



Single dose Tadalafil 5 mg in Muscle Invasive Bladder Cancer (MIBC) patient induce priapism: A case report and literature review

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ABSTRACT

There are several etiology related to priapism with incidence is less than 0.01%. A 47-year-old man was referred to our Emergency Room with a chief complaint of persistent and painful erection for 3 days. Previously, the patient took Tadalafil 5 mg to overcome the complaints of erectile dysfunction that he felt after undergoing (TURBT) and external radiation treatment. The patient treated with epinephrine injection and distal shunting surgical procedure Minimal and single dose of tadalafil can cause priapism as in this case. Time interval between onset and therapy affect patient outcome.

1. Introduction

The most common type of priapism is low-flow priapism that is commonly resulted from occluded venous outflow from the corpora cavernosa, which prevents arterial inflow and leads to tissue ischemia. Etiologies of ischemic priapism include malignancy, medications such as phosphodiesterase-5 inhibitors¹ and amphetamines, spinal cord injury, and hematologic conditions. We would like to report our case related to phosphodiesterase type 5 inhibitor (PDE5 Inhibitor), Tadalafil-induced low-flow priapism in patient with Muscle Invasive Bladder Cancer (MIBC) patient at our tertiary hospitals. A case like this has never been reported before.

2. Case description

A 47-year-old man was referred to the emergency ward with a chief complaint of persistent, painful erection since 3 days ago with EHS 4 (Fig. 1). The patient had history of Muscle Invasive Bladder Cancer (MIBC) and was treated with transurethral resection of bladder tumor (TURBT) followed by 33 times of conventional fractionated radiotherapy (50 Gy in 25 fractions) to pelvis and total bladder in other hospital because he declined cystectomy. After undergoing these treatments, the patient started to experience erectile dysfunction. Patient consumed Tadalafil 5 mg to improve his symptoms. Laboratory examination revealed anemia, leukocytosis, hypoalbuminemia, hyponatremia, hyperkalemia, with elevated urea and creatinine levels (Fig. 2).

Doppler ultrasound examination of the penis revealed the thickening

and irregularity of bilateral tunica albuginea, which suggestive for low-flow priapism (Fig. 3). Ultrasound examination was conducted and showed a tumor mass in the urinary bladder with bilateral hydronephrosis. The chest x-ray showed intrapulmonary metastasis, left pleural effusion and cardiomegaly. An abdominal x-ray revealed a localized abdominal ileus.

After a thorough evaluation, the patient was diagnosed with acute on chronic kidney disease with suspected bilateral ureteral stenosis due to suspected radiation on MIBC patients, with bilateral hydronephrosis and low-flow priapismus. He consumed Tadalafil 5mg and 1 hour later his penis got an erection and last longer than 4 hours, until 3 days. The patient never had this symptom before and he denied the use of hormonal therapy, nitrate/nitrite, trazadone, antipsychotic, anticoagulant, alpha blocker antidepressant nor antihypertension.

The patient went to emergency room and got injection of epinephrine 2 cc 3 times on left intra cavernosal and 2 cc 2 times on intra cavernosal aspiration and alpha adrenergic but patient didn't show any clinical improvement after the injection. The patient also underwent a distal shunting surgical procedure for ischemic priapism. In this case the patient died due to mass metastases from the grade 4 ca bulli that he suffered.

3. Discussion

In our case, the patient had erectile dysfunction after getting 33 times radiotherapy procedure due to the history of MIBC. Spratt et al.² reported the incidence of radiation-induced erectile dysfunction (RiED)

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Fig. 1. Pre injection (persistent and painful erection) and post injection in January 24th 2022.

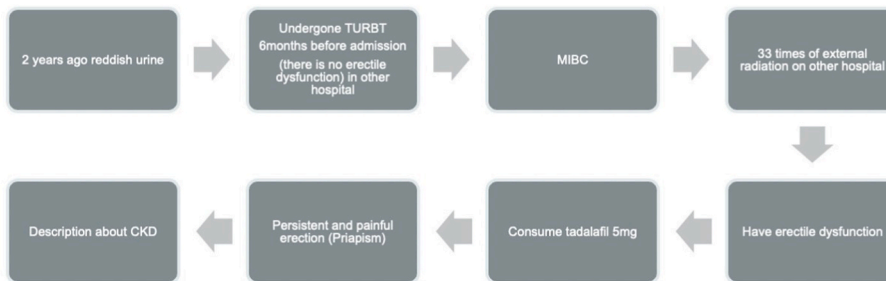


Fig. 2. Timeline of the medical history.

