

The impact of surgical hemorrhoidectomy on male sexual function: A preliminary study

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Abstract

Introduction: Erectile dysfunction (ED) is a highly prevalent condition among men all over the world and commonly associated with undiagnosed medical diseases as chronic pelvic pain and hemorrhoid.

Objective: The purpose of this study was to study the impact of surgical hemorrhoidectomy on sexual function in men with erectile dysfunction (ED).

Materials and Methods: In a prospective manner, we studied the effect of surgical hemorrhoidectomy on erectile function (EF) in male patients with ED. Hemorrhoidectomy was carried out in 82 patients with clinical hemorrhoid associated with ED (Group 1) and compared with 81 patients without operative intervention (Group 2; control). The primary efficacy variable was the mean change in the International Index of Erectile Function (IIEF) questionnaire.

Results: In Group 1, the IIEF questionnaire increased significantly after hemorrhoidectomy, from 15.56 to 27.37 ($P < 0.001$), indicating improvement of EF. Thirty-six patients (41.1%) showed improvement of EF compared to 5.3% in the control group ($P < 0.001$). In Group I, but not in Group II, IIEF values increased significantly when compared with preoperative values ($P < 0.001$).

Conclusion: We concluded that surgical hemorrhoidectomy is clearly related to improvement of EF in male hemorrhoid patients with ED.

Keywords: Erectile dysfunction, erectile function, hemorrhoidectomy

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Received: 24.09.2018, **Accepted:** 27.12.2018

INTRODUCTION

Many factors can affect a man's ability to obtain and maintain an erection that may be a combination of physical and psychological factors, which must be present at the same time. To obtain an erection, the muscular, vascular, neurological, and hormonal systems must be functioning properly so that erectile dysfunction (ED) is considered as a sign of another serious and sometimes undiagnosed

medical diseases, and sometimes, there is no clear reason for the ED.^[1,2]

ED is a highly prevalent condition among men all over the world. It has a significant negative impact on the quality of life of the patients and their partners.^[3] Its prevalence and incidence are associated with aging and many comorbidities, such as cardiovascular disease, diabetes,

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How to cite this article: Abdelaziz AS, Ghoneem AM, Elewesey EA. The impact of surgical hemorrhoidectomy on male sexual function: A preliminary study. *Urol Ann* 2019;11:235-40.

Access this article online	
Quick Response Code:	Website: www.urologyannals.com
	DOI: 10.4103/UA.UA_138_18

metabolic syndrome, hyperlipidemia, depression, pelvic surgery, side effects of medications, neurological disorders, trauma, symptoms of benign prostate hyperplasia (BPH), and psychological problems.^[4]

The prevalence of EDs in patients who have had pelvic or pelvic floor surgery is significantly greater than in the general population. However, the role of pelvic floor in EDs has not been fully explained.^[5] Despite the fact that the anus is a part of the pelvic floor structure, the clinical attention given to sexual problems in hemorrhoidectomy patients has been neglected.

Hemorrhoids are one of the most common functional disorders of the anus and source of perianal complaints, affecting millions of people all over the world. Internal hemorrhoids prolapsed 3^o–4^o are the main indications for hemorrhoidectomy.^[5] The procedure involves excising the hemorrhoid prolapse, repositioning the mucosa or anal canal tissue, and reducing blood flow to the internal hemorrhoids. This procedure, when conducted below the dentate line, may affect many sensitive nerve endings and create tight and thin layers of anoderm, leading to any number of complications.^[5,6] Moreover, men who underwent hemorrhoidectomy have eliminated distressing symptoms that affected on erectile functions (EFs) that do not necessarily causing EDs. It is important to understand the changes that can occur as a result of this surgical procedure on EF.

To our knowledge, no studies have looked into assessing posthemorrhoidectomy EF in men. Therefore, in the present cross-sectional study, we analyzed the impact of surgical hemorrhoidectomy on EFs among men who had ED.

The study aim

The purpose of this study was to study the impact of surgical hemorrhoidectomy on sexual function in men with ED.

MATERIALS AND METHODS

This multicenter, prospective, nonrandomized controlled study was carried out between March 2017 and July 2018. This study included 182 patients with uncomplicated 3rd- and 4th-grade hemorrhoids with nonorganic mild or moderate ED, who visited the urology and surgery clinics for different genitourinary or anorectal complaints. The exclusion criteria were patients aged below 18 years and above 50 years, sexually nonactive patients, patients with organic ED, patients who take any medication for ED,

patients with 1st- and 2nd-grade hemorrhoid, and recurrent and complicated cases of hemorrhoids. When the patient met our inclusion criteria, the assigned treatment was discussed and fully explained before obtaining informed consent. Signed informed consent form was obtained from the participants before proceeding to one of both treatment groups. All patients basically assisted via history-taking; general, genital, anorectal examination; and International Index of Erectile Function (IIEF) and reevaluated after 3 and 6 months and compared the collective data with concerning on IIEF.

