



Urinary retention after hemorrhoidectomy: Can we reduce risk?

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Abstract

Urinary Retention after Hemorrhoidectomy: Can we reduce risk?

Objective: Hemorrhoidectomy is a common surgery and urinary retention (UR) after anorectal surgeries is an unwelcome complication. In this study we aimed to investigate risk of UR after hemorrhoidectomy and predict the factors associated with UR.

Methods: Between 2016-2018 years, 180 patients who undergone hemorrhoidectomy by general anesthesia were included study. The patients with urological symptoms and urological surgery before were excluded.

Results: Median age of patients was 45.5 (IQR: 40.0-55.0) years. There was 116 (64.4%) of male and 64 (35.6%) of woman. Urinary retention was seen significantly higher in men ($p=0.03$) but, visual pain scale (VPS) and the analgesic requirement were similar between men and women ($p=0.39$ and $p=0.86$, respectively). Regression analysis showed that male gender, operation time and analgesic requirement was not associated UR and the VPS is only predictive factor for UR (OR:0.224, $p<0.001$).

Conclusion: The UR is an often and worrisome complication. The VPS is the important predictive factor for urinary retention. The sufficient analgesia could be the key to prevent this complication.

Keywords: Hemorrhoidectomy, Urinary Retention, Bladder Dysfunction, Complications

Öz

Hemoroidektomi sonrası üriner retansiyon: Riski azaltabilir miyiz?

Amaç: Hemoroidektomi sık uygulanan bir ameliyattır ve anorektal ameliyatlardan sonrası üriner retansiyon (ÜR) istenmeyen bir komplikasyondur. Bu çalışmada hemoroidektomi sonrası ÜR riskini araştırmayı ve ÜR ile ilişkili faktörleri tahmin etmeyi amaçladık.

Yöntemler: 2016-2018 yılları arasında genel anestezi ile hemoroidektomi yapılan 180 hasta çalışmaya dahil edildi. Daha önce ürolojik semptomları ve ürolojik cerrahisi olan hastalar çalışma dışı bırakıldı.

Bulgular: Hastaların medyan yaşı 45,5 (IQR: 40,0-55,0) yıl idi. Hastaların 116 (%64,4) erkek ve 64 (%35,6) kadındı. İdrar retansiyonu erkeklerde anlamlı olarak daha yüksek görüldü ($p=0,03$) ancak Vizual ağrı skalası (VAS) ve analjezik ihtiyacı erkekler ve kadınlar arasında benzerdi (sırasıyla $p = 0,39$ ve $p = 0,86$). Regresyon analizi, erkek cinsiyet, ameliyat süresi ve analjezik gereksiniminin ÜR ile ilişkili olmadığını ve VAS'ın ÜR için tek prediktif faktör olduğunu gösterdi (OR: 0.224, $p<0.001$).

Sonuç: ÜR, sık görülen ve endişe verici bir komplikasyondur. VAS, üriner retansiyon için önemli öngörü faktörüdür. Yeterli analjezi, bu komplikasyonu önlemenin anahtarı olabilir.

Anahtar Kelimeler: Hemoroidektomi, Üriner Retansiyon, Mesane Disfonksiyonu, Komplikasyonlar

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INTRODUCTION

Hemorrhoids are one of the most common anorectal diseases (1). The conservative treatment of the disease consists of diet and medical treatment (2). Surgical procedures are performed effectively in patients who do not respond to medical treatment. Therefore, Hemorrhoidectomy is usually performed in outpatient clinics. Surgical techniques can be performed under local, spinal or general anesthesia, and the patients can be discharged on the same day. However, complications including bleeding, pain, urinary retention, and anal incontinence constitute an important issue.

The urinary complication rate of anorectal surgery varies in the literature. The incidence of Urinary retention (UR) after hemorrhoidectomy ranges from 25% - 35% (3,4). This complication can be explained by the reflex mechanism of the nerves originating from the anus as a result of operative trauma. The most common urinary complication was urinary retention up to 1-22% after anorectal or hernia surgeries (5). Urinary retention is commonly managed by catheterization and resolves spontaneously. The literature showed numerous risk factors associated with urinary retention, including age, gender, body mass index, type of procedure (4). Parasympathomimetic drugs are often efficient. Urinary catheterization can be delayed up to 24-48 hours. Fluid restriction may be useful to prevent urinary retention. In this study, we aimed to show the risk of urinary retention after hemorrhoidectomy in both genders.

METHODS

Study population

The local ethics committee approved the study (#7/June 2020), and patients who undergone hemorrhoidectomy were evaluated retrospectively. Between 2016 and 2018, 180 patients with stage 3-4 hemorrhoids were included in the study. All patients underwent conventional hemorrhoidectomy under general anesthesia. Patients with lower urinary tract symptoms, another anorectal disease, a history of urological surgery before hemorrhoidectomy, and patients with hemorrhoidectomy under regional anesthesia were excluded from the study. The written constant obtained from all patients. In addition, the demographic and perioperative data, including age, gender, visual pain scale (VPS), operation time and the analgesic requirement was extracted from medical records. All procedures were performed by three surgeons with the same surgical techniques. All patients underwent classically stapled hemorrhoidectomy.

Statistical analysis

The normality of the distribution of the variables was checked using the Shapiro-Wilk test and QeQ plots. The median was used for variables that did not show normal distribution, and the Mann Whitney U test was used for analysis. A logistic regression test was used for regression analysis. In the case of categorical data, the comparison was made using the chi-squared test. A p-value of less than 0.05 was accepted as statistical significance.

RESULTS

The median age of patients was 45.5 IQR 40.0-55.0. There was 116 (64.4%) male and 64 (35.6%) female patients. The median operation time was 26.5 IQR 22.0- 35.0 min. The median count of the analgesic requirement was 2 IQR 1.0-2.0. When data are divided by gender, the median operation time was significantly lower in men vs. women (25.0 IQR 20-35.0 vs. 30.0 IQR 25.0-35.0, respectively, $p=0.02$) (Table 1). Urinary retention was significantly higher in men ($p=0.03$) but, VPS and the analgesic requirement were similar between men and women ($p=0.39$ and $p=0.86$, respectively) (Figure 1).

Table 1. Perioperative data of both gender

	Men		Women		p value
	Value	IQR	Value	IQR	
Age	45.0	38.0-55.0	46.0	40.0-54.5	0.93
Operation time	25.0	20.0-35.0	30.0	25.0-35.0	0.02
Analgesic requirement	2.0	1.0-2.0	2.0	1.0-2.0	0.86
VPS	7.0	6.0-8.0	7.0	6.0-8.0	0.39

*All data was expressed as median, IQR: Interquartile range, VPS: Visual pain scale

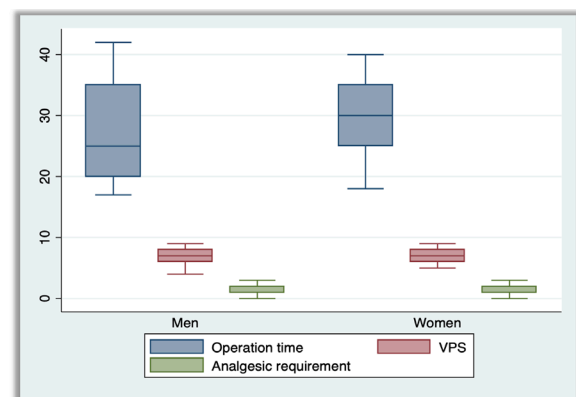


Figure 1. Comparison of perioperative data between men and women

The median age was similar in patients with UR and patients without UR (55.0 IQR 42.0-55.0 and 45.0 IQR 39.0-55.0, respectively, $p=0.07$). UR was developed 12% of men and %3 of women. VPS and the analgesic requirement were higher in the UR group ($p<0.001$ and $p=0.008$) (Figure 2). Furthermore, regression analysis showed that male gender, operation time, and the analgesic requirement was not associated with UR (Table 2), and the VPS was the only predictive factor for UR (OR: 0.224, $p<0.001$). Patients with diabetes were not associated with UR ($p=0.34$)

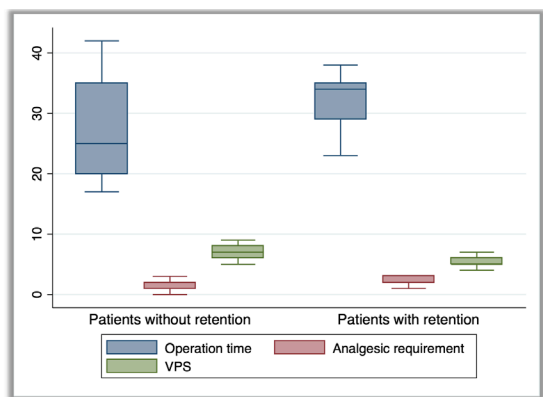


Figure 2. Comparison in terms of operation time, analgesic requirement, VPS between patients with/without UR

Table 2. Variable associated with urinary retention				
Variables in the Equation				
		Odds ratio	95% CI	p value
Step 1 ^a	Age	1.021		0.47
	Gender	4.537	0.96-1.08	0.08
	Operation time	1.085	0.81-25.12	0.12
	Analgesic req.	0.559	0.97-1.20	0.27
	VPS	0.224	0.19-1.58	<0.001
	Constant	31.740	0.10-0.47	0.27

a. Variables entered on step: Age, Male gender, Operation time, Analgesic requirement, VPS. VPS: Visual pain scale

