

Doppler-Guided Transanal Hemorrhoidal Dearterialization (DG-THD) Versus Stapled Hemorrhoidopexy (SH) in the Treatment of Third-Degree Hemorrhoids: Clinical Results at Short and Long-Term Follow-Up

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Abstract

Introduction The stapled hemorrhoidopexy (SH) and the Doppler-guided transanal hemorrhoidal dearterialization (DG-THD) are minimally invasive procedures for the surgical treatment of hemorrhoids. This study aims to verify the efficacy of the DG-THD versus the SH in the treatment of third-degree hemorrhoids.

Method One hundred consecutive patients were causally allocated to either procedure, obtaining two groups of 50 pts. A clinical examination was performed at 3, 7, 15, and 30 days after the operation. Quality of life, anal symptoms, recurrence of hemorrhoids, and reoperation were assessed by means of a questionnaire and of a clinical examination at long-term follow-up (7.0 year average).

Results At short-term follow-up, the median postoperative pain score was significantly lower in DG-THD group compared to SH group, (V.A.S 2 vs 6; $t = 2.65$, $p < 0.01$). The morbidity rate and the return to normal life and work were similar after the two procedures. At long-term follow-up, the incidence of piles was not statistically different between the two groups (DG-THD 10.0 %; SH 14.0 %). No differences were reported by patients in terms of satisfaction for surgery.

Conclusion SH and DG-THD procedures do not show significantly different results with regard to the patients outcome. However, considering the lower p. o. pain, the DG-THD might be proposed as the first line treatment in third-degree hemorrhoids.

Keywords Hemorrhoids · Stapled hemorrhoidopexy · DG-transanal hemorrhoidal dearterialization · Recurrence of hemorrhoids

Introduction

The stapled hemorrhoidopexy (SH)¹ and the Doppler-guided transanal hemorrhoidal dearterialization (DG-THD)² are the two minimally invasive procedures for the surgical treatment of hemorrhoids performed in recent years.

The good results in the early postoperative period, such as shorter hospital stay, less anal pain and discomfort, and early return to normal life^{3, 4} seem to be the main advantages of these surgical procedures compared to the conventional Milligan Morgan hemorrhoidectomy.^{2–11}

However, a high incidence of recurrent hemorrhoids^{8, 10–12–14} has been observed at long-term follow-up: 13.9 % at 7 years for the SH¹⁵; 14–25 % at 3 years for the DG-THD.^{9, 16} The high recurrence rate might be due to a poor selection of patients with regard to the hemorrhoids degree. The fourth-degree of hemorrhoids and/or the severe mucosal intussusception might result in an unfavorable outcome of the procedure.^{14–16–17}

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Recently, three prospective randomized studies,^{16–18, 19} comparing the two techniques in treating third-degree hemorrhoids, have shown a marked discordance in their results.

Our study aims to further verify the efficacy of the DG-THD versus the SH in the treatment of third-degree hemorrhoids, at short and long-term follow-up.

Materials and Methods

One hundred patients (60 m. and 40 f., mean age 56.3 years, range 36–78 years), who after failure of medical treatment underwent a surgical treatment because of third-degree hemorrhoids at the University of L'Aquila (2005–2008), are the objective of the study. Anal pain (11 cases), bleeding (81 cases), and defecation discomfort (25 cases) were the associated symptoms reported by them. They were casually allocated to either procedure, obtaining two groups of 50 pts each, homogeneous for gender and age.

All operations were performed in day surgery by experienced surgeons, trained in both techniques. A sub-aracnoid anesthesia was adopted for both procedures.

A circular stapler PPH-03 (Ethicon Endosurgery) was used in the SH procedure, while a specifically designed proctoscope (THD PS02, THD Lab. Correggio, Italy) with an incorporated side-sensing Doppler probe was used in the DG-THD. The procedures were performed according to the original description.^{1, 2} The DG-THD was completed with mucopexy using a continuous suture below the dearterialization site.^{20, 21} No antibiotic prophylaxis was adopted routinely and the bowel preparation was obtained with a preoperative enema. The discharge of patients was from 7 to 10 hours after operation. A bulk laxative and a high residue diet were recommended at discharge. The pain prevention was done with 60 mg of intravenous ketorolac at recovery from anesthesia, and then with 30 mg given orally t.i.d. for 5 days.

The clinical examination of patients was performed at 3, 7, 15, and 30 days after the operation. Pain, bleeding, first bowel motion, and return to normal daily activities were recorded. The pain was assessed using a visual analogic scale (VAS) from 0–10.

At long-term follow-up, after a mean of 7.0 years (range 5–11), the patients were recalled and submitted to a questionnaire. The questionnaire regarded anal symptoms, recurrence of hemorrhoids, and reoperation because of hemorrhoids and satisfaction for the type of surgery.

Table 1 V.A.S. score of postoperative pain in 100 patients undergone surgery for third-degree hemorrhoids

	Pre.op	1° p.o day	3° p.o day	7° p.o day	30° p.o day
SH	6. ± 4	9.9 ± 0.5	8.5 ± 1	8 ± 2.5*	6 ± 2**
DG-THD	6.5 ± 4	6 ± 3	6. ± 1	4 ± 2*	2 ± 2.5**

* $t = 2.02$, $p < 0.05$

** $t = 2.65$, $p < 0.01$

At the same time, a clinical examination with anoscopy was performed.

All patients, living in a small town, were available for a long-term follow-up.

The statistical significance of the results was assessed with the chi-square test and the Student's t test only for VAS findings. A P value < 0.05 was considered statistically significant.

Results

Short-Term Follow-Up

At short-term follow-up, the median pain score was significantly lower in the DG-HD group compared to the SH group, especially at day 7 (4 vs 8; $t = 2.02$, $p < 0.05$) and day 30 (2 vs 6; $t = 2.65$, $p < 0.01$) after surgery (Table 1).

