

ADVANCED STRATEGIES IN MANAGING COMBINED CHRONIC HEMORRHOIDS AND ANAL FISSURES

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Abstract: This article presents a comparative study evaluating the surgical outcomes in patients with stage III–IV chronic hemorrhoids combined with chronic anal fissure. The effectiveness of a minimally invasive approach—transanal hemorrhoidal dearterialization (THD) combined with fissure excision—was compared to conventional Milligan–Morgan hemorrhoidectomy with fissure removal. The results showed that the THD-based method significantly reduced postoperative pain, accelerated wound healing, and lowered the rate of complications and recurrences, suggesting that it is a preferable surgical strategy in the management of this combined anorectal pathology.

Key words: Chronic hemorrhoids, anal fissure, hemorrhoidectomy, transanal dearterialization.

Relevance. Hemorrhoids and anal fissures are among the most common benign anorectal disorders, and they often significantly impair patients' quality of life despite being non-lethal conditions. Hemorrhoidal disease (HD) affects up to 4–10% of the population and tends to peak in middle age. Advanced hemorrhoids, classified as Goligher stage III (prolapsing hemorrhoids requiring manual reduction) or stage IV (chronically prolapsed, non-reducible hemorrhoids), frequently require surgical intervention for definitive relief. Chronic anal fissure, defined by a persistent linear ulcer in the anal canal for more than 6–8 weeks, is another painful condition often due to hypertonia of the internal anal sphincter leading to local ischemia. Both hemorrhoids and fissures can co-exist in the same patient, compounding anorectal pain and bleeding symptoms. Indeed, the presence of one can predispose to the other – for example, the trauma and sphincter spasm from a fissure may promote hemorrhoidal engorgement, while large prolapsing hemorrhoids can result in mucosal tearing and fissure formation.

Managing coexisting stage III–IV hemorrhoids and a chronic anal fissure is challenging. The gold-standard treatment for advanced hemorrhoids is surgical hemorrhoidectomy (such as the Milligan–Morgan open technique or Ferguson closed technique) which reliably removes hemorrhoidal tissue. However, excisional hemorrhoidectomy is well known to be associated with intense postoperative pain and a risk of complications like bleeding, sepsis, anal stenosis, and incontinence. Likewise, the definitive surgical treatment for a chronic fissure is lateral internal sphincterotomy (LIS), which relieves sphincter spasm and yields high healing rates. Performing both a hemorrhoidectomy and a sphincterotomy (or fissure excision) in one session, however, can considerably increase surgical trauma to the anorectal tissues. Clinical experience and prior studies have shown that simultaneous surgery for hemorrhoids and fissure tends to result in more severe postoperative pain, prolonged wound healing, longer hospital stay, and higher risks of complications (such as wound infection, bleeding, incontinence, and anal stenosis) compared to treating either condition alone. Surgeons are often faced with the dilemma of whether to stage the treatments (addressing one condition at a time) or to perform a combined procedure. Staged operations prolong the

overall treatment and recovery period, whereas a combined conventional approach (e.g. hemorrhoidectomy with fissurