EM CASE OF THE WEEK.

BROWARD HEALTH MEDICAL CENTER
DEPARTMENT OF EMERGENCY MEDICINE

BROWARD HEALTH Care Warriors

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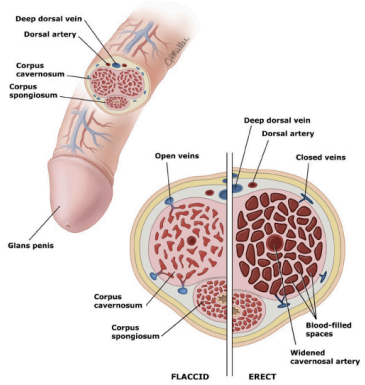
Priapism

A 34 y/o male with no significant past medical history presents to emergency room with prolonged and painful penile erection. Patient admits to injecting trimixn (alprostadil, papaverine, and phentolamine) into his penis at 5:00 am Sunday morning prior to arrival and has been erect for greater than 16 hours. Patient is experiencing progressively worsening pain and swelling to his penis. Initial vital signs include T:98.3, HR: 101, RR: 18, BP: 151/65.

Which of the following is the most appropriate initial treatment for this patient's condition?

A) Intracavernous Phenylephrine Injection
B) Aspiration and Irrigation of Cavernosum
C) Aspiration and Intracavernous Phenylephrine injection
D) Surgical Shunt
E) Observation and Ice Packs



Anatomy of Penis

Priapism is defined as a persistent erection of the penis or clitoris that is not associated with sexual stimulation or desire.

EM Case of the Week is a weekly "pop quiz" for ED staff.

The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients. We intend on providing better patient care through better education for our nurses and staff.

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The correct answer is C. First line therapy due to this patient's acute priapism lasting longer than four hours, is to undergo aspiration with/without irrigation (up to 500 mL of blood) and repeating intracavernousal injections of phenylephrine up to an hour.

Phenylephrine is the preferred sympathomimetic agent because of its lower risk profile for systemic cardiovascular adverse effects than other agents.

Phenylephrine should be diluted in normal saline to produce a concentration of 100–500 µg/ml. Then, injections of 1 ml aliquots should be performed intracavernosally every 3–5 min for up to 1 h or up to a dose escalation of 1000 µg of diluted phenylephrine.

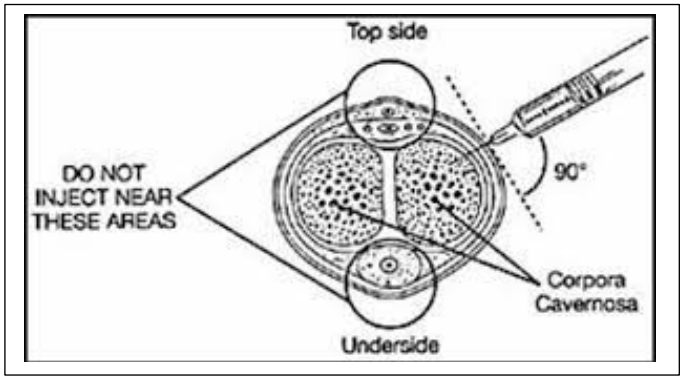
Discussion

Priapism is a prolonged erection that persists beyond or is unrelated to sexual stimulation. Generally, only the corpora cavernosa is involved, although occasionally the corpus spongiosum and the glans penis is affected.

The most common cause in adults is medication use, especially with intracavernosal injections. The most commonly associated condition in children is sickle cell disease. There are two main types of priapism: ischemic and nonischemic.

Ischemic priapism is the more common form. Ischemic priapism is prolonged erection with failure of detumescence related to impaired relaxation and paralysis of cavernosal smooth muscle. This results in a compartment syndrome, with increasing hypoxia and acidosis in the cavernous tissue. Irreversible damage can be identified after 24 to 48 hours of priapism, including necrosis of cavernosal smooth muscle and endothelial cells, fibroblast proliferation, and ultimately fibrosis of corpus cavernosa. In ischemic priapism, the patient typically presents with a painful and rigid erection.

Nonischemic priapism occurs less commonly and is usually the result of a fistula between the cavernosal artery and corpus cavernosum. Nonischemic priapism is commonly related to penile or perineal trauma, often from needle injury of the cavernosal artery or blunt trauma.



