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Original Article

PATIENTS' CONTENTMENT WITH TRANSANAL HEMORRHOIDAL DEARTERIALISATION

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Abstract. *Hemorrhoidectomy was the method of choice for treating grade 3 and 4 hemorrhoids. Due to a large number of complications, a new surgical treatment called transanal hemorrhoidal dearterialization (THD) was introduced. The aim of the study was to evaluate the effect of treatment with THD in patients with hemorrhoids. This study included 70 patients, 48 males and 22 females, who were hospitalized at the Clinical Center Nis in the period from September 2016 to September 2018. Fifteen patients had grade 4 hemorrhoids, 54 were with grade 3, one patient with grade 2. The average duration of the operation was 33.33 minutes, and patients were hospitalized for 1–2 days. We recorded: sex, age, stage, type of anesthesia, duration of surgery, length of stay, patient satisfaction, combinations of THD with other procedures, and surgical complications. In 46 patients, surgery was performed under general anesthesia, in 18 patients in spinal and in 6 patients in local anesthesia with analgesia. In 37 subjects we used THD only, and in 33 we used THD in combination with other methods. We observed the development of complications in 9 patients. Bleeding occurred in 2 patients, pain in 2, and urinary retention in 4, and abscess in 1. The majority of the patients (62.9%) were satisfied with this method, 27.1% were partially satisfied and 10% were unsatisfied. This method provides a shorter stay in the hospital, low complications rate and is a safe, fast and simple initial surgical option.*

Key words: *hemorrhoids, transanal hemorrhoidal dearterialization, patients' satisfaction, complications.*

Introduction

Hemorrhoidal disease is the most common anorectal pathology and it represents a great socioeconomic and medical problem. It is estimated that 90% of general population suffers from hemorrhoidal symptoms at least once in their life [1–3]. The rectal bleeding incidence in human population related to hemorrhoidal bleeding is around 20% per year, compared to all kinds of rectal bleeding [4], while the prevalence of hemorrhoidal disease, according to different studies, varies between 4.4% and 86% [5–7].

According to the degree of prolapse, hemorrhoids can be categorized in four groups. Grade I hemorrhoids do not prolapse; grade II prolapses during straining but reduces spontaneously; grade III requires manual reduction; grade IV hemorrhoids reduce rarely or do not at all [8]. A wide range of treatment options for hemorrhoidal diseases is available. The early stages of the disease can usually be treated conservatively with success, while advanced stages require a surgical approach. At present, surgical treatment generally involves the resection of hemorrhoidal cushions, as in conventional hemorrhoidectomy (CH), or prolapse reduction, as in stapled hemorrhoidopexy (SH) [9].

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Hemorrhoidectomy is considered the standard treatment for symptomatic hemorrhoids, especially for grade III and IV [10]. For years, hemorrhoidectomy, according to Milligan-Morgan and Ferguson, was the golden standard in treating high-grade hemorrhoids [11]. However, open hemorrhoidectomy is connected with postoperative complications like pain, anal stenosis, bleeding, incontinence and even sepsis [12]. Therefore, it was imperative to develop a new, as efficient but less invasive method of treatment [13]. In 1995 a new technique called transanal hemorrhoidal dearterialization (THD), was developed. This procedure aims to reduce arterial blood flow to hemorrhoids [15,16]. This technique eliminates hemorrhoidal symptoms by the dearterialization of the terminal hemorrhoid branches of the superior rectal artery. For this procedure an instrument consisting of the proctoscope is used in combination with the Doppler probe for arterial location and ligation. The ligation of blood vessels leads to the decongestion of the hemorrhoidal tissue. Reduced tension enables the regeneration of the connective tissue inside the hemorrhoidal cushion, which results in a lower occurrence of prolapse and relief of the symptoms [17].

The goal of this study was to evaluate the effect of the treatment with transanal hemorrhoidal dearterialization in patients with grade II–IV hemorrhoids and the patients' satisfaction with the procedure.

Material and Methods

A retrospective study was conducted, which included 70 patients treated at the Department for Colorectal Sur-

gery of the Clinic for Digestive Surgery, Clinical Centre Nis, Serbia, during the period from September 2016 to September 2018. This study included patients with grade III and IV hemorrhoids, as well as grade II hemorrhoids, in whom the conservative treatment failed. The original technique of THD with or without mucopexy described by Carlo Ratto was used [18].

