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Can hemorrhoid surgery restore erectile dysfunction caused by hemorrhoids?

Hemorrhoid surgery and erectile dysfunction

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Abstract
Aim: Erectile dysfunction (ED) may accompany hemorrhoidal pain. In this study, we aimed to investigate whether hemorrhoid surgery restores erectile function.
Material and Methods: Sexually active 88 male patients aged between 24-82 years and scheduled for hemorrhoid surgery were included in the study. Patients' demographic data such as age, weight, height and body mass index (BMI), comorbidities, previous surgery, smoking and drug use status were recorded. The preoperative and postoperative International Prostate Symptom Score (I-PSS) and International Index of Erectile Function 5 (IIEF-5) scores were recorded and compared. Doppler-assisted hemorrhoid surgery was performed in all patients. All participants were instructed not to take any medication for ED during the follow-up period. Patients were followed up for 6 months.
Results: The mean age of the patients was 41.77±9.31 (24-82) years. The mean BMI value was calculated as 27.33±3.28 kg/m2. The mean preoperative I-PSS score was found as 3.05±1.60 and the mean postoperative I-PSS score was found as 3.01±1.53. No statistically significant difference was found between the pre- and postoperative I-PSS score values (p=0.317).
The mean preoperative IIEF-5 score was found as 20.44±2.16 and the mean postoperative IIEF-5 score was found as 21.06±1.93. There was a significantly significant difference between the mean pre- and postoperative IIEF-5 scores (p<0.001).
Discussion: Our results revealed that there was a significant improvement in ED following hemorrhoid surgery, suggesting a potential relationship between hemorrhoids and erectile dysfunction. However, further, more comprehensive prospective studies are needed to reveal these associations.

Keywords
Haemorrhoids, Haemorrhoid Surgery, Erectile Dysfunction, I-PSS, IIEF-5

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Introduction

Erectile dysfunction (ED) is defined by the 4th International Consultation on Sexual Medicine as "the consistent or recurrent inability to attain and/or maintain penile erection sufficient for sexual satisfaction [1]. ED is a common medical disorder that mainly affects men older than 40 years of age [2]. The prevalence of ED has been reported as 1-10% in men younger than 40 years, 2-9% in men between the ages 40-49 years, and 20-40% in men aged 60-69 years. The prevalence of ED ranges from 50% to 100% in men older than 70 years old [2]. The Massachusetts Male Aging Study (MMAS) showed that 52% of men aged between 40 and 70 years have some degrees of ED [3].

ED is dependent on a complex interaction of vascular and neural processes. The internal pudendal artery supplies the majority of the blood flow to the penis through the cavernosal branches. ED can result from any process that impairs either neural or vascular pathways that contribute to erection [4]. Normal sexual function has been described as a biopsychosocial process that involves endocrine, vascular, neurological and psychological systems. ED is classified as organic (hormonal, neurogenic, arterial, cavernosal, or drug induced) or mixed psychogenic and organic [5]. It has been reported that ED is one of the undesired complications associated with pelvic surgery [6].

Hemorrhoid is a common anorectal disease defined as the symptomatic enlargement and/or distal displacement of anal cushions [7]. Anal cushions are prominences of anal mucosa formed by loose connective tissue, smooth muscle, arterial and venous vessels [8]. Hemorrhoids are cushions of submucosal vascular tissue located in the anal canal starting just proximal to the dentate line [9]. The prevalence of hemorrhoids has been reported to be between 14.4% and 38.9% [8, 10]. The exact pathophysiology of hemorrhoids is poorly understood. The most common presentation of hemorrhoids is painless rectal bleeding during defecation with or without prolapsing anal tissue [11]. However, some patients may also present with pain. Hemorrhoids are associated with regional vascular abnormalities and rectal pain, which have been proposed to increase the risk of ED. The rectum has been reported to be in close proximity to the autonomic nerves within the prostatic plexus responsible for penile erection [12]. This finding has provided a possible mechanism of ED in patients with hemorrhoids [13]. There is only one study in the literature investigating the possible relationship between hemorrhoid surgery and ED. In the present study, we aimed to investigate whether a hemorrhoid surgery procedure restores erectile function.

Material and Methods

This retrospective study was approved by the local Ethics Committee of Memorial Bahcelievler Hospital (22/03/2022/41). This study was conducted in accordance with the ethical principles of the Declaration of Helsinki revised in 2013.