Treatment

As treatment for ischemic versus nonischemic priapism differ, proper diagnostic evaluation is essential. Ischemic priapism requires rapid detumescence to avoid long-term sequelae, and urgent urologic consultation is recommended. Patients with ischemic priapism of less than four hours' duration should receive an intracavernosal injection of a sympathomimetic drug (phenylephrine). After four hours' duration, aspiration, with or without irrigation, combined with an intracavernosal injection of a sympathomimetic drug is considered to be the optimal treatment.

Sympathomimetics induce contraction of the cavernous smooth muscle and thus permit venous outflow. Phenylephrine, a pure alpha-adrenergic agonist, is considered the sympathomimetic of choice for ischemic priapism by the American Urologic Association.

If patients do not respond to repeated cavernous aspiration and alpha-agonist therapy, shunt surgery is the next treatment option. A surgical fistula is created between the corpus cavernosum and the corpus spongiosum, glans penis, or one of the penile veins. Penile prothesis implantation can be an option when the other treatment options don't work.

Nonischemic priapism is not an urgent condition and may resolve spontaneously after several hours to a few days. Once ischemic priapism has been ruled out, observation alone is appropriate for initial management of nonischemic priapism.

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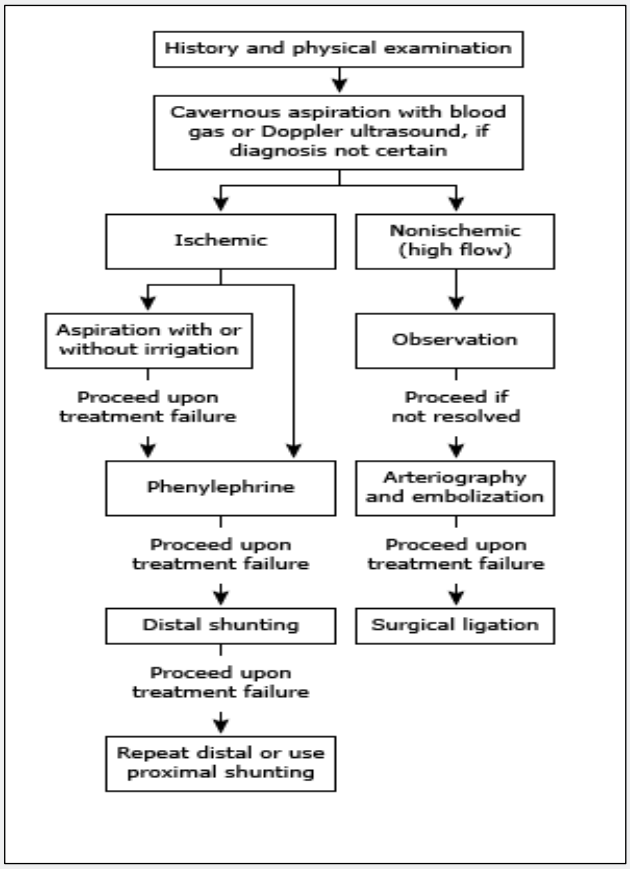

- The duration of priapism is strongly associated with incidence of subsequent erectile dysfunction. Ninety percent of men with an ischemic priapism lasting 24 hours do not regain the ability to have sexual intercourse. Early relief of priapism with return of normal flaccidity is not likely to be associated with long-term sequelae.
- Nonischemic priapism does not represent an emergency situation, as the cavernous blood is well-oxygenated. Nonischemic priapism will resolve spontaneously in up to 62 percent of untreated cases

Take Home Points

- Priapism, a relatively uncommon disorder, is a medical emergency.
- The goal of the management of all patients with priapism is to achieve detumescence and preserve erectile function.
- There are two main types of priapism: ischemic and nonischemic.
- Ischemic priapism usually presents with a painful, rigid erection and requires emergent therapy. Untreated, it may cause permanent erectile dysfunction.
- In patients with ischemic priapism, we suggest intracavernosal injection with a sympathomimetic agent (Phenylephrine) and aspiration of blood.
- Nonischemic priapism usually presents after trauma, without a painful or rigid erection, and resolves spontaneously and can be managed with conservative management.

ABOUT THE AUTHOR

This month's case was written by Taufif Mubarak. Taufif is a 4th year medical student from NSU-COM. She did her emergency medicine rotation at BHMC in February 2020.

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