The patients were contacted by phone 6 months after the surgery. In the course of this study we recorded the following parameters: gender, age, grade of hemorrhoids, duration of hospitalization, type of anesthesia, duration of the surgery, patient satisfaction, the combination of THD with other procedures and surgical complications. A questionnaire prepared in Microsoft Word (Version 14.6.6, 2011, Microsoft Corporation, Redmond, Washington, USA) was used. The collected data were entered into an Excel data base (Version 14.6.6 2011, Microsoft Corporation, Redmond, Washington, USA). The data were analyzed in the statistical package Jandel SigmaStat (Version 2). Chi-square and Fisher's exact test were used for the analysis. The values from $p < 0.05$ to $p < 0.01$ were considered statistically significant.

Results

There were 48 male (68.6%) and 22 female (31.4%) patients, aging 48.33 on average (32–82). Of the 70 patients, 15 were with grade IV, 54 with grade III and only 1 patient with grade II hemorrhoids (Table 1).

Table 1 Demographical data of the patients

Data		N (%)
Sex	Total	70 (100%)
	Male	48 (68.6%)
	Female	22 (31.4%)
Age	Average (range)	48.33 (32–82) (years)
Grade	I	0
	II	1
	III	54
	IV	15

The average duration of the surgery was 33.33 minutes, while the patients were hospitalized for 1–2 days. This procedure was conducted under anesthesia, i.e. in 46 patients under general endotracheal anesthesia, in 18 patients spinal anesthesia was used, while in 6 patients local anesthesia with analgosedation was used. In 37 patients only THD was used, while in the other 33 patients THD was combined with other surgical methods (the Milligan-Morgan hemorrhoidectomy, the Ferguson hemorrhoidectomy etc.) (Table 2). Complications were recorded in 9 patients: bleeding occurred in 2 patients, pain in 2, urinary retention in 4, and abscess in 1 patient (Table 3).

Postoperative complications are presented in Table 3. Except for 3 patients, all the others were discharged within 24 hours with no major complaints. Three patients were readmitted for complications (abscess and bleeding). Two patients had postoperative pain and 4 had urinary retention. Six months postoperatively, the majority of the patients (62.9%) were highly satisfied with this method, 27.1% were moderately satisfied, and 10% were unsatisfied. More than 80% of the patients would recommend this method to others.

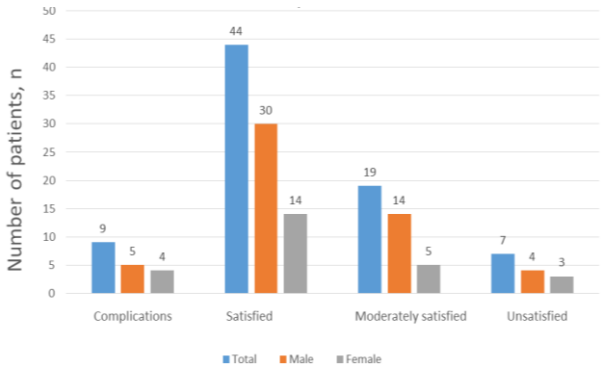
Table 2 Data regarding surgery

Data		N (%)
Duration of the surgery	Average	33.33 (min)
Period of hospitalization	Average (range)	1.07 (1–2) (day)
Type of anesthesia	General endotracheal	46
	Spinal	18
	Local + analgosedation	6
Procedure	THD	37
	THD + other (lateral sphincterotomy, skin tag removal, fistulotomy, excision of anal warts, removal of piles)	33
Complications		9 (12.86%)

Table 3 Postoperative complications following THD

Complications	Number of patients
Bleeding	2
Pain	2
Urinary retention	4
Abscess	1

Graph 1 Patients' satisfaction with the procedure in terms of symptom relief



Graph 2 Categorizing patients in terms of complications and satisfaction with the procedure

Table 4 Review of complications and the applied method in relation to the hemorrhoidal grade (I–IV)

Hemorrhoids	Grade II	Grade III	Grade IV	p-value
Complications, n	0	8	1	n.s.
No complications, n	1	45	15	n.s.
THD, n	0	28	9	n.s.
THD in combination, n	1	26	6	n.s.

