



Transanal hemorrhoidopexy: Why it makes sense

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ABSTRACT

Aim: Transanal open hemorrhoidopexy (TOH) was developed as an alternative to stapled hemorrhoidopexy and THD/mucopexy. The aim of this article is to review the technical aspect and results of this technique.

Methods: A single coloproctology center experience with this technique was reviewed retrospectively. All consecutive patients who underwent TOH were analyzed. Short and long-term results are reported. TOH involves placing a Z-suture in the low rectum above the hemorrhoidal cushions and excising a 1 centimeter strip of rectal mucosa between the upper and lower aspects of the suture. Tightening of the suture provides an effective upward life of the hemorrhoidal bundle. The procedure is performed in 3 or 4 quadrants of the anal canal (as needed) at the point of maximal prolapse.

Results: From 2006 until 2013, 217 patients with 2nd and 3rd degree internal hemorrhoids were operated. Short-term complications included major bleeding in 5 patients (2%) and severe pain in 19 patients (9%). Long-term follow-up was obtained in 169 of 217 patients (78%) either through clinic visits or phone interview. Available patients were followed up for a minimum period of 60 months after TOH (median 113 months). 109 patients (64%) were symptom free and 147 patients (87%) indicated that they would consent to TOH again.

Conclusions: TOH is a safe operation for hemorrhoidal prolapse with encouraging short and long-term results. It is a safe and inexpensive alternative to stapled hemorrhoidopexy or THD/mucopexy and it should be included in the treatment algorithm of patients with symptomatic hemorrhoidal prolapse.

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Introduction

Hemorrhoidal prolapse can be dealt with by several techniques. Conventional hemorrhoidectomy (Milligan-Morgan or Ferguson) have few recurrences, but are associated with a longer recovery period and time off work compared with stapled hemorrhoidopexy (SH) or transanal hemorrhoidal dearterialization (THD) with or without mucopexy.¹ SH however needs a stapling device and serious complications after SH have been reported.^{2,3} Apart from these serious complications, some patients after SH need further treatment or operation for stenosis, retained staples, persisting pain, and urge incontinence. THD with or without mucopexy is performed using a Doppler device to localize the hemorrhoidal blood vessels. Whether the Doppler device is needed has been previously questioned by several authors.^{4,5} THD and mucopexy are procedures without excision of tissue. The Hubble study showed that performing two rubber band ligation procedures had recurrence rates comparable with the THD procedure, but without the added risks of THD and recovery time.⁶ Although SH and THD have had been good additions to the treatment armamentarium of hemorrhoids, their various drawbacks

have stimulated the interest in developing other techniques. With that in mind, an alternative hemorrhoidopexy technique was developed to treat patients with 2nd and 3rd degree internal hemorrhoidal prolapse.

The procedure of transanal open hemorrhoidopexy (TOH)

In 2009, the procedure of transanal open hemorrhoidopexy (TOH) was first described and I published its initial results.⁷ The primary indications for TOH are 2nd and 3rd degree internal hemorrhoidal prolapse. 4th degree hemorrhoids are considered fixed and are not appropriate to be dealt with by TOH. The operation is typically performed under general or regional anesthesia. My personal preference is to conduct the operation in lithotomy although the prone jackknife position is appropriate as well. Once the patient is under anesthesia, exposure of the anal canal and the hemorrhoidal bundles is obtained with an anoscope (Fig. 1). Above the hemorrhoidal cushion a Z-suture (Vicryl, Ethicon, Norderstedt, Germany) is placed proximally 4 cm above the dentate line and distally at the pedicle of the hemorrhoidal cushion (Figs. 2 and 3). After placing the suture, a 1 cm strip of mucosa between the proximal and distal aspects of the suture is excised (Figs. 4 and 5). Special attention is needed to obtain immediate hemostasis as excessive bleeding can occur. After the excision of the mucosal strip, the Z-suture is

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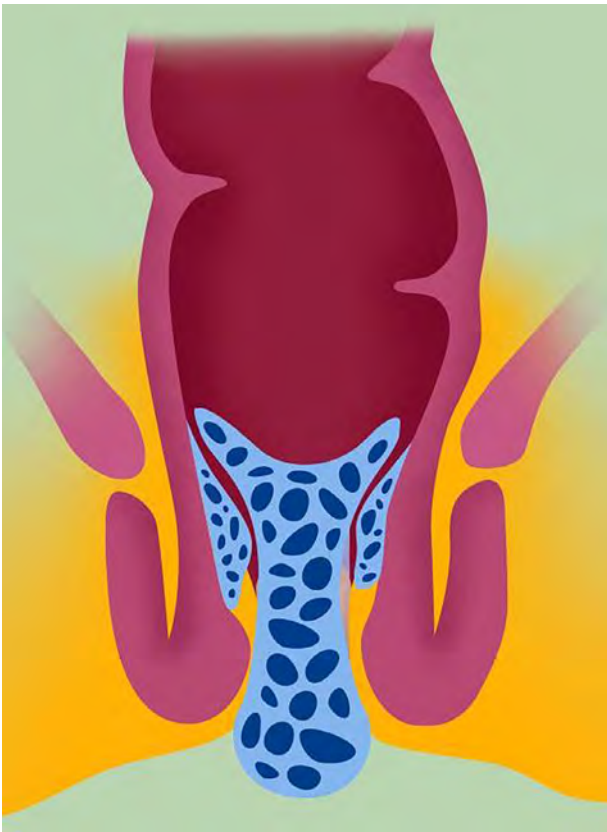


Fig. 1. Segmental hemorrhoidal prolapse is exposed with a retractor.

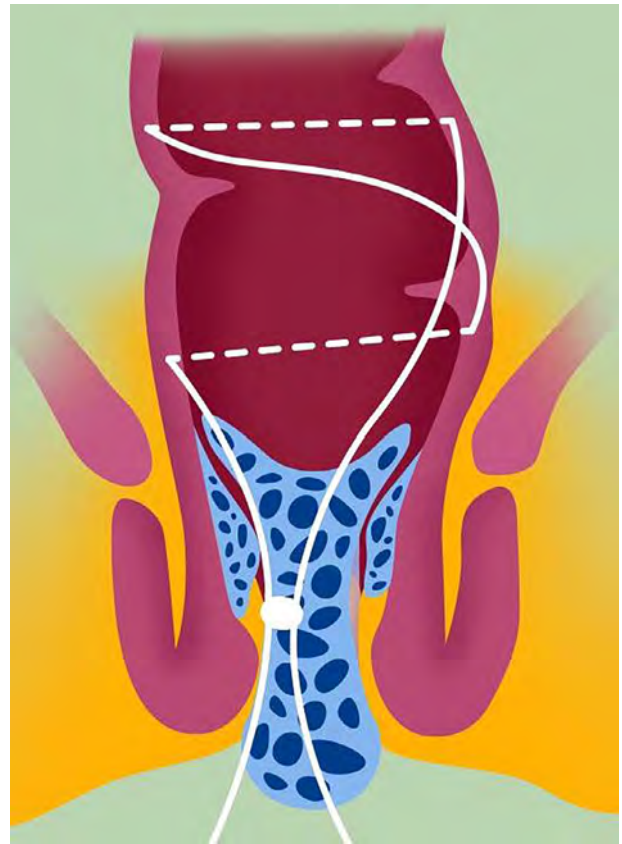


Fig. 3. Distal part of the Z-suture placed about 2 cm proximal to the dentate line (at the pedicle of the hemorrhoidal cushion).

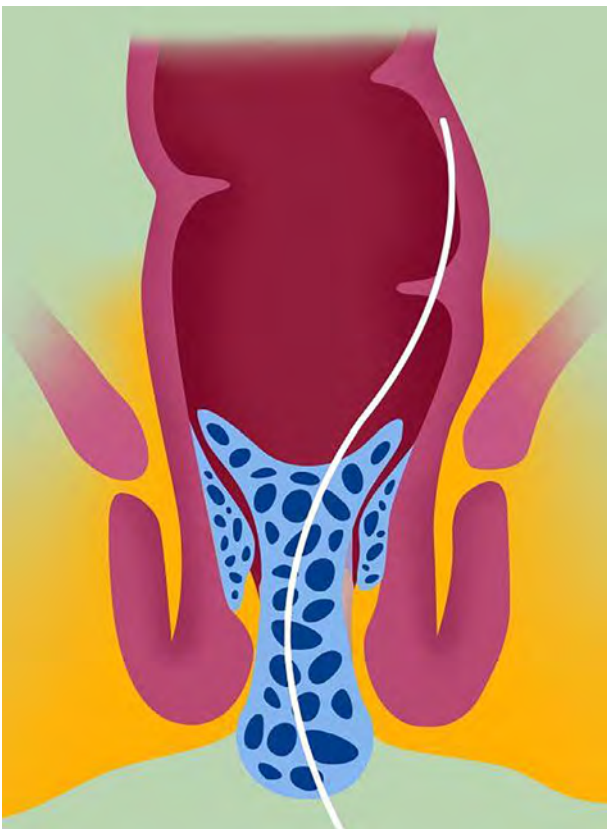


Fig. 2. Placing a Z-suture beginning at about 4 cm proximal to the dentate line.

tightened which usually stop most bleeding (Fig. 6). Following the mucosal excision and the tightening of the suture, the prolapsed hemorrhoidal tissue is lifted upward and “pexied” in the same manner as SH (Fig. 6). Each hemorrhoidal bundle is dealt with in a similar fashion. Usually, 3 to 4 areas are tackled circumferentially in order to achieve a complete circular hemorrhoidopexy. Skin tags are left undisturbed in order to avoid pressure, urgency, or pain after TOH. The procedure is typically performed on an outpatient basis and the patient is recovered from the anesthetic and discharged after voiding. Patients with significant medical co-morbidities are operated in an inpatient setting. Post procedural instructions include dietary advice, pain medications, and discussion about signs to watch for such as bleeding, fever, and difficulty with urination. Non-narcotics pain medications such as ibuprofen or non-steroidal anti-inflammatory drugs are prescribed and the patient is advised to take as needed for pain and at bedtime. Patients return for the first postoperative visit within 4 to 8 weeks, or sooner if any issues.

Results

A retrospective review was conducted of all consecutive patients operated with TOH between 2006 and 2013. 217 patients (97 females) with symptomatic 2nd and 3rd prolapsing internal hemorrhoids were operated with TOH (Table 1). In 164 patients (76%), the procedure was performed as an outpatient procedure in an office based procedural room. In 53 patients (24%), the procedure was performed in the inpatient setting due to medical co-morbidities (ASA III/IV, coronary or pulmonary disease). The inpatient group typically stayed in the hospital between 1 and 4 days (median 2 days). Complications after TOH are listed in Table 1. Major bleeding necessitating intervention with return to the operating room for suture control was noted in 5 patients (2%). Major pain that could not be control with non-narcotics based regimen was reported by 19 patients (9%). The pain was related to postoperative external

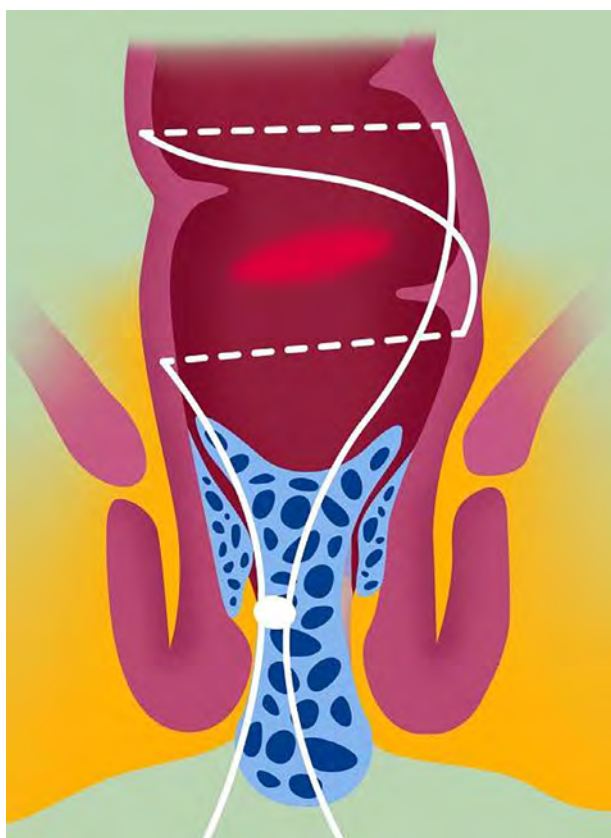


Fig. 4. Between the proximal and distal part of the Z-suture a strip of mucosa is excised.