Sexually active 88 male patients aged 24-82 years and scheduled for hemorrhoid surgery were included in the study. Patients with a history of urogenital surgery and malignancy, penile prosthesis implantation, those who were using medications and herbal supportive preparations affecting sexual functions, patients with a history of chemotherapy/radiotherapy, uncontrolled diabetes mellitus, hypertension, and cardiac disease were excluded from the study.

Patients' demographic data such as age, weight, height and body mass index (BMI), comorbidities, previous surgery, smoking and drug use status were recorded. In addition, pre- and postoperative International Prostate Symptom Score (I-PSS) and International Index of Erectile Function (IIEF-5) scores were recorded and compared. Data used in this study were obtained from the patient files and hospital electronic recording system. All patients were evaluated by history-taking, general, genital and anorectal examinations, I-PSS and IIEF-5 (first five questions of IIEF) scores. Doppler-assisted hemorrhoid surgery was performed in all patients. All participants were instructed not to take any medication for ED during the follow up period. Patients were followed up for 6 months.

Doppler Assisted Hemorrhoidal Artery Ligation

The indications for hemorrhoid surgery were persistent 3rd and 4th grade hemorrhoids, and the management was performed with the Doppler-assisted hemorrhoidal artery Ligation. Following anesthesia induction, the patients underwent surgery in the dorsolithotomy position. The grade 3 hemorrhoid pack at the 7 o'clock position was placed under traction. The anoscope was inserted into the anus, with the probe tip to the root of the pack. After 12-mm deep hemorrhoidal artery pulsation was detected, Z-shaped suture ligation was performed. The single end of the suture was suspended, and the pack was pulled vertically and the procedure was completed.

International Prostate Symptom Score (I-PSS)

The I-PSS is based on the answers to seven questions related to urinary symptoms. Each item is scored from 0 to 5, where 0 is no symptom at all and 5 was almost always symptomatic. The total score that can be obtained from the scale is 35. Scores between 0-7 are classified as mildly symptomatic, 8-19 as moderately symptomatic and 20-35 severely symptomatic.

International Index of Erectile Function (IIEF-5)

The scale consisted of 5 items questioning the erectile function of the patients for the last 6 months. Each item is answered using a Likert-5 scale between 0 and 5. An IIEF-5 score between 22-25 indicates no erectile dysfunction, 17-21 indicates mild erectile dysfunction, 12-16 indicates mild-to-moderate erectile dysfunction, 8-11 indicates moderate erectile dysfunction and 5-7 indicates severe erectile dysfunction.

Statistical Analysis

Statistical analysis of this study was conducted using the SPSS version 25.0 (SPSS, Statistical Package for Social Sciences, IBM Inc., Armonk, NY, USA) statistical software. The Wilcoxon test was used to compare pre- and postoperative values. Continuous variables are expressed as mean±standard deviation (min-max) values, while categorical variables are given as numbers and percentages. $P<0.05$ values were considered statistically significant.

Results

A total of 88 patients scheduled for hemorrhoid surgery were included in the study. The mean age of the patients was 41.77±9.31 (24-82) years. The mean weight was 84.61±8.60 kg and the mean height was 176.20±6.71 cm. The mean BMI value was calculated as 27.33±3.28 kg/m^2.

Twenty-two (25%) patients had comorbidities. The most common comorbidity was hypertension in 13.64% followed by diabetes mellitus in 4.55% of the patients. Twenty-one (23.86%) had a history of previous surgery. A total of 36 (40.91%) were current smokers, while seven (7.95%) patients were ex-smokers. Twenty-two (25%) patients were using drugs. Basic characteristics of the patients are shown in Figure 1.

The distribution of the Preoperative International Prostatism Symptom Score (I-PSS) and International Index of Erectile Function (IIEF-5) scores are given in Table 1.

Distribution of the Postoperative International Prostatism Symptom Score (I-PSS) and International Index of Erectile Function (IIEF-5) scores are given in Table 2.

The mean preoperative I-PSS score was found as 3.05±1.60 and the mean postoperative I-PSS score was found as 3.01±1.53. No statistically significant difference was found between the pre- and postoperative values (p=0.317).

The mean preoperative IIEF-5 score was found as 20.44±2.16 and the mean postoperative IIEF-5 score was found as 21.06±1.93. There was a significant difference between the mean pre- and postoperative IIEF-5 scores (p<0.001).