The percentage of observations in different categories which define the table of contingency was not significantly different from what is expected in random occurrence (Chi-square, Fisher's exact test).

Discussion

The surgical treatment of hemorrhoids is taken into consideration when the conservative treatment fails or patients have grade III or IV hemorrhoids and symptomatic hemorrhoidal disease respectively. The methods of conventional hemorrhoidectomy sometimes results in complications, such as urinary retention (2–36%), bleeding (0.03–6%), anal stenosis (0–6%), infection (0.5–5.5%) and incontinence (2–12%), as well as postoperative pain [5, 9, 10]. To reduce pain following surgery, techniques of excision have undergone multiple modifications (including diathermia, scissors, laser, Harmonic or Ligasure hemorrhoidectomy). These modifications have not only increased surgical expenses, but have also given poorer results in comparison with usual measures. However, with transanal hemorrhoidal dearterialization not only is postoperative pain reduced but also it rarely has significant complications, such as anal stenosis or incontinence [11].

Besides being minimally invasive, THD is not an excisional procedure. This enables the regeneration of the normal anorectal anatomy; in addition, it or other surgical procedures can be done again in case of recurrence. According to our results, THD can be successfully used in combination with other proctological procedures not influencing the success of the intervention or the satisfaction of patients. In other excisional procedures, a significant resection of the mucous membrane is required; for that reason, the anal canal becomes sensitive to complications, while a combination with other interventions on the anal canal becomes unsuitable.

In this study, complications occurred in 12.85% of the participants, mostly in the form of urinary retention, pain, bleeding and abscess. Similar rates and types of complications are described in other five large studies which included 388 individuals (Bursics A, et al. 2004, Hungary; Festen S, et al. 2009, Netherlands; Gupta PJ, et al. 2011, India; Infantino A, et al. 2012, Italy; Shuurman JP, et al. 2012, Netherlands) [19]. The results of these studies are encouraging, since these complications are less frequent in THD than in conventional hemorrhoidectomies [20–23]. Complications, such as urinary retention, are not really significant since they can be treated with catheterization and efficiently removed on the same day. In our study none of the complications required surgical intervention.

There have been a number of studies on THD which show its early efficacy and safety for all grades of hemorrhoids, and recently THD has been acknowledged by the National Institute for Health and Care Excellence (NICE) as a safe and efficient alternative to conventional hemorrhoidectomies in Great Britain [24]. The recent study on THD for the treatment of grade IV hemorrhoid conducted by Ratto and al. [25] showed the disappearance of symptoms in 94% of the patients, while only 6% required additional surgeries. Similar results were obtained in our study as well. This method was successful in 60% of the patients with grade IV hemorrhoids.

Due to promising results and considerably low rate of recurrence, THD meets all criteria for coming up with patients' expectations. In the studies conducted to evaluate the success of the THD procedure, patients' satisfaction has had a great role [26]. In 2010, Tempel and al. [27] carried out a study on patients' satisfaction after THD and found out that 91.5% of the patients were satisfied with the procedure because it had helped with the disappearance of the symptoms. It has been equally well evaluated by surgeons [28]. In our study 62.9% of the participants were satisfied with this procedure.

The presence of complications after THD could be considered as failure of this method. Taking into consideration this failure, we can conclude that the success of this procedure was 87.14%. A high rate of success of THD can be attributed to the fact that in all patients a technique of distal dearterialization, the DDD (Doppler-guided distal dearterialization) modification, has been used [18]. It is important to point out that the procedure can be successfully repeated several times, and that the adequate choice of patients is crucial for its success.

A drawback of this study is its retrospective character since it was not possible to establish with a certainty in which patients mucopexy was performed, so it was not possible to conclude if the success rate of THD was additionally increased.

Conclusion

It is suggested that THD has fewer postoperative complications and shorter recovery due to reduction of postoperative pain than other conventional surgery. Patients treated with THD experience faster recovery. High satisfaction rate, tolerable rate of complications, shorter leave of absence and reduced level of postoperative pain suggest that this is a safe, fast and simple surgical option.

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