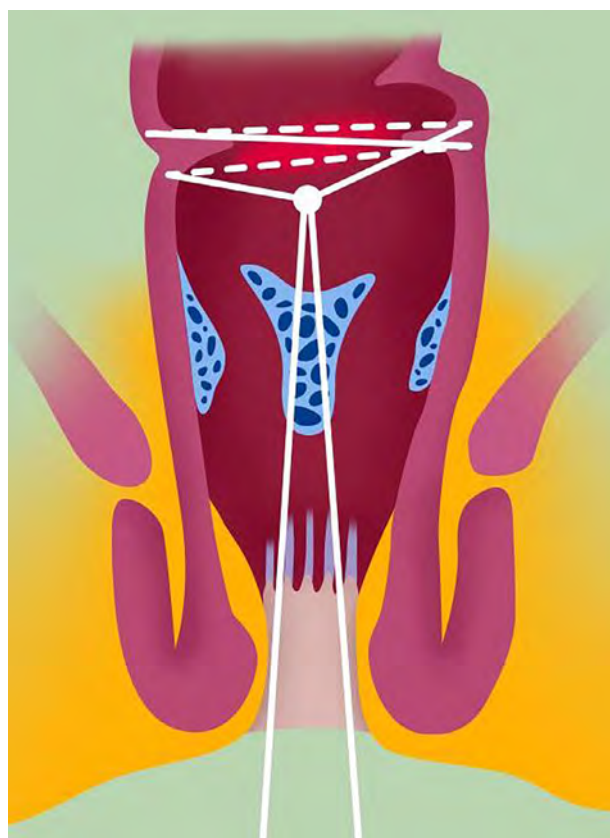


Fig. 6. After tightening of the Z-suture the prolapsed hemorrhoidal tissue is repositioned into its physiological position in the distal rectum.

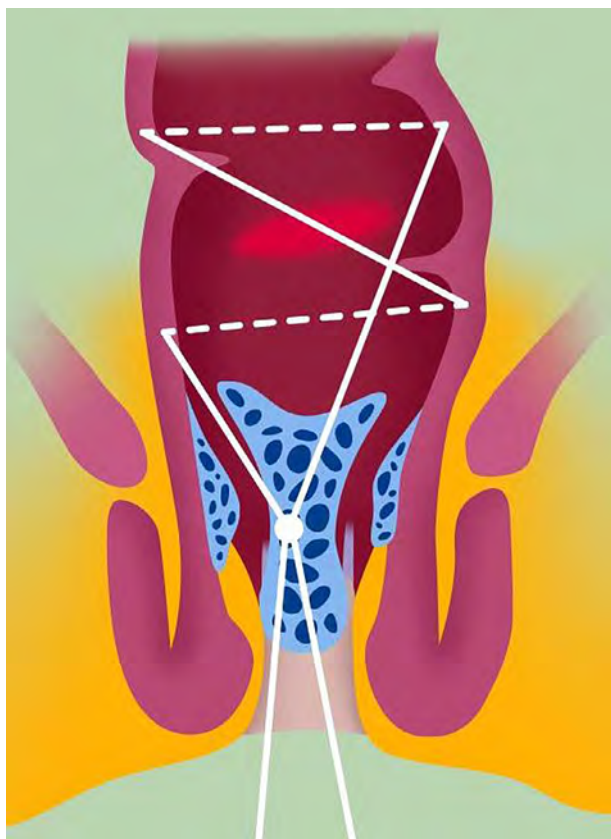


Fig. 5. After excising the mucosal strip and dealing with bleeding the Z-suture is tightened.

Table 1

Data on 217 patients who had transanal open hemorrhoidopexy procedure (TOH).

	N	%
Patients	217	100
Male/Female	120 /97	55 /45
Age median (range) years	50 (21 - 82)	
Symptoms		
Pain	83	38
Bleeding	176	81
Itching/soreness	26	12
Feeling of anal fullness/pressure	98	45
General anesthesia	207	95
Spinal anesthesia	10	5
Outpatient procedure	164	76
Inpatient procedure*	53	24
Median length of stay (range) days*	2 (1 - 4)	
Complications		
Bleeding minor (without intervention)	33	15
Bleeding major (suture in OR)	5	2
Urinary retention	0	0
Severe pain	19	9
Need for excisional hemorrhoidectomy (<30 days)	1	0.5
Median days off work [if working] (range)	3 (2 - 8)	

* For inpatient procedures.

hemorrhoids thrombosis in 9 patients (4%) and in 10 patients (5%) no physical abnormality was noted. 1 patient was readmitted to another hospital in the immediate postoperative period and underwent a conventional hemorrhoidectomy. In most patients, a painless defecation was achieved within 2 to 3 days. At the first follow-up between 4 and 8 weeks, more than 70% of the patients reported a significant reduction in the hemorrhoidal symptoms (Table 2). In 2018, an updated long-term follow-up was conducted of all available patients either through an office-based visit or by telephone using a scripted questionnaire. Patients were

Table 2
Follow up data of 169 patients after transanal open hemorrhoidectomy procedure (TOH).

	N	%
Lost to follow-up	48	22
Office or telephone interview	169	78
Total	169	100
Females	75	44
Males	94	56
Median age (range) years	50 (21 - 82)	
Median follow-up time (range) months	113 (60 - 139)	
Reduction of symptoms after TOH (4–8 weeks)		
Not at all	7	4
Only a little	4	2
Minor	32	19
Noticeable/explicit	115	68
Major	8	5
Complete	3	2
Reoperation for recurrent hemorrhoidal symptoms	38	22
TOH second time	24	63
Stapled hemorrhoidectomy	10	26
Excisional hemorrhoidectomy	4	11
Symptoms/complaints at follow-up		
Yes	58	34
No	109	64
No response	2	1
Knowing TOH and having experience with TOH would you consent to the TOH-procedure again, if you had to decide again?		
Yes	147	87
No	18	11
No response	4	2

questioned for residual or recurrent symptoms, any reoperation or additional intervention since TOH, and the willingness to have the TOH procedure again, if necessary (Table 2).

Long-term follow-up was obtained in 169 patients (78%). 48 patients (22%) had incomplete or no long-term follow-up data. Median time of follow-up was 113 months (range between 60 and 139 months). Nearly 2/3 of the patients (64%) had no hemorrhoidal symptoms or complaints. 38 patients (22%) were reoperated for recurrent hemorrhoidal symptoms. Of these, 24 patients opted for a second TOH, 10 patients had SH, and 4 patients had a conventional hemorrhoidectomy. Nearly 90% of the patients were willing to undergo TOH again, if necessary. Fig. 7 shows the baseline (A), immediate postoperative (B), and long-term (C) results of a 46-year-old female patient.

Discussion

In the last 3 decades, several novel techniques such as SH and THD have been added to the armamentarium of the hemorrhoidal treatment. The aim of these new techniques was to shorten the recovery period associated with conventional hemorrhoidectomy, to minimize the perioperative risks, and decrease postoperative pain. While SH has been associated with less pain compared to conventional hemorrhoidectomy, serious complications including death have been reported after SH.^{2,3} Furthermore, some patients have required pelvic surgery with rectal

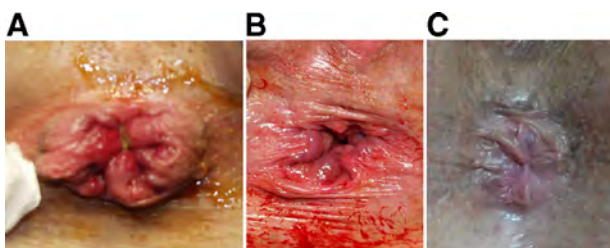


Fig. 7. A female patient with prolapsing hemorrhoids operated 2007 by transanal open hemorrhoidectomy (TOH). A-Before surgery. B-Immediate postoperative view. C-11 years later.

resection to treat complications arising from SH.⁸ While some of these complications have been attributed to surgeon's inexperience with the technique, inappropriate use of the stapling device, or improper selection of patients, never the less, the negative impact of complications following SH can be significant. Chronic pain, urge incontinence, rectal stricturing, and the development of post SH defecatory issues have raised concerns about this technique. At some level, the potential for significant long-term complications of SH may outweigh the short-term benefits of was billed initially as a painless procedure for hemorrhoids. The eTHoS study compared the short and long-term outcomes of SH compared to conventional hemorrhoidectomy.⁹ While SH had favorable short-term results in terms of pain and recovery, it was associated with higher cost, and long-term conventional hemorrhoidectomy had better results in terms of symptoms relief, less recurrence, and less defecatory issues. Several meta-analyses including the network meta-analysis by Simillis showed that SH was associated with less pain and quicker recovery, but a higher recurrence rate compared with conventional hemorrhoidectomy.¹ While no direct comparison between SH and TOH has been prospectively conducted, it is my personal believe that TOH is comparable in the short term to SH in terms of perioperative complications, pain, and recovery but it is a safer operation long-term in regards to the significant issues seen in some patients undergoing SH such as chronic pain, urge incontinence, rectal stricture, or defecatory issues. Unlike SH, during TOH the surgeon has full control of the procedure by achieving undisturbed and direct vision of the rectal wall and the anal canal throughout the procedure. This technical difference minimizes some of the severe risks associated with SH. Furthermore, no staples are left in the rectal wall during TOH which significantly decrease the risks of developing chronic pain which is seen in some patients with SH. Furthermore there is no limitation in terms of resuming anal receptive intercourse in patients who desire to do so.

