Concomitant treatment of lower urinary tract obstruction and robot assisted bladder diverticulectomy: simplifying the procedure with easier identification of the diverticulum

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Purpose: To report our experience in robot assisted bladder diverticulectomy (RABD) with concomitant combined transurethral prostatectomy (TUR-P) and photoselective vaporization of prostate (PVP) whilst reporting a technique for easier identification of bladder diverticulum.

Material-Methods: Between 2008 and 2015, 9 patients had undergone robot assisted bladder diverticulectomy (RABD) with concomitant treatment of bladder outlet obstruction. Six patients had posterolateral diverticulum, 2 had diverticulum on the lateral walls of the bladder and 1 had 3 diverticula on the posterior wall. Three patients suffered from bladder stones.

Bladder Outlet Obstruction Treatment:
• Holmium laser lithotripsy for three patients.
• Transurethral resection of the prostate and photoselective vaporization of prostate (PVP) for all but one young patient who underwent bladder neck incision due to his preference.

Technique for easier identification of diverticulum
• JJ stent placement in three patients unilateral and in one bilateral.
• An optical urethrotome was directly inserted inside the bladder diverticulum under direct vision. The outer sheath of the urethrotome was left inside the diverticulum and working element was removed together with optical part. A 16F silicone Foley catheter was inserted into the diverticulum via previously inserted outer sheath of the urethrotome. The balloon of the Foley catheter was inflated with 20 ml saline and pulled back to the neck of the diverticulum under fluoroscopic guidance. Another 16F silicone Foley catheter was introduced into the bladder for urinary drainage and the balloon was inflated with 20 ml saline. Same procedure was performed for the patients with two or three diverticula (Figs 1-2).

Robot Assisted Bladder Diverticulectomy
• Port design was similar to extraperitoneal robot assisted radical prostatectomy operation. The diverticula were distended with saline infusion via the Foley catheter inside them and localized under fluoroscopic control (Fig 3). The neck of the diverticulum was identified and incised (Fig 4). The bladder was closed in two layers. For the patient with three diverticula undocking of the robot between the excision of the second and third diverticulum took place followed by the above mentioned catheterization of the third diverticulum.

Results:
• Mean patient age was 62 (range 46-76) and mean prostate volume was 70±26 (40-110) ml. Mean largest dimension of the diverticulum was 72 (45-100) mm.
• Mean time for the endourological part of the procedure (PVP plus stent placement) was 77 (30-140) mins.
• Mean console and total operative time were 108 (64-180) and 186 (120-270) minutes, respectively. Estimated blood loss was low with a mean of 71 (20-150) ml. No complications were observed.
• Postoperative period was uneventful in all cases. Mean hospitalization and catheter removal time was 5 (3-13) and 8 (5-13) days, respectively.

Conclusions: Bladder outlet obstruction is the main cause of acquired bladder diverticulum and most of the bladder outlet obstruction is due to BPH. Combination of TUR-P and PVP provides a good quality and bloodless prostatic cavity. Since PVP has good hemostatic properties, bladder irrigation was not needed perioperatively and postoperatively. Hence combination therapy (TUR-P+PVP) and robot assisted bladder
diverticulectomy can be concomitantly performed in the same session. Easier identification of the diverticulum with our technique enables the procedure to be performed with reasonable operative time even in the presence of more than one diverticulum.