The postoperative anal bleeding rate was 8 % in the SH group and 6 % in the DG-THD group, not significant. In all patients, bleeding improved spontaneously and no one required readmission and medical attention.

A thrombosis of hemorrhoids was observed in one patient of the DG-THD group (2 %).

One patient (2 %) in the SH group developed a major, postoperative complication characterized by hematoma of the rectum-sigmoid and hemoperitoneum necessitating surgery with the sigmoid resection.

Table 2 Postoperative satisfaction of 100 patients undergone surgery for third degree-hemorrhoids

	No satisfied	Somewhat satisfied	Satisfied	Very satisfied
SH	8 %	17 %	25 %	50 %
DG-THD	0	9 %	26 %	65 %

No patient in either group reported fecal urgency, anal incontinence, or soiling.

The return to normal life and to work was similar after both procedures.

Long-Term Follow-Up (mean 7.0 years, range 5–11 years)

At clinical examination, the rate of persistence/recurrence of hemorrhoids was not statistically different between the two groups of patients: 10.0 % in the DG-THD group and 14.0 % in the SH group ($X^2 = 0.94$; $p = 0.2$). Only internal hemorrhoids were present in all cases, however without any symptoms reported by the patients.

In either group, no patient reported persistent anal pain and bleeding, fecal urgency, anal incontinence, or soiling.

No differences were observed between the two groups regarding the patient satisfaction for surgery (Table 2). However, nobody of DG-THD cases reported poor satisfaction. Reoperation for hemorrhoids was not reported.

Discussion

Our results seem to confirm that the DG-THD is an effective procedure for the treatment of patients with third-degree hemorrhoids. Many authors have reported the same results, even if the comparison between DG-THD and SH procedures has not always been done in patients with the same degree of hemorrhoids.^{22, 23}

The early anal pain after the DG-THD seems lower than after the SH,^{23, 24} as in our experience. However, some studies have not demonstrated a significant difference.^{18, 19} At long-term follow-up, no persistent anal pain was reported in both groups of patients.¹⁹ One might expect that patients with complications, such as anal stenosis, sphincter hypertonia, or failure of surgical procedure, can complain of anal pain.²³ We did not observe such persistent pain at long-term follow-up in our patients.

Anal bleeding is frequent during stapled haemorrhoidopexy²⁵ and may be present in the long term, with an incidence between 2 and 8.1 %.^{13–15} The DG-THD shows less postoperative anal bleeding^{21, 23} and late bleeding (0–5.9 % of cases).^{18, 19} In our study, no patient reported anal bleeding.

The incidence of morbidity after the two procedures is from 2.7 to 16.6 % in the SH^{7, 23} and from 5.0 to 9.8 % in the DG-THD,^{8, 23} even if it may be higher up to 30.6 % in the DG-THD and 32.1 % in the SH.¹⁹ However, stapled

hemorrhoidopexy has shown major complications,^{14, 17, 26} as in one case observed by us.²⁷

Changed defecation, as constipation, fecal incontinence, and soiling, has been reported with an incidence of 0–62 % of cases^{28, 29} after the SH and 0–4.3 % of cases^{7, 9} after the DG-THD. However the incidence seems to decrease within the years after SH procedures.¹³

The return to normal life and work seems to be similar after both procedures.²³

Recurrent hemorrhoids have been reported to occur after both techniques: from 7.1 to 13.9 % of SH cases^{15, 19} and from 6.3 to 25.4 % of DG-THD cases,^{16, 21} without statistical differences. At long-term, stapled hemorrhoidopexy seems to present higher recurrence rate, especially in fourth-degree cases.^{14, 15, 30} The different recurrence rate has been observed because many studies compare the two procedures without recruiting patients with the same degree of hemorrhoids. Two randomized prospective studies^{18, 19} have adopted the two procedures in third-degree hemorrhoids, without observing statistically significant differences in recurrence rate (7–13 % in SH cases and 14 % in DG-THD cases), as in our study. However, the presence of recurrent hemorrhoids, observed at proctoscopy, does not necessarily mean a hemorrhoidal disease. Our patients with “recurrent piles” did not report any symptoms or need for reoperations.

The compliance of patients for either procedure seems very good.^{7, 18, 31} In our experience, 84 % of all the patients reported a good satisfaction with either procedure, particularly 76 % of SH group and 91 % of DG-THD group.

In conclusion, the DG-THD technique seems to be a first line treatment for third-degree hemorrhoids since it is easy to perform and does not bear risks of severe, life threatening complications. In addition, it can be proposed for second-degree bleeding internal hemorrhoids after failure of conservative measures.

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Statement of Author Contribution S. Leardi: substantial contributions to the conception and design of the work, analysis and interpretation of data for the work

B. Pessia, M. Mascio, F. Piccione, M.: acquisition data for the work

M. Schietroma: drafting the work

R. Pietroletti: revising the work critically for important intellectual content

Appendix

Questionnaire for patients who undergone surgery for third-degree hemorrhoids.

First name..... Family name.....
 Age.....
 Address..... phone n.....
 Treatment SH DG-THD year.....

After surgery:	1 month	6 months	1 year	to-day
Do you report anal pain ?
How much between 0 and 10 ?
Did you take analgesic drugs ?
Do you report anal itch ?
Do you report anal bleeding ?
Do you report difficult defecation ?
Do you report constipation ?
Do you report diarrhoea ?

When did you go back to normal daily activities ? within 15 days within 1 month
 When did you return to work ? within 15 days within 1 month

How is your satisfaction for the operation ? poor good very good

Did you undergo surgery for recurrent hemorrhoids ? no yes

If yes, when ?

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