DISCUSSION

Hemorrhoidectomy is a common surgical procedure; however, patient satisfaction gets low due to postoperative pain and complications (1). UR after anorectal surgeries is a significant problem associated with patients' pain, anxiety, and comfort (5). The occurrence of UR in patients who have never had any urological complaints suggests the existence of another mechanism that affects the neuronal pathways of the detrusor. Postoperative pain is associated with detrusor

inhibition. The main findings of our study are that the VPS and analgesic requirements are predictive factors for UR. One reason for this situation is bladder outlet obstruction because of the sympathomimetic activity accompanied by hypertension and tachycardia (6). Another reason is inhibition of the detrusor muscle due to reflex involving afferent fibers of the pudendal nerve, sacral spinal cord, and efferent pelvic sympathetic nerves (6,7). Therefore, short-term usage of parasympathomimetic agents or alpha-blocker drugs could be effective in the management of UR.

Literature demonstrated several possible factors, including the type of surgery, postoperative multimodal analgesia, or anesthesia type, that could affect postoperative pain and patients' discomfort (8). Additionally, Zaheer et al. found that patients who received sufficient analgesia had a lower incidence of UR (4). Through the above mention factors, many new hemorrhoidectomy techniques have been described instead of conventional hemorrhoidectomy. One of these techniques is stapled hemorrhoidectomy, in which postoperative pain and the incidence of UR are low (9). In our study, all patients underwent the stapled hemorrhoidectomy procedure. Drissi et al. showed that diabetes is an independent risk factor for postoperative urinary retention (10). It was stated that bladder dysfunction due to peripheral neuropathy in diabetic patients is an important factor in UR development. Diabetic neuropathy can impair the sensation of the bladder and increase the bladder capacity and post-void residue. It also has negative effects on bladder contractility. In our study, patients with diabetes mellitus were not associated with UR. The patients included in our study had short-term diabetes, and it appears that the duration of diabetes is also an important factor for UR.

Anesthesia technique is another well-known factor. Spinal anesthesia alone is an independent risk factor as it causes UR due to sympathomimetic blockage. Since spinal anesthesia may cause UR, general anesthesia became the preferable technique. It has been previously shown in the literature that catecholamines secreted from the body due to surgical stress cause excessive stimulation in the alpha-adrenergic system and are important in the pathophysiology of UR. It has also been shown that local pain and adrenergic drugs used during anesthesia can cause UR with the same pathophysiological mechanism (10). Clancy et al., in a meta-analysis, showed that the use of preoperative prophylactic alpha-blockers significantly decreased UR without serious side effects (11). While the frequency of UR was 24.3% in the patient group not using alpha-blockers, it was 3.7% in the group using (OR 0.179; $p=0.018$). UR due to catecholamine discharge caused by pain decreases significantly with the use of appropriate analgesics. Similar to publish literature, our study demonstrated that

analgesic requirement was higher in the UR group; however, there was no significant association between analgesic requirement and UR. The main reason for this situation is that the analgesic regimes were commonly used single dose after surgeries to prevent analgesic side effects.

Published literature showed that gender is a predisposing factor for UR (12). Controversial the previous research, Sivaskaran et al. showed that gender, body mass index, and type of hernia were not significant predisposing factors for UR (5). Similar to the literature, our study found that UR was seen higher in the male gender; however, there was no statistically significant association between UR and the male gender. The studies demonstrated that another important predictive risk factor is age (5,13). Age over 50 is a negative predisposing factor for UR after laparoscopic hernia repair. This association is related to neurological degeneration along with prostate hypertrophy (13). Similar to these results, another novel study showed that age over 60 is a significant predisposing factor and three times more developed UR (5). Conversely, we did not find an association between age and UR.

The limitation of this study is its retrospective nature, lack of patients' history and patients' data of questionnaires such as IPSS to diagnose preoperative urinary function and long-term follow up. Another significant limitation is multiple surgeons performed all procedures.

CONCLUSION

Urinary retention after hemorrhoidectomy is not a rare complication, especially in male patients. Visual pain scale is the only predictive factor for urinary retention. In clinical practice, sufficient analgesia could prevent this complication.

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Peer-Review

Externally Peer Reviewed

Conflict of Interest

The authors declare that they have no conflict of interests regarding content of this article.

Support Resources

No financial support was used by authors during this study.

Ethical Declaration

Permission was obtained from the Osmaniye Government Ethic Committee, for this study, and Helsinki Declaration rules were followed to conduct this study (10th June, 2020 and no 774.99).

Authorship Contributions

Concept: F. G., O. K., Design: F. G., O. K. Veri Data Collection or Processing: F. G., T. G., Analysis or Interpretation: F. G., T. G., Literature Search: F.G., Writing: F. G., O. K.

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