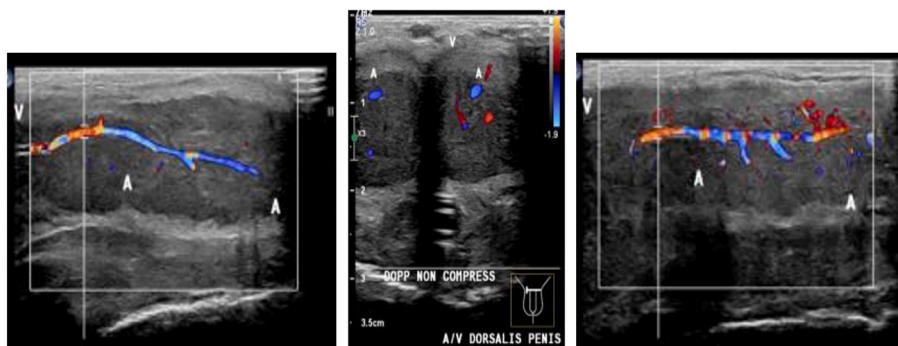


Fig. 3. Doppler ultrasound of corpus cavernosum. Right and left peak systolic velocity: 13.5 mL/s & 13.2 mL/s, respectively (normal value: >35 mL/s), suggesting low – flow priapism with bilateral irregularity of tunica albuginea.

and found a permanent loss of erections in 30–40% of men receiving 3D conformal radiation. Then patient consumed tadalafil 5mg to relieve the erectile dysfunction. Then he got erection for 3 days. After admission into the emergency room, the patient got epinephrine 2 cc injection, 3

times on left intracavernosal and 2 times on intra cavernosal aspiration but there was no clinical improvement.

Doppler ultrasound in this case showed thickening and irregularity of bilateral tunica albuginea that can interfere with cavernosal outflow

and cause low-flow priapism. Hatzimouratidis et al. stated that drug-induced priapism is estimated to account for only 30% of total cases. PDE5i only accounted for a small percentage of drug-induced priapism cases. PDE5i-induced priapism is likely rare as most patients who reported priapism after taking PDE5i also had other risk factors for priapism. The incidence of tadalafil causing priapismus is 0.7%.³

In this case, patient had previous medical history of MIBC before presented with current priapism. Secondary priapism due to the metastasis of MIBC also had been reported by Tayeh et al. related to a 77-years-old patient, 7 months after the diagnosis of his muscle invasive bladder tumor, with a palpable penile nodule and priapism due to a unique metastasis located to the penis, but penile metastasis is extremely rare.⁴ We did not perform pelvic CT-Scan, unfortunately we cannot rule out the possibility of direct oncologic involvement to his priapism.

Drug-induced priapism is a rare but serious condition associated with a variety of prescribed and illicit drugs. The most common causes include antipsychotics, oral phosphodiesterase type 5 inhibitors, the antidepressant trazodone, and alpha-adrenoceptor antagonists prescribed for hypertension or lower urinary tract symptoms (such as prazosin and tamsulosin). Risk factors include predisposing conditions such as sickle cell disease, spinal cord injury, and history of previous priapism.⁵ In this patient, drug-induced priapism is more likely than secondary priapism due to metastasis.

The acute management for the low-flow priapism, treatment aims to achieve penile detumescence and relieve local pain, but this may prove to be very challenging. The first-line treatment is represented by corporal aspirative drainage with or without cavernosal irrigation using a saline solution. If the aspirative drainage does not prove useful, the current guidelines recommend sympathomimetic agents injected directly in the corpora cavernosum such as phenylephrine. Second-line

treatment options include cavernosal shunts and penile prosthesis implantation. The success rate of these procedures is higher but can increase the risk of erectile dysfunction. Although there are various procedures that can be done, these treatments usually fail to manage the patient's symptoms or improve the patient's prognosis. In advanced disease, urinary drainage options need to be addressed with long-term indwelling urethral catheterization, pelvic urethrostomy, nephrostomies or suprapubic catheterization.

4. Conclusion

Drug induce priapism is a rare condition. Minimal and single dose of tadalafil can cause priapism as in this case. A proper clinical evaluation of this patient is obligatory for diagnosing the type of priapism and identifying the underlying causes. The management of this type priapism is similar to the protocol applied in general priapism patients.

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