

## CASE REPORT ON UNEXPLAINED HYPOTENSION DURING TRANSURETHRAL RESECTION OF PROSTATE

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### ABSTRACT

*Transurethral resection of prostate (TURP) is a very common surgical procedure in urological practice worldwide. Bladder rupture due to explosion is a very rare complication of this surgery. We report a case of 64 year old diabetic patient who underwent TURP for benign prostatic hyperplasia (BPH). Procedure was uneventful for 40 min. After that a loud thump was heard and sudden fall in blood pressure (BP) was noticed, despite aggressive management BP was not maintained. Then intraabdominal exploration revealed bladder rupture, which was repaired by surgeon. Blood pressure was gradually maintained towards normal. Then patient was shifted to intensive care unit (ICU) and then discharged uneventfully.*

**Keywords:** TURP, Intravesical explosion, Intraoperative hypotension, Bladder rupture

### INTRODUCTION

TURP is a gold standard procedure for benign hyperplasia of prostate in urology. One of the very rare complications during TURP is hypotension due to intravesical explosion leading to bladder rupture. The electrical loop of resectoscope is used for resection. Inflammable gases are formed due to carbonization of prostatic tissue. Most important constituent of these gases are hydrogen 30%, carbon monoxide and oxygen 3%. This amount of oxygen is not sufficient for explosion<sup>[1]</sup>. If air enters and comes in contact with inflammable gases & electrical loop; explosion may occur and may lead to bladder rupture.

### CASE REPORT

A 65 year old well controlled diabetic male patient was diagnosed with BPH and posted for TURP. Patient was shifted on regular insulin two days prior to surgery for better intra-operative control of blood sugar. After thorough anaesthetic examination and written consent, patient was shifted in operating room. His fasting blood sugar was 125mg% on the day of surgery. In operating room multipara monitor was attached for non-invasive BP, pulse oximetry and electrocardiogram (ECG). Intravenous (IV) line with 18G cannula was secured and patient was preloaded with 500ml Ringer's Lactate. Subarachnoid block was given with 2.25ml of 0.5% bupivacaine heavy and 30µg clonidine under all aseptic precaution after free flow of cerebrospinal fluid. Effect of block was adequate at the level of T-10 dermatome. For the next 40 min. vitals were stable, then suddenly a loud thump was heard and patient started complaining of uneasiness and pain in lower abdomen, BP suddenly dropped to 92/68mmHg. Inj. mephentermine 6mg IV was given

promptly and plasma expander hydroxyethyl starch 6% was started. Even after aggressive management of BP with fluid and mephentermine. BP further fall to 86/60mmHg. Then dopamine infusion was started at a rate of 10µg/kg/min. Despite that BP couldn't be maintained.

After careful assessment gradual abdominal distension and shallow respiration was noticed. Irrigation catheter was showing frank blood. Diagnostic needle aspiration showed blood tinged fluid in abdomen. Decision for open abdominal laparotomy was taken under general anaesthesia. Injections glycopyrrolate 0.2mg, midazolam 1mg and tramadol 100mg were given intravenously as premedication. Ketamine 100mg was given for induction. Patient was intubated with 8.5 mm ID cuffed endotracheal tube after giving succinylcholine. Patient was intraoperatively maintained on vecuronium and isoflurane. During surgery two units of blood were transfused. Fluid management was done with the help of normal saline and Ringer's Lactate. Patient was on dopamine infusion throughout the surgery, titrated according to BP. Vitals were maintained throughout the surgery. Reversal was done with neostigmine 2.5mg and glycopyrrolate 0.5mg. Patient was conscious, oriented following command and respiration was regular but tidal volume was inadequate. So the patient was shifted on ventilator for elective ventilation on synchronized intermittent mandatory ventilation mode with settings resp. rate 10/min, tidal volume 500ml, inspiratory expiratory ratio = 1 : 2, fractional percentage of inspiratory oxygen 60%, positive end expiratory pressure 5 cm H<sub>2</sub>O, pressure support 15 cm H<sub>2</sub>O and was adequately sedated. Post-operative serum electrolytes and ECG were normal.

Course of recovery was uneventful in ICU. Patient was weaned from ventilator gradually and dopamine infusion was also tapered gradually over 24 hrs. Then patient was shifted toward from where he was discharged after 7 days.

## DISCUSSION

Bladder trauma during TURP is a rare event. A mild bladder perforation does not cause hypotension but severe bladder rupture may cause hypotension. If there is profuse bleeding during TURP, it may also cause hypotension. Release of prostatic tissue substances and endotoxins into the circulation and associated metabolic acidosis might also contribute to the hypotension [2]. If hypotension remains unnoticed and untreated for long time it may lead to end organ failure and death. An early sign of perforation, which often goes unnoticed, is a decreased return of irrigating fluid from the bladder. In case of intraperitoneal bladder perforation, symptoms develop faster. In intravesical explosion awake patient typically complain of lower abdominal pain or generalized abdominal pain, nausea and vomiting associated with loud thump along with sudden unexplained hypotension and gradual distension of abdomen [3]. All these symptoms were present in our patient. But we were unaware with these symptoms. We were all actively managing hypotension with the help of fluid and vasopressors, but all measures were fail to normalize the blood pressure. After careful assessment we noticed the abdominal distension, and diagnostic needle aspiration was done by surgeon revealed blood tinged aspiration. Then the decision was taken for open abdominal laparotomy under general anaesthesia, and bladder rupture was detected. After bladder rupture repair, blood pressure gradually maintained toward normal limit. Our patient was under subarachnoid block so we got advantage of early detection of bladder rupture. So that surgeon could repair the rupture timely and patient was discharged without any complication.

## CONCLUSION

While performing TURP, to minimize this rare complication one should minimize the entry of air into the bladder by keeping all connections and joints leak proof, and timely and careful replacement of irrigation fluid [4]. Carefully evacuate the bladder either frequently or continuously to keep the air bubble as small as possible. Avoid the high temperature cautery during TURP. For sudden hypotension one must rule out the bladder trauma. For TURP regional anaesthesia is more advantageous than the general anaesthesia, as patient is fully conscious and able to complain about discomfort which makes the anaesthiologist to come to an early

diagnosis and efficient management of any complication.

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