Case Based Urology Learning Program

Resident's Corner: *UROLOGY*

Case Number 1

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You are called to the emergency room to see a 45 year-old man who has a prolonged erection not associated with sexual activity. This erection has been present for eight hours and has not yet been evaluated or treated. He has never had this before.

How many types of priapism are there and what is the nomenclature?

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There are 3 types of priapism:

- ischemic (low flow)
- non-ischemic (high flow, arterial)
- stuttering

What are the other relevant items in the history?

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Degree of penile pain

History of pelvic, genital, or perineal trauma

Medication and illicit drug history

History of sickle cell disease or other hematologic abnormality

History of malignant tumors

What are the common causes of ischemic priapism?

What are the common causes of ischemic priapism?

Sickle cell disease

Intracavernous injection therapy for erectile dysfunction

Leukemia

Psychotropic and antidepressant medications, especially trazadone

Heavy alcohol intake

Cocaine

About 50% are idiopathic

What are the important elements of the physical examination?

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Focused examination of the abdomen, external genitalia, perineum, and digital rectal examination.

What laboratory/radiologic evaluations might be considered?

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CBC

Hemoglobin electrophoresis

Psychoactive medication screening

Urine toxicology

Corporeal blood gas testing

Penile color duplex ultrasonography

Possibly penile arteriography

What is ischemic priapism?

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Ischemic priapism is a nonsexual, persistent erection characterized by little or no cavernous blood flow and abnormal cavernous blood gases.

Is ischemic priapism painful and what does the penis look like on physical examination?

Is ischemic priapism painful and what does the penis look like on physical examination?

Ischemic priapism is a compartment syndrome and the erection is very painful. On examination the erection is abnormally rigid and only the corpora cavernosa are tumescent and rigid with the glans penis remaining small.

What are the typical blood gas findings in blood aspirated from the corpora in men with ischemic priapism?

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$PO_2 < 30$ mmHg
$PCO_2 > 60$ mmHg
pH < 7.25

After corporeal blood aspiration, intracorporeal injection of what agent is recommended in attempts to reverse ischemic priapism, and why is this agent preferred over agents in its class?

After corporeal blood aspiration, intracorporeal injection of what agent is recommended in attempts to reverse ischemic priapism, and why is this agent preferred over agents in its class?

Phenylephrine (as opposed to norepinephrine or aramine) is recommended because it has fewer systemic side effects (tachycardia, hypertension) than the other 2 agents.

From a practical standpoint, how is phenylephrine used in the treatment of ischemic priapism?

From a practical standpoint, how is phenylephrine used in the treatment of ischemic priapism?

Dilute phenylephrine with normal saline to achieve a concentration of 100 to 500 micrograms per ml. For the adult patient inject 1 ml into the corpora every 3 to 5 minutes until priapism reversal. Continue these injections for approximately 1 hour before determining treatment failure. In children, for example those with ischemic priapism and sickle cell disease, inject proportionally less. Monitor vital signs in all cases.

After apparent successful reversal, the patient is kept in the observation area. Six hours later you are called by the ER staff because of concern that the patient has recurrent priapism.

How would you evaluate the patient?

How would you evaluate the patient?

The penis after successful reversal of ischemic priapism is often still apparently erect because of post ischemic tissue changes which take several days to resolve. If the patient's pain has been substantially relieved and the penis is bendable, the priapism has been successfully reversed even if it otherwise appears to be erect. If there is doubt, duplex ultrasonography can be used to determine if there is blood flow in the cavernous arteries.

What is the role of treatment of an underlying condition, for example sickle cell disease, in the treatment of ischemic priapism?

What is the role of treatment of an underlying condition, for example sickle cell disease, in the treatment of ischemic priapism?

It is appropriate to institute other measures for the treatment of the underlying disorder; however, the treatment of ischemic priapism (aspiration and intracorporeal phenylephrine injection) should never be delayed.

If aspiration and intracorporeal phenylephrine injection (repeated injections up to 1 hour) fail, what is the next step?

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Surgical shunts

What surgical shunt is preferred?

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A distal cavernoglanular (El-Ghorab) is the preferred shunt. Other shunts are proximal cavernospongiosal (Quackels) or proximal cavernosphaneous (Grayhack).

Selected Reading

Montague DK, Jarow J, Broderick GA, et al. American Urological Association Guideline on Management of Priapism. *J Urol* 2003;170: 1318-24.

Topic:

Male Sexual Dysfunction

Subtopics:

Ischemic Priapism