

Unexpected Complication of Subarachnoid Block for Transurethral Resection of Prostate Treated with Ketamine: Priapism

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Abstract

Persistent penile erection defined as priapism at the time of the urological surgery following subarachnoid block is a rare event. Priapism alone not related to the sexual excitation can be an important reason for the cancellation or delay of the elective surgery.

Here we present an occurrence of priapism in 60 years old patient with chronic obstructive pulmonary disease posted for transurethral resection of prostate under subarachnoid block.

Keywords: Priapism, subarachnoid block, transurethral resection, elective surgery

1. INTRODUCTION

Priapism is a pathological condition of penile erection with an incidence of 1.5 per 100 000 which can occur in all age groups and should be considered as a medical -surgical emergency (1,2).

Due to the local stimulation of penis at the time of skin preparation or introducing the cystoscope, erection can occur and can make the surgery impossible (3). Transurethral resection of prostate (TURP) carries serious risks such as bleeding during these unexpected circumstances.

The reason of erection under regional anesthesia is not exactly clear. One explanation, as autonomic nervous system controls the corpus cavernosum, sympathetic output from the lumbar spinal segments can be lost during the regional anesthesia. Reflex response appears with the parasympathetic activity at the time of the surgery with local stimulation (4,5).

2. CASE PRESENTATION

A 60 year old male patient presented to our urology department with nocturia. An increase in prostate size was detected on digital rectal examination. Pelvic ultrasound revealed a large mass arising from the prostate. Transrectal ultrasound-guided prostate biopsy (TRUS-Bx) was performed and following the documentation

of benign prostate tissue in the histopathological analysis, the patient was referred to surgery. Magnetic resonance (MR) imaging revealed a 52 × 55 × 66 mm mass arising from the middle lobe of prostate therefore he underwent endoscopic treatment with TUR-P.

Routine preoperative evaluation revealed emphysema type chronic obstructive pulmonary disease (COPD) and hypertension for five years. Hypertension was controlled with ramipril 5 mg. He was receiving daily bronchodilator therapy.

The patient was single and had no history of psychiatric drug consumption. He didn't have any haematological diseases. Complete blood count, comprehensive metabolic panel, and urinalysis were in normal limits. ECG was also normal. Chest graphy included linear scar, nodular changes.

On the day of the surgery the patient received usual bronchodilator treatment. In the operating room standart monitoring was carried out. Heart rate, electrocardiogram, noninvasive blood pressure (BP) and pulse oximetry were recorded which were normal. An intravenous access was achieved with cannula and saline solution infusion was started. Oxygen was given at 3L/m via nasal cannula. Subarachnoid block with 25 G Quincke spinal needle at L3-4 space with 2.5 ml of bupivacaine 0.5% was performed successfully

achieving a sensory loss up to a level of T 10 dermatome. The patient was taken in lithotomy position, prepped and draped. Following the 26 F urethroscope introduction erection developed. For spontaneous detumescence we waited for twenty minutes. The urologist could not proceed further. Ketamine 1 mcg/kg was given intravenously. In a few minutes ketamine caused hallucinations with partial detumescence of the penis. Ketamine infusion 0,25 mg kg⁻¹ h⁻¹ was then started. The penis was completely flaccid in forty minutes. Operation was started and completed uneventfully. Postoperative recovery period was also unremarkable priapism was not seen.

3. DISCUSSION

Under spinal and epidural anaesthesia priapism is reflexogenic. It is suggested that penile erection under general anesthesia is both psychogenic and reflexogenic. The psychogenic stimulation arise from the sensory input or dreams under anesthesia (6). Reflexogenic stimuli arise, from sacral root afferents stimulated by washing, touching and instrumentation of the genital area. Anesthesiologists frequently treat these patients with sedatives or regional anesthesia. There are several treatments including many pharmacological agents for the management of priapism (7).

Intravenous injection of ketamine, glycopyrrolate, terbutaline, dexmedetomidine are suggested agents. Ketamine is an anesthetic agent extremely useful for sedation and pain relief. It has minimal effects on respiratory system and produces airway relaxation by acting on various receptors and bronchial smooth muscles (8,9). Dissociative effects of ketamine on the limbic system produces its relaxing ability on penis. Ketamine is considered to be the bronchodilator of choice in rescue therapy and status asthmaticus. We used ketamine safely in this case with its bronchodilatation and sympathetic effects on nervous systems. Gale reported three cases of priapism treated successfully with ketamine hydrochloride (10).

Intravenous dexmedetomidine can be used in this situation demonstrating detumescence in 83%. A significant reduction in heart rates and systolic blood pressure was associated with its use; so we couldn't use dexmedetomidine for a patient under subarachnoid block (11).

Deep general anaesthesia results in decrease of arterial blood pressure in elderly patients with coronary artery disease and can precipitate cardiac failure.

In our case we suggest that priapism was secondary to the regional anesthesia and reflexogenic. Several case reports suggest that surgery can be the cause of priapism as the location of the surgical field was relative to the normal erectile physiology (12,13,14)

Bartholomeus reported a case of postoperative patient with low flow priapism. They accused propofol with its sympathetic vasoconstrictor action the cause of priapism. Propofol is an anesthetic agent known to act on the nitric oxide-mediated smooth muscle relaxation, influence on GABA-A and modulate adrenal steroidogenesis which contributes to the physiology of an erection (15).

4. CONCLUSION

In our case we presented a rare successful anesthesia management of a priapism who underwent TURP resection with ketamine. Postoperative priapism is a significant event which can damage penile tissue irreversible. Prompt identification is needed.

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