



# Hydroxyzine-induced priapism

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## ABSTRACT

Priapism is a severe urologic condition requiring emergency management. Ischemic priapism is the most common subtype which is characterized by a long-lasting, painful, and rigid erection which can be caused by medications with alpha-adrenergic properties such as hydroxyzine. Typically, medication-induced priapism is reported at therapeutic doses and few case reports exist implicating medication overdose as the cause. We report a case of a patient taking hypercompliant doses of hydroxyzine hydrochloride for worsening insomnia (200–600 mg), including the night before admission. Blood-gas analysis of blood from the right corpora was completed and revealed a pH of 6.736, pCO<sub>2</sub> of 147, HCO<sub>3</sub> of 18.6 and a base excess of 17.7. The patient required aspiration and 560 µg of intracavernosal phenylephrine to achieve sustained detumescence. Emergency physicians should be aware of this risk as priapism is a medical emergency and this is the first report with hydroxyzine after an intentional overdose to our knowledge.

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## 1. Background

Priapism is a severe urologic condition involving a state of persistent penile erection in the absence of sexual stimulation. There are three types of priapism including ischemic, non-ischemic, and stuttering [1,2]. Ischemic priapism is the most common subtype and is characterized by a long-lasting, painful, and rigid erection due to venous cavernosal occlusion, ischemia and muscle damage [1]. Causes of ischemic priapism described in the literature include malignancy, sickle cell disease, substance abuse, and medications [1]. While medication-induced priapism can occur at therapeutic doses, few case reports implicate medication overdose as the cause of priapism—and none with hydroxyzine. We report a case of hydroxyzine-induced priapism after intentional overdose.

## 2. Patient case

A 29-year old male with a history of anxiety, depression and insomnia related to PTSD, cocaine abuse and multiple bladder surgeries presented to the Emergency Department with complaint of priapism and worsening pain shortly after awakening. His current medications include olanzapine 20 mg at bedtime, sertraline 200 mg daily, and hydroxyzine hydrochloride, later referred to as hydroxyzine, 100 mg four times daily as needed. The patient had two episodes of priapism

earlier in the year, which were linked to cocaine abuse and a possible adverse side effect of one of his medications, respectively.

At the present visit, he reported compliance with olanzapine and sertraline, but had worsening insomnia the past couple of nights for which he was taking 200–600 mg of hydroxyzine to help. He reported taking 200 mg of hydroxyzine at bedtime the night before admission and awoke with an initially painless episode of priapism which progressed to painful within hours. The patient reported hypercompliance to his outpatient psychiatrist following previous episodes of priapism, but there was an unclear timeline and extent of hypercompliance in relation to previous episodes of priapism as compared to the present visit. No urine drug screens were completed at the times of admission for priapism to assess for cocaine use. The patient previously endorsed recent cocaine use near the time of his first episode of priapism, but he denied any cocaine use within the last week at this time. Aspiration of the right corpora was performed and sent for blood gas analysis, which revealed a pH of 6.736, pCO<sub>2</sub> of 147, HCO<sub>3</sub> of 18.6 and a base excess of 17.7. In addition to aspiration, the patient required 560 µg of intracavernosal phenylephrine to achieve sustained detumescence. The patient required no further treatment and was discharged home with close follow up by his psychiatrist to discuss discontinuation of hydroxyzine and other options for his anxiety.

## 3. Discussion

Hydroxyzine is a piperazine-derivative antihistamine used in the treatment of anxiety, pruritis and as an antiemetic. The side effect of

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somnolence makes it an attractive option for patients with anxiety and insomnia. Medications with alpha-adrenergic antagonistic properties, including trazodone and other antipsychotics, have been noted to carry an increased risk of inducing ischemic priapism [3,4]. While hydroxyzine is primarily an antihistaminergic agent, it has been noted to have alpha-adrenergic antagonistic properties due to a lack of receptor selectivity [5]. This lack of selectivity may be exacerbated at higher doses. It has been previously reported that one of hydroxyzine's metabolites, norchlorcyclizine, is structurally similar to a metabolite of trazodone [6]. A hydroxyzine overdose may lead to increased concentrations of norchlorcyclizine thereby increasing the risk of priapism.

#### 4. Conclusion

To our knowledge, prolonged erections after an intentional hydroxyzine overdose has not been reported.

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#### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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