: 120 mmol/L; Calcemia: 1,88 mmol/L; Magnesiumemia: 0,70 mmol/L; Cloremia: 83,9 mmol/L; Phosphoremia: 1,7 mmol/L; serum potassium: 3,68 mmol/L; Proteine-mia: 59 g/l, hemoglobin level: 5,8 g/dl; leukocytes: 1098 e/mm³; platelets: 302.000 e/mm³; CRP: 13,7 mg/l.

We indicated conservative management with perineal ice pack and monitoring. Detumescence was achieved completely after 48 hours with no sequelae.

The patient was seen again at 3 months and then at 6 months and did not express any complaints. He had flexible corpora cavernosa and normal erections.

3. Discussion

The usual etiologies of arterial priapism are of two kinds:

- post-traumatic: perineal trauma, penil trauma, traumatic intra-cavernous injection;
- iatrogenic: secondary to revascularization surgery of vascular-type impotence (epigastric-cavernous anastomoses, revascularization by the dorsal vein of the penis, etc.).

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<https://doi.org/10.1016/j.eucr.2024.102683>

Received 25 January 2024; Received in revised form 11 February 2024; Accepted 15 February 2024

Available online 15 February 2024

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Fig. 1. Patient in supine position.

What these etiologies have in common is the realization of an arteriocavernous or arteriolacunar acquired fistula.

Dengue viral infection is a major arbovirus disease in public health whose etiologic agent is the dengue virus, which belongs to the genus flavivirus (family Flaviviridae). It is a complex immunopathological disease due to its multifactorial aspect. Dengue virus–antibody immune complexes trigger the release of vasoactive mediators by macrophages that increase vascular permeability responsible for vascular leakage and bleeding manifestations.²

These vascular leaks and haemorrhagic manifestations when they occur in the cavernous arteries can short-circuit the helicine arteries by passing directly from a cavernous artery to the blood lakes of the corpora cavernosa. This will cause unregulated arterial blood flow in the corpora cavernosa causing high-flow priapism.

Conversely, in dengue viral infection, when the vascular leaks only concern the plasma, a biological hemoconcentration is created by an increase in uremia, hematocrit and protein levels with the consequence of a drop in blood viscosity which can be the cause of venous priapism.

No confirmatory paraclinical examination has been requested in our context, but in case of diagnostic doubt, blood gases or perineal and penile ultrasound coupled with Doppler can be performed. Arteriography is not essential for diagnosis but should be considered if a selective embolization procedure is indicated.^{1,3,4}

For our patient, we indicated a conservative management made of ice pack at the perineal level and monitoring as recommended by several authors as well as the European Association of Urology (EAU) update 2022–2024. Detumescence was achieved completely after 48 hours with no sequelae.

In the literature, of 237 cases of non-ischemic priapism evaluated, approximately 27% of patients underwent monitoring or medical management as the first treatment modality while 73% underwent an initial intervention. Angiographic embolization was the most common procedure and usually resulted in a more or less complete resolution of



Fig. 2. Profile view, patient standing.

priapism and a more or less good preservation of baseline erectile function. Patients who underwent embolization with permanent agents had higher resolution rates as well as lower rates of erectile dysfunction.⁵

4. Conclusion

This case provides us with a unique opportunity to deepen our understanding of the complex interactions between dengue and priapism, pushing the boundaries of our medical expertise. We note that severe dengue can be the cause of both arterial and venous priapism. Conservative management still has its place in arterial priapism, but a consensus has yet to be reached by learned societies on the maximum duration of monitoring after which an intervention is indicated if detumescence has not been achieved.

Consent

Signed consent was obtained from the patient.

CRediT authorship contribution statement

Hassami Sawadogo: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Harmony Wenpanga Morgane Kambou:** Visualization, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Wendkuni Félicien Tougma:** Validation, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Abdoul Moumouni Zoundi:** Writing

– review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Gérard Coulibaly:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Fasnéwindé Aristide Kaboré:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that there are no conflicts of interest regarding

the publication of this article.

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