The 15-question IIEF questionnaire is a validated, multidimensional, self-administered investigation that has been found useful in the clinical assessment of ED and treatment outcomes in clinical trials.^[7] A score of 0–5 is awarded to each of the 15 questions that examine the four main domains of male sexual function: EF (six items), orgasmic function (two items), sexual desire (two items), intercourse satisfaction (two items), and overall satisfaction (three items). Each item is scored on a 5-point scale. The scales for each domain are variable, and the total score range is 4–75. The higher the score, considered as the higher the level of sexual functioning. The questionnaires were validated for the Arabic and English languages.

Patients were divided into two groups according to surgical intervention: Group I, who underwent hemorrhoidectomy, and Group II, who refused surgical intervention or surgery postponed due to any reason (control group). The indications for hemorrhoidectomy were persistent 3rd- and 4th-grade hemorrhoids and management with the conventional excision–ligation (Milligan-Morgan) hemorrhoidectomy. Briefly, after induction of anesthesia, the procedures were performed keeping the patient in lithotomy position. Anus was dilated, then skin incision was made on the mucocutaneous border, and hemorrhoids were excised to the anorectal junction with diathermy. The base of pedicle was transfixed with 2/0 polyglactin 910. The resulting wounds were left open and anal canal was plugged. All complications include bleeding, urinary retention; infection, fecal incontinence, and anal stenosis were managed and recorded.

All participants were instructed not to take any medication for ED during the follow-up period. Patients were followed up after 3 and 6 months. In addition to medical history and physical examination, IIEF was assessed for each participant and compared with the baseline values. The study protocol was approved by the ethics committee of our hospitals, and all patients enrolled in this study provided written informed consent.

Ethical considerations

This study was approved by the participating hospital's institutional review board. Consent form informed participants that there were no physical, social, or legal risks involved in the research and that participation was voluntary. Ethical approval was obtained from participating hospital and monitored by the hospital's institutional review board.

Statistical analysis

Statistical analysis was conducted using the statistical package for the Social Sciences (SPSS Inc., Chicago, Ill., USA) version 17.0.. Chi-square analysis was applied to test the demographic difference between men with hemorrhoidectomy and control patients. Each sexual function was treated as ordinal level data, on which we used nonparametric statistics, such as descriptive analysis and the Mann–Whitney U-test. Finally, we used the sum of the sexual function scores as the independent variable and *t*-test to test the difference between the two groups. All tests were two-tailed, with significance defined by a *P* = 0.05.

RESULTS

Of 682 hemorrhoid patients, 273 met the inclusion criteria; of them, 46 patients refused to participate in the study. From the remaining 227, 64 patients were excluded due to noncompliance issues, development of genital infection during the follow-up period or hemorrhoid repair in control group, and lost follow-up in both groups. Hence, we left with a total of 163 patients: 82 patients in the hemorrhoidectomy group and 81 patients in the control group [Figure 1].

We compared the baseline characteristics of the two enrolled groups to determine whether there were

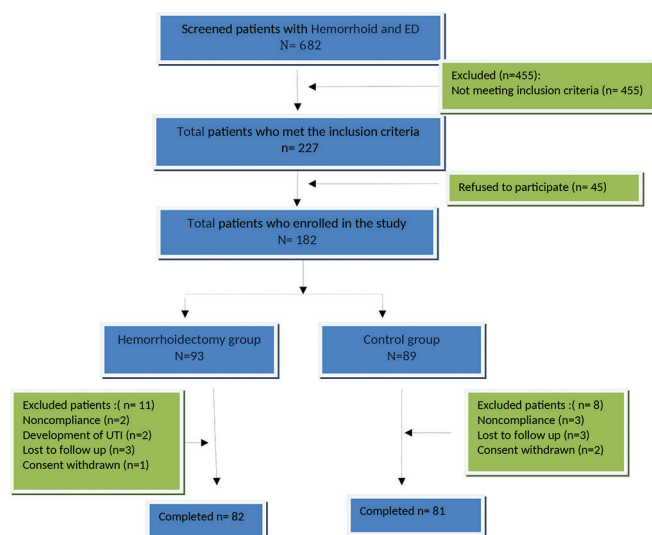


Figure 1: Patient randomization and disposition

any differences that might influence outcomes. No statistically significant differences were observed between both groups in the mean age, marital status, educational level, and job status or exercise habits, grade of hemorrhoid, comorbidities [Table 1], and IIEF-5 (*P* > 0.05) [Table 2].

No early hemorrhoid recurrence or serious postoperative complications were noted till the end of study. Postoperative complications were pain in 21 patients (25.60%), urinary retention in 6 patients (7.31%), mild bleeding per rectum in 7 patients (8.53%), and anal ulcer in 2 patients (2.42%) [Table 3].

Table 1: Patient characteristics: Demographic preoperative data of hemorrhoidectomy group and control group

Characteristic	Surgical group (82)	Control group (81)	<i>P</i>
Median age (range)	41 (22–48)	39 (23–50)	0.604
Grade of hemorrhoids			
3 rd	37	42	0.591
4 th	45	39	0.505
BMI			
Normal	60	63	0.818
Overweight	14	13	0.818
Obesity	8	7	0.604
Current smoker			
Medical disease	33	37	0.676
Hypertension	6	5	0.591
Hyperlipidemia	5	6	0.505
Diabetes mellitus	3	4	0.818
Cardiovascular	2	1	0.591

BMI: Body mass index

Table 2: International Index of Erectile Function preoperative data of hemorrhoidectomy group and control group

Domains and items	Mean (SD)	Mean (SD)	<i>P</i>
IIEF			0.604
Erectile function	14	15	0.591
Orgasmic function	7	6	0.505
Sexual desire	8	9	0.818
Intercourse satisfaction	6	7	0.818
Overall satisfaction	9	10	0.604
Total scale	44	47	0.676

IIEF: International Index of Erectile Function, SD: Standard deviation

Table 3: Postoperative complications

Complications	<i>n</i> (%)
Early	
Postoperative pain	21 (25.60)
Acute urinary retention	6 (7.31)
Postoperative bleeding	7 (8.53)
Bacteremia	1 (1.21)
Wound breakdown	1 (1.21)
Unhealed wound	1 (1.21)
Late	
Loss of anal sensation	2 (2.43)
Mucosa prolapse	1 (1.21)
Anal stricture	1 (1.21)
Delayed bleeding	3 (3.65)

The changes IIEF-5 were evaluated in both groups after 3 and 6 months and compared with the baseline data [Table 2]. In Group I, the mean IIEF-5 significantly increased from 15.56 to 23.37 ($P < 0.001$); this indicates that IIEF significantly improved by 46.93%. Thirty patients (31.1%) in Group I showed improvement of EF (IIEF < 26) after hemorrhoidectomy. This improvement was significantly higher when compared with patients who left untreated (17.3%) ($P < 0.001$). The mean IIEF-5 significantly increased from 15.56 to 23.37 ($P < 0.001$). In control group, IIEF-5 values were nonsignificantly changed ($P = 0.159$).

When the scores in each domain of the IIEF were evaluated, all the domain scores, except the desired domain, were found to be significantly increased in the surgical group ($P < 0.05$). The domain scores for EF ($P < 0.005$), orgasm ($P < 0.004$), intercourse satisfaction ($P < 0.005$), and overall satisfaction ($P < 0.005$) were found to be statistically significantly higher in the men who had had hemorrhoidectomy. Although the desired score was higher in the surgical patients, this difference was not found to be statistically significant [Table 4].

DISCUSSION

ED can be an important indicator that some other components of your health, whether it may be heart, weight, mental health, physical activity, or muscles, may need a little extra attention. Recent studies have revealed that ED is not only a correlate of cardiovascular disease, diabetes, and metabolic syndrome; it is rather an early warning symptom.^[1] Research is helping medical scientists to understand what is happening on these occasions, which may lead to new treatments.

Hemorrhoids are associated with regional vascular abnormalities and rectal pain, which are hypothesized to increase the risk of ED; however, few studies have investigated the association between ED and hemorrhoids and reported men may be more likely to suffer from ED if they have previously been diagnosed with hemorrhoids, particularly

if they are aged < 40 years and concluded that there was an association between ED and a prior diagnosis of hemorrhoids; however, this association is not really explained.^[8]

The localized swelling of the varicose veins around the deep perineum may induce local irritation. Further, these swollen veins and blood vessels in the anal and lower rectum regions lead to disrupted blood flow around the pelvic area. This local irritation and disruption or lack of circulation can easily lead to the symptoms of ED.^[8] It is unlikely that hemorrhoidectomy (which eliminates hemorrhoids) can be improving ED since this hemorrhoidectomy addressed theoretically as causes of ED against logical sequence. However, to our knowledge, no previous studies have looked at the status of the EF of men posthemorrhoidectomy.

In our countries, it is unethical to do an invasive procedure to the patients with uncertain outcome so that we conducted this prospective study in male erectile patients having hemorrhoids and would undergo hemorrhoidectomy for other indications and compared them with untreated patients as control to evaluate the effect of hemorrhoidectomy on ED.

In regard to sex, few studies revealed that female sexual dysfunction is more common in women with hemorrhoidectomy (48.7%) than in healthy women (7.7%),^[9] which supports the findings of other studies that women's sexual functioning is affected by surgical intervention;^[10,11] however, in men, some previous studies demonstrated that impotence was a rare but important complication of sclerotherapy for hemorrhoids^[12,13] that contradict with our results which showing significantly increased IIEF-5 score in hemorrhoidectomy group compared with nonsurgical control group, which may be due to different methods of management and gender of the patients.

In the present study, we used the self-report IIEF questionnaire as a validated, multidimensional, self-administered investigation that has been found useful

Table 4: International Index of Erectile Function postoperative data of hemorrhoidectomy group and control group

	Surgical group (82)			Control group (81)			P
	Mean baseline	Post-3 months	Post-6 months	Mean baseline	Post-3 months	Post-6 months	
Domains and items IIEF (score)							
Erectile function (30)	14	23	25	15	16	18	0.045*
Orgasmic function (10)	7	9	10	6	7	8	0.048*
Sexual desire (10)	8	9	9	7	8	9	0.043*
Intercourse satisfaction (10)	6	8	9	7	8	8	0.047*
Overall satisfaction (15)	9	13	14	10	11	11	0.049*
Total scale (75)	44	62	67	45	50	54	0.040*

IIEF: International Index of Erectile Function, *P value considered significant ≥ 0.05

in the clinical assessment of ED and treatment outcomes in clinical trials.^[7] It has been receptive and user-friendly in detecting the presence of ED in hemorrhoid patients. We found that IIEF increased significantly, 3 and 6 months following hemorrhoidectomy, indicating improvement of ED. Thirty-one patients (37.8.1%) in hemorrhoidectomy group showed improvement of ED, which is significantly higher when compared with patients who conservatively treated (14/81) (17.28%) ($P < 0.004$).

We found that IIEF item scores were not evaluated by other studies such as the one reported by Keller and Lin,^[8] who used ICD coding to diagnose ED so that we cannot compare the IIEF item scores in our study by other studies. However, in the surgical group in our study, the average total IIEF score was significantly higher in the hemorrhoidectomy group than controls group, for all items apart of frequency of desire. These findings suggest that male sexual function was improved by hemorrhoidectomy.

In our study, postoperative pain was the major drawback of hemorrhoidectomy early postoperative which scored mild to moderate and recorded in 21 patients (25.60%) in similar to others.^[14] Postoperative urinary retention occurred in 6 patients (7.31%); four of them were elderly patients with mild BPH (66.6%). Mild bleeding per rectum was observed in 8.53% cases on the postoperative day 1 and delayed bleeding was noted in three patients (3.65%). None of these patients had to be re-operated or necessary need blood transfusion. The other postoperative complications such as bacteremia and incontinence were not recorded and overall our complications were similar to other researches.^[14,15]

Mechanisms linking hemorrhoidectomy with improvement of EF appear to be complex and difficult to explain. The controlling of local vascular disturbance of genital area and pelvic region which associated with hemorrhoid may be having role and affect on pelvic component which shared in EF (pelvic floor muscle nerve and vessels).^[16,17] The improvement of EF may be due to improvement of pelvic vasculature or a reflection of decreasing of anal pain or swelling in disagreement with studies that concluded the prevalence of sexual problems in patients who have had pelvic or pelvic floor surgery is significantly greater than in the general population.^[18,19]

Our study's limitations include, first of all, a cross-sectional survey study; it is difficult to establish the causality of the significant associations. Second, this study might be limited by selection bias because the male controls were known to the researchers and therefore more willing to participate. Third, we did not expand our investigation to

include other parameters possibly relevant to male sexual function, such as hormonal status, earlier sexual experience, or parents' attitude toward sexual activity at various stages in a man's life.

Our results should be clinically applied with caution as the study was performed on young patients with ED for short duration so cannot be extended to include long run follow-up on general population. Long-term follow-up is recommended to validate this explanation. Further studies on a large scale of patients with long-term follow-up should be conducted to validate these results.

CONCLUSION

A significant improvement in EF after hemorrhoidectomy was observed in hemorrhoid patients. These results suggest that hemorrhoid is clearly related to pelvic vascular and neurogenic disorders.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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