In comparison to THD without mucopexy, it is important to note the technical differences that differentiate TOH. In TOH, excision of a strip of mucosa is performed in several quadrants along with lifting of the hemorrhoidal bundles. This process leads to scarring of the low rectal wall with upward migration of the hemorrhoidal bundle. TOH is a relatively inexpensive technique compared to THD which requires a capital investment of a Doppler machine and the cost of disposable equipment with each case. While the idea of ligating the hemorrhoidal arteries under Doppler guidance is appealing, the added benefit of this technique has been questioned.^{4,5} The addition of a mucopexy has been advocated to enhance the results of THD in some patients but whether it achieves long-term relief of symptoms has been disputed. While THD has been associated with less pain and faster recovery, it has a higher recurrence rate compared with conventional hemorrhoidectomy.¹ Furthermore, its long-term effectiveness compared to a simple office-based procedure such as rubber band ligation has been questioned. While the Hubble study demonstrated that THD was more effective than 1 rubber band ligation procedure in the office, the addition of a 2nd rubber band ligation procedure in some patients eliminated the long-term difference in symptoms relief.⁶ Rubber band ligation is an inexpensive procedure compared to THD and can be repeated several times if needed with minimal recovery period or risks.

Finally, TOH can be safely repeated and the majority of patients who underwent this procedure are willing to do it again if necessary. The technique is easy to teach with a short learning curve compared to SH or THD.

Conclusions

TOH is a simple and cost-effective operation that should be considered for patients with 2nd and 3rd degree prolapsing internal hemorrhoids. This technique compares favorably with SH and THD in terms of short-term recovery and recurrence rate but has the added benefits of less cost and fewer long-term complications. It is easy to

learn and can be performed in an outpatient setting in most patients. It can be safely repeat in patients with recurrent disease.

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References

1. Simillis C, Thoukididou SN, Slessor AA, et al. Systematic review and network meta-analysis comparing clinical outcomes and effectiveness of surgical treatments for haemorrhoids. *Br J Surg*. 2015;102:1603–1618.
2. McCloud JM, Jameson JS, Scott AN. Life-threatening sepsis following treatment for haemorrhoids: a systematic review. *Colorectal Dis*. 2006;8:748–755.
3. Porrett LJ, Porrett JK, Ho YH. Documented complications of staple hemorrhoidopexy: a systematic review. *Int Surg*. 2015;100:44–57.
4. Schuurman JP, Borel Rinkes IH, Go PM. Hemorrhoidal artery ligation procedure with or without Doppler transducer in grade II and III hemorrhoidal disease: a blinded randomized clinical trial. *Ann Surg*. 2012;255:840–845.
5. Gupta PJ, Kalaskar S, Taori S, et al. Doppler-guided hemorrhoidal artery ligation does not offer any advantage over suture ligation of grade 3 symptomatic hemorrhoids. *Tech Coloproctol*. 2011;15:439–444.
6. Brown SR, Tiernan JP, Watson AJM, et al. Hemorrhoidal artery ligation versus rubber band ligation for the management of symptomatic second-degree and third-degree hemorrhoids (HubBLE): a multicentre, open-label, randomised controlled trial. *Lancet*. 2016;388:356–364.
7. Pakravan F, Helmes C, Baeten C. Transanal open hemorrhoidopexy. *Dis Colon Rectum*. 2009;52:503–506.
8. Pescatori M, Gagliardi G. Postoperative complications after procedure for prolapsed hemorrhoids (PPH) and stapled transanal rectal resection (STARR) procedures. *Tech Coloproctol*. 2008;12:7–19.
9. Watson AJ, Hudson J, Wood J, et al. Comparison of stapled haemorrhoidopexy with traditional excisional surgery for haemorrhoidal disease (eTHoS): a pragmatic, multicentre, randomised controlled trial. *Lancet*. 2016;388:2375–2385.