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 ameliyatdır ve anorektal ameliyatlar sonrası üriner retansiyon (UR) istenmeyen bir komplikasyondur. Bu çalışmada hemoroidektomi sonrası UR riskini araştırmayı ve UR ile ilişkili faktörleri tahmin etmemi amaçladık.


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 (sirasa p = 0,39 ve p = 0,86). Regresyon analizi, erkek cinsiyet, ameliyat süresi ve analjezik gereksiniminin UR ile ilişkili olmadığını ve VAS’ın UR için tek prediktif faktör olduğunu gösterdi (OR: 0.224, p<0.001).

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

Anahtar Kelimeler: Hemoroidektomi, Uriner 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**

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>45.0 IQR 38.0-55.0</td>
<td>46.0 IQR 40.0-54.5</td>
<td>0.93</td>
</tr>
<tr>
<td>Operation time</td>
<td>25.0 IQR 20.0-35.0</td>
<td>30.0 IQR 25.0-35.0</td>
<td>0.02</td>
</tr>
<tr>
<td>Analgesic</td>
<td>2.0 IQR 1.0-2.0</td>
<td>2.0 IQR 1.0-2.0</td>
<td>0.86</td>
</tr>
<tr>
<td>requirement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VPS</td>
<td>7.0 IQR 6.0-8.0</td>
<td>7.0 IQR 6.0-8.0</td>
<td>0.39</td>
</tr>
</tbody>
</table>

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

**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

![Figure 2. Comparison in terms of operation time, analgesic requirement, VPS between patients with/without UR](image)

**Table 2. Variable associated with urinary retention**

<table>
<thead>
<tr>
<th>Variables in the Equation</th>
<th>Odds ratio</th>
<th>95% CI</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1.021</td>
<td>0.96-1.08</td>
<td>0.47</td>
</tr>
<tr>
<td>Gender</td>
<td>4.537</td>
<td>0.96-1.08</td>
<td>0.08</td>
</tr>
<tr>
<td>Operation time</td>
<td>1.085</td>
<td>0.81-25.12</td>
<td>0.12</td>
</tr>
<tr>
<td>Analgesic req.</td>
<td>0.559</td>
<td>0.97-1.20</td>
<td>0.27</td>
</tr>
<tr>
<td>VPS</td>
<td>0.224</td>
<td>0.19-1.58</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Constant</td>
<td>31.740</td>
<td>0.10-0.47</td>
<td>0.27</td>
</tr>
</tbody>
</table>

a. Variables entered on step: Age, Male gender, Operation time, Analgesic requirement, VPS. VPS: Visual pain scale
Urinary retention after hemorrhoidectomy is not a rare complication, especially in male patients. Visual pain scale is the only predictive factor for urinary retention.

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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REFERENCES


