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Open Transvesical Prostatectomy for Benign Prostatic Hyperplasia – a Consecutive Case Series

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Purpose

Open transvesical prostatectomy was previously considered a risky procedure, and its performance has largely ceased in Denmark. However, the procedure is well-documented as a treatment for benign prostatic hyperplasia in men with prostate glands >100 g. Moreover, the operation is a cheaper and faster procedure compared to its robot-assisted variant. Therefore, the procedure was reintroduced at our hospital in 2020. To optimize the results, fixed pre- and post-operative procedures, a thorough surgical technique, and structured training of staff in the operating room, recovery area, and ward have been implemented. The purpose of this report is to document complications and outcomes through the first 3 years of the procedure.

Materials and Methods

The results of all open transvesical prostatectomies performed at our hospital from June 2020 to June 2023 were analyzed retrospectively. We gathered data related to patient demographics, prostate volume, preoperative urinary function, events during and after surgery, and urinary function at a 6-month follow-up. Both pre- and post-operative urinary function were evaluated by Qmax, residual urine, and Danish Prostate Symptom Score (DAN-PSS). Descriptive statistics were utilized to examine patient characteristics and surgical results. Furthermore, multivariate analyses were conducted to evaluate risk of bleeding and complications, as well as post-operative urinary function, using the variables age, BMI, ASA score, prostate volume, comorbidities, preoperative urinary function, and the use of anticoagulant medications as potential predictors.

Results

109 men were included. The median age was 72 years (range 49-83), the median BMI 27 (19-43), and the median ASA score 2 (1-3). Many patients had comorbidities, and the median Charlson Comorbidity score was 3 (0-8). 31 patients were on anticoagulant medication. The median prostate volume was 169 (97-398) ml, and 79 patients used clean intermittent catheterization. In the remaining 30 men, the median DAN-PSS was 41 (6-105). 11 had bladder stones, 41 had hematuria, and 34 had symptomatic urinary tract infection before surgery. The median operative time was 68 (41-114) minutes, and the median bleeding was 450 (50-3000) ml. 11 patients received blood transfusions. Another 16 had Clavian-Dindo grade 2 complications in the form of fever without organ involvement (n=11), urosepsis (n=4), and minor capsule perforation (n=2). 3 patients had grade 3B complications with bleeding requiring surgery, and 2 had grade 4A complications, namely heart failure and cerebral hemorrhage, respectively. The latter was assessed as unrelated to the operation. The median time with a catheter and top catheter after surgery was 2 (2-30) and 7 (2-21) days, respectively. The median hospital stay was 3 (2-22) days. At follow-up, all were catheter-free. Medians for Qmax, residual urine, and DAN-PSS were 20.7 (11-47) ml/s, 16 (0-250) ml, and 0 (0-5), respectively. Robust multiple regression analysis showed that larger prostate volume increased blood loss by 2.92 (95% CI 1.67 - 4.12, p<0.0001) ml per additional cm³. Higher ASA score (p=0.027), BMI (p=0.0097), and prostate volume (p=0.016) were predictors of complications. Higher age was related to a lower postoperative Qmax of -0.68 ml/s (95% Cl -0.21 to -1.1, p=0.004) per year. Higher age and preoperative retention volume were predictors of higher residual urine with increases of 2.0 ml (95%) CI 0.36 to -3.7, p=0.017) per year and 0.25 ml (95% CI 0.1 to 0.4, p=0.0013) per 10 ml of pre-operative retention volume. There were no significant predictors for post-operative DAN-PSS.







Sir Peter Freyer (1851-1921)



Conclusion

Open transvesical prostatectomy is effective for urinary retention/LUTS in men with large prostate glands. Although we did find statistically significant predictors of post-operative urinary function, these were all of minor clinical meaning. It is crucial that everyone involved has a high level of knowledge of their tasks including surgical technique, handling complications, and close postoperative control is necessary. With these measures, the rate of serious complications is low even for older, comorbid patients, and the hospital stay is often short. However, one must be aware of the risk of bleeding, especially in patients with very large prostate volumes.