

Intravesical explosion: a rare complication of transurethral resection of prostate

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To the Editor:

We report a case of an intravesical explosion during transurethral resection (TUR) of prostatic carcinoma. We present our case to remind physicians about this important complication and discuss its possible preventive measures.

An 82-year-old American Society of Anesthesiology (ASA) II patient was to undergo TUR for prostatic carcinoma. The surgical procedure started under spinal anesthesia with a 24-F resectoscope (Storz, Germany) adjusted to a cutting power of 120 W and glycine as irrigant. At 90 min into the operation, a loud explosion was heard in the operating theater, and the patient began to feel discomfort. He experienced nausea, abdominal pain, bradycardia, and hypotension, and developed confusion. The patient was oxygenated and given ephedrine with atropine. Immediate endoscopic exploration revealed intraperitoneal bladder rupture. As he began to feel pain due to peritoneal irritation and regressing spinal anesthesia, the anesthesia

team urgently induced general anesthesia. At laparotomy, a 3- to 4-cm wide bladder perforation with mucosal petechia was observed; intestines and other intra-abdominal structures were intact. The patient's postoperative course was uncomplicated, and he was discharged from hospital on postoperative day 7.

Major intravesical explosions are rare complications of TUR and were first reported by Cassuto in 1926 [1]. Although the majority of cases reported are associated with TUR of prostate or bladder, an intrarenal explosion during management of upper urinary tract urothelial cancer was documented in 1991 by Andrews et al. [2]. Small intravesical explosions, usually manifested as a “pop,” are sometimes identified by the urologists but are not recognized by anesthesiologists during the operation. In our case, the sound of the explosion was so loud that it was heard from outside the operating room.

Intravesical explosions are associated with accumulation of explosive gases during the use of diathermy on human tissues. Sparks from cutting electrocautery may ignite the potentially explosive mixture of gases collected in the dome of the bladder [3, 4]. Major intravesical explosions with bladder rupture is a rare but very serious complication that must be immediately recognized by the operating team. Accompanying medical problems may affect morbidity in the elderly patient population, in whom such procedures are frequently applied.

Several strategies have been defined to reduce the risk of bladder explosion [4, 5]. The amount of gas formed and the risk of explosion are proportional to the time of surgery. The introduction of air from the atmosphere must be minimized by reducing the frequency of manual irrigation or by aspirating the air in the dome. Applying suprapubic pressure or changing the patients position to Trendelenburg may help to reposition the air bubble away from the area of

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electrocauterization. Adjusting coagulation settings to a moderate power is also another suggested preventive measure.

In our patient, the long duration of the operation and insufficient evacuation of accumulated air seem to be responsible for the explosion. Therefore, we believe that strict use of preventive techniques, good interaction between surgeon and anesthetist, and closely monitored patient care are required to recognize the complication and make the necessary intervention immediately.

References

1. Cassuto A. Explosion dans la vessie au cours d'une electro-coagulation. *J Urol.* 1926;22:263.
2. Andrews PE, Segura JW. Renal pelvic explosion during conservative management of upper tract urothelial cancer. *J Urol.* 1991;146:407–8.
3. Seitz M, Soljanik I, Stanislaus P, Sroka R, Stief C. Explosive gas formation during transurethral resection of the prostate (TURP). *Eur J Med Res.* 2008;13:399–400.
4. Riberio da Silva MN, Correa Lopes Neto A, Zambon JP, Verotti MJ, Wroclawski ER. Vesical explosion during transurethral resection of the prostate: report of a case. *Arch Esp Urol.* 2006; 59:651–652.
5. Khan A, Masood J, Ghei M, Kasmani Z, Ball AJ, Miller R. Intravesical explosions during transurethral endoscopic procedures. *Int Urol Nephrol.* 2007;39:179–83.