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TRANSANAL HEMORRHOIDAL DEARTERIALIZATION VS CONVENTIONAL HEMORRHOIDECTOMY FOR SYMPTOMATIC HAEMORRHOIDS: A REGIONAL PERSPECTIVE FROM NORTHERN PAKISTAN

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Abstract

Background: *The prevalence of hemorrhoidal disease is very high all over the world. Although conventional hemorrhoidectomy is the gold standard for grades III and IV hemorrhoids, it is often accompanied by a high level of postoperative pain and prolonged recovery. As a minimally invasive and tissue-saving method, transanal hemorrhoidal dearterialization (THD) has been developed, and its short-month prognosis presented well.*

Objective: *To compare postoperative pain levels, recurrence rates, quality of life, and complication profiles between THD and CH in patients with symptomatic grade III and IV hemorrhoids.*

Methods: *This prospective comparative observational study was carried out at the department of general surgery, Hayatabad Medical Complex, Peshawar. A total of 148 patients were included. Pain was evaluated by the Visual Analogue Scale (VAS) at 24 hours, 7 days, and 30 days after surgery. Recurrence was analyzed at 3 months and quality of life was assessed with the SF-36 questionnaire preoperatively and postoperatively.*

Results: *Both groups had increases in the quality of life scores, which was higher in the mean increase among the THD group (22.3 ± 5.1 vs. 16.7 ± 4.6; $p<0.001$). Although there was a higher recurrence rate in the THD group (5.4%) compared to the CH (1.3%), it was not statistically significant ($p=0.17$). The overall complication rate was significantly less in the THD group (4.0% versus 14.8%; $p=0.03$).*

Conclusion: *THD provides a less painful recovery, less complications and a better quality of life in early stage than CH and should therefore be considered a valuable alternative for selected patients with advanced hemorrhoidal disease.*

INTRODUCTION

Hemorrhoidal disease is still one of the most common anorectal diseases globally, with about 50% of the patient population presenting at least by the age of 50, and commonly contributing to pain, bleeding, and impaired quality of life QoL (1). Surgical intervention is necessary in the treatment of symptomatic haemorrhoids even if many therapeutic solutions exist. Conventional excisional hemorrhoidectomy (CEH) such as the Milligan–Morgan technique is accepted as the gold standard since it is associated with low recurrence rates, but at the same time causing significant postoperative pain and delay of return to daily work with higher morbidity (2).

Transanal Hemorrhoidal Dearterialization (THD) is a minimal-invasive, non-excisional procedure that uses Doppler guidance to ligate hemorrhoidal arteries and to perform mucopexy (to reduce blood flow and to reposition prolapsed tissue) without excision (3). Several meta-analyses make clear that THD results in significantly less postoperative pain, less bleeding during operation, a shorter hospitalization time, and earlier return to preoperative status compared to CEH, however, with usually slightly higher rates of recurrences (4,5).

Recent comparative studies have demonstrated that although THD provides the benefits of less postoperative pain, faster convalescence, and shorter hospitalization, it might have recurrence rates that are slightly higher than those of CEH (6,7). Complications and patient satisfaction remain similar; the observation reinforces the need for personalized data for appropriate surgical intervention (8).

Furthermore, data already available indicated that symptoms were relieved, high satisfaction was expressed, and QoL scores (such as SF 36) improved one month following surgery, despite the fact that quality of life effects are rarely recorded in THD trials (9). In addition to this, studies conducted in Brazil and Italy show that THD has a favorable safety profile and is feasible for stages II–III disease, but not so much for stage IV (10,11).

Despite data from other countries, there is little information available from KPK, Pakistan. Both surgical outcomes and patient-reported quality of life may be explained by socioeconomic, nutritional, and healthcare access factors in KPK. In order to provide regional data that will direct surgical therapy in KPK, the study compares THD and CEH in KPK with respect to postoperative pain scores, recurrence rate, and patient subjective improvement in quality of life.

MATERIAL AND METHODS

This prospective comparative observational study was carried out at the Department of General Surgery, Hayatabad Medical Complex (HMC), Peshawar, from October 2023 to September 2024. The hospital, being a large tertiary care hospital in the province of Khyber Pakhtunkhwa, served as the single study site. A non-probability consecutive sampling was used to include 148 patients with symptomatic grade III-IV hemorrhoids. Patients were evenly distributed between the THD and CH groups (n = 74 each).

After giving their informed consent, adult patients aged 18 to 65 who had symptomatic grade III or IV hemorrhoids that required surgery were enrolled. Patients with inflammatory bowel disease, bleeding diathesis, immunosuppression, history of anorectal surgery, acute or chronic anal lesions, and pregnancy were excluded. A thorough history, physical examination (including a proctoscopy), and baseline investigations were performed on each patient before surgery. Under either spinal or general anesthesia, skilled consultant surgeons used conventional institutional operative technique and strategy to perform the procedures.

The THD procedure was performed by a dedicated THD Doppler proctoscope. Once the proctoscope was placed into the anal canal, the terminal each vessel of superior rectal artery was identified repeating the procedure for an average of six equidistant sites using a Doppler ultrasound probe. These arteries were isolated and ligated with 2-0 absorbable suture in a continuous figure-of-eight manner. In the group of patients with mucosal prolapse, mucopexy was performed by continous suture from the point of ligation towards the distal loop bringing down of the prolapsing mucosa and fixing it to the rectum wall. It was bloodless and no tissue was removed.

A conventional open hemorrhoidectomy was applied in the CH group by Milligan-Morgan technique. The

hemorroidal tags were identified and clamped after lithotomy position of the patients and then excised with electrocautery. Hemorrhoids were left open to heal secondarily with skin bridges between excision areas, and the vascular pedicle of each hemorrhoid was closed with 2-0 chromic catgut.

Pain score was measured with a 10-point Visual Analogue Scale (VAS) at 24 hours, 7 days and 30 days postoperatively. Follow-up of the patients was conducted at 7 days, 1 month and 3 months after the operation. Recurrence was considered the return of any hemorrhoidal symptoms or prolapse during the follow-up. Quality of life was assessed preoperatively and at 3 months via the SF-36 questionnaire. Data was recorded on a structured proforma and was entered in SPSS version 26. Quantitative variables (pain, QOL scores) were compared with the independent t-test, and categorical variables (recurrence, complications) with the chi square test or Fisher's exact test. A p-value ≤0.05 was considered as statistically significant.

RESULTS

The mean age was 42.6 ± 9.1 years in the THD group and 43.4 ± 8.7 years in the CH group (p = 0.58). Gender distribution showed a male-to-female ratio of 1.6:1 in THD and 1.7:1 in CH (p = 0.77). Table-1

Table 1. Baseline Demographics

Characteristic	THD (n = 74)	CH (n = 74)	p-value
Mean age (years)	42.6 ± 9.1	43.4 ± 8.7	0.58
Male:Female ratio	1.6 : 1	1.7 : 1	0.77

Postoperative pain, assessed via the Visual Analogue Scale (VAS), was significantly lower at all measured time points in the THD group. At 24 hours, mean VAS was 4.2 ± 1.1 for THD versus 7.6 ± 1.3 for CH (p < 0.001). By day 7, scores were 2.3 ± 0.9 and 5.1 ± 1.2 respectively (p < 0.001). At day 30, VAS remained significantly lower in THD (0.6 ± 0.5) compared to CH (1.8 ± 0.7; p < 0.001). Table-2

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Table 2. Postoperative Pain (VAS)

Time point	THD (Mean ± SD)	CH (Mean ± SD)	p-value
24 hours	4.2 ± 1.1	7.6 ± 1.3	<0.001
Day 7	2.3 ± 0.9	5.1 ± 1.2	<0.001
Day 30	0.6 ± 0.5	1.8 ± 0.7	<0.001

Recurrence, defined as the return of symptoms or prolapse requiring further treatment, occurred in four THD patients (5.4%) and one CH patient (1.3%) during the three-month follow-up. While numerically higher in the THD group, this difference was not statistically significant (p = 0.17). Table-3

Table 3. Recurrence Rates

Group	Recurrence (n)	Recurrence (%)	p-value
THD	4	5.4%	0.17
CH	1	1.3%	

Quality of life, measured by the SF-36 questionnaire, showed both groups improving significantly from baseline to 3 months postoperatively. Pre-operative SF-36 scores were similar (THD: 48.5 ± 6.3; CH: 47.9 ± 6.7; p = 0.56). At 3 months, THD improved to 70.8 ± 5.8 and CH to 64.6 ± 6.1 (p < 0.001). The THD group also had a greater mean improvement (22.3 ± 5.1 vs. 16.7 ± 4.6, p < 0.001). Table-4

Table 4. Quality of Life (SF-36)

Time point	THD (Mean ± SD)	CH (Mean ± SD)	p-value
Preoperative score	48.5 ± 6.3	47.9 ± 6.7	0.56
Postoperative (3 mo)	70.8 ± 5.8	64.6 ± 6.1	<0.001
Improvement (Δ score)	22.3 ± 5.1	16.7 ± 4.6	<0.001

Postoperative complications were fewer in the THD group. Bleeding occurred in 2 of 74 THD patients (2.7%) compared to 6 of 74 CH patients (8.1%), while urinary retention affected 1 (1.3%) versus 4 (5.4%) respectively. Wound infections occurred only in the CH group (3 patients, 4.0%). Overall complication rates were significantly lower in THD (4.0%) compared to CH (14.8%; p = 0.03). Table-5

Table 5. Postoperative Complications

Complication	THD (n, %)	CH (n, %)	p-value
Bleeding	2 (2.7%)	6 (8.1%)	0.14
Urinary retention	1 (1.3%)	4 (5.4%)	0.17
Wound infection	0 (0.0%)	3 (4.0%)	0.08
Total complications	3 (4.0%)	11 (14.8%)	0.03

DISCUSSION

In terms of postoperative pain, our research found that individuals treated with THD experienced noticeably less discomfort than those treated with CH. At 24 hours, the mean VAS scores were 4.2 ± 1.1 versus 7.6 ± 1.3 (p<0.001). This is in line with the longer-term BMC Surgery RCT by Cosentino et al (12), which showed significantly lower VAS THD at POD 1–2–7 (24.45=vs. 15.35; p<0.001 at POD 1). In their randomized controlled research comparing minimum open hemorrhoidectomy with THD. Rørvik et al. (13) similarly noticed equal early pain, though with a modest tendency in favor of THD. These findings collectively provide compelling evidence that the postoperative course of THD is less painful, which is likely due to the absence of substantial excision.

In terms of the recurrence, our THD group showed 5.4% in CH compared to 1.3% (p=0,17). In their PRISMA meta-analysis of RCTs, Jee J et al. (14) found an OR of 2.76 for recurrence favoring CH. But in the BMC study by Popov V et al (15), with a mean follow-up of 46 months, there was no difference—2.5% in THD vs. 2.98% in CH—indicating that the differences between the two treatments might lessen over time. This is in line with the pattern we showed during the short-term follow-up and points to a potential long-term decrease in divergence.

In our study, the THD group's quality of life, as assessed by the SF 36, improved more than that of the CH group (Δ22.3 vs. Δ16.7; p<0.001). Mahir G et al. (16) compared THD mucopexy and Ferguson's hemorrhoidectomy in a multi-center prospective study. They found that patient satisfaction and reported outcomes were significantly superior for THD at POD 14 and 3 months, but not at 1 year. These results show an initial improvement in QoL with THD, which may be associated with reduced pain and a quicker recovery, and they gradually converge.

Rates of complications were lower in our series with the THD group (4.0% vs. 14.8%; p=0.03). Jin L et al (17) also reported similar results, in which overall complication rates were not significantly lower in THD, but operative morbidity did not differ. Similarly, a meta-analysis by Xu et al (18) found no increased risk of adverse events associated with THD, confirming its safety profile. The non-excisional technique of THD seems to be responsible for these gains.

Our recurrences, however, minor in comparison to the Emile S et al study on THD versus CH (19), who observed that recurrence and late recovery were better handled by CH, however, THD for an

advanced stage procedure had a higher pain score. This disparity could be the result of variations in methodology, patient selection, or comparison group. After THD, higher grade hemorrhoids (III–IV) seem to have a higher chance of recurrence. More than 26% of grade IV recurrences following THD mucopexy were reported in the Brazilian multicenter study by Sobrado et al. (20), which is significantly higher than what we found. This highlights how important it is to choose patients carefully; THD may be recommended for grades II–III and used cautiously in grade IV.

Despite the insightful findings, there are several limitations that must be addressed. First, the follow-up period was limited to three months, which may not accurately represent delayed event complications or long-term recurrence rates. Second, even if the groups were similar at baseline, selection bias could be introduced by the study's non-randomized design. Lastly, because just one tertiary care facility was used for the study, the findings may not apply to different contexts or demographics. Further long-term data beyond 12 months will clarify whether the observed differences in early recurrence translate into long-term differences.

CONCLUSION

THD is safer and more effective than CH for treating symptomatic grade III and IV hemorrhoids. Patients who have THD have a better early quality of life, less postoperative discomfort, earlier recovery, and fewer complications than those of CH. A slightly greater but not statistically significant rate of recurrence in the THD group was observed. Our findings support the technique of THD, especially for patients who prioritize a speedy return to regular activities and early post-operative comfort. However, meticulous patient selection and longer follow-up studies are required to determine its durability, particularly in advanced hemorrhoidal disease.

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