Table 1. Preoperative I-PSS and IIEF-5 scores

International Prostate Symptom Score (I-PSS)					
	Mild	Moderate	Severe		
n	85	3			
%	96.59	3.41			
International Index of Erectile Function (IIEF-5)					
	No	Mild	Mild-to-Moderate	Moderate	Severe
n	32	53	3		
%	36.36	60.23	3.41		

Table 2. Postoperative I-PSS and IIEF-5 scores

International Prostate Symptom Score (I-PSS)					
	Mild	Moderate	Severe		
n	86	2			
%	97.73	2.27			
International Index of Erectile Function (IIEF-5)					
	No	Mild	Mild-to-Moderate	Moderate	Severe
n	40	48			
%	45.45	54.55			

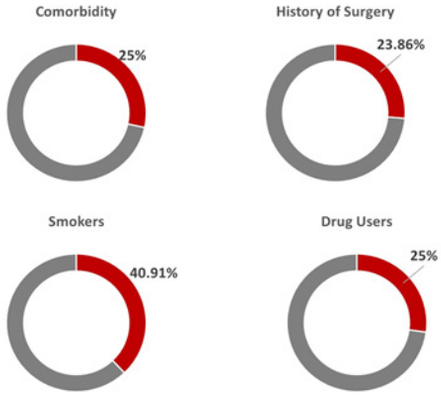

Figure 1. Basic characteristics of the patients

Discussion

Recent studies have shown that ED is not only a result of diseases such as cardiovascular disease, diabetes mellitus and metabolic syndrome, hence may be an early sign for those diseases (available at: http://www.bit.ly/2fKYxur). Erectile dysfunction is a common clinical entity that affects mainly men older than 40 years. The prevalence of ED is known to increase by aging. In our study, the mean age was found as 43.72 years in the patients with mild ED and 61.67 years in patients with mild-to-moderate ED. In a study by Abdelaziz et al., the median age of the patients with ED scheduled for hemorrhoid surgery was found as 41 years [14]. Various chronic disorders have been associated with elevated rates of ED including depression, diabetes, cardiovascular and neurological diseases. Such disorders are more common in the elderly, which may partially explain the elevated prevalence of ED by aging [15]. Age appears to have a significant effect on the improvement of ED with patients aged less than 60 years achieving up to 50% higher success rate in the treatment of ED [16].

Hemorrhoids are associated with regional vascular abnormalities and rectal pain, which are hypothesized to increase the risk of ED. However, studies investigating the relationship between hemorrhoids and ED are limited [13]. On the other hand, the pain due to hemorrhoids may impair sexual function, consequently increasing the incidence of ED [17]. In a study by Keller et al., 1572 (24.9%) of 6310 individuals who had been diagnosed with ED, also had haemorrhoid diagnosis previously [13].

In our study, all patients had hemorrhoids and were scheduled for hemorrhoid surgery. Measuring with IIEF-5, mild ED was found in 60.23% and mild-to-moderate ED in 3.41% of the patients. At the end of the 6-month follow-up, the rate of patients with mild ED decreased to 54.55%, while there was no patient with mild-to-moderate ED, suggesting that hemorrhoid surgery had an improving effect on ED. Since there are no studies evaluating the relationship between hemorrhoid surgery and ED, comparing our findings with other studies is quite challenging.

One study in the literature regarding this association is reported by Abdelazez et al., [14] who investigated the impact of hemorrhoid surgery on male sexual functioning. The study included 163 patients with 3rd and 4th grade hemorrhoids with nonorganic mild or moderate ED. Eighty-two patients were treated with hemorrhoid surgery, while the other patients refused surgery. IIEF (15 questions) were used to evaluate the status of erectile dysfunction at baseline and 3- and 6-month follow-up visits. They observed a significant improvement in erectile functioning after hemorrhoid surgery compared to the patients who refused surgery and were treated conventionally [14].

Similarly, we obtained a significant improvement in erectile dysfunction with hemorrhoid surgery as specified by postoperative IIEF-5 evaluation. On the other hand, no significant difference was found between pre- and postoperative I-PSS scores, indicating that hemorrhoid surgery has no effect on prostatism.

Study Limitations

This study has several limitations. First, it was designed as a retrospective single-center study. Second, the number of

patients is relatively small for such an analysis. Finally, a control group to be treated with conventional methods could be created. However, studies in the literature on this issue are limited, and to the best of our knowledge, this is the second study to investigate the effect of hemorrhoid surgery on ED. We believe that our findings will be guiding for future studies.

Conclusion

Our results revealed that there was a significant improvement in ED following Doppler- assisted hemorrhoidal artery ligation, suggesting a potential relationship between hemorrhoids and erectile function. However, further, more comprehensive prospective studies are needed to reveal this association.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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Conflict of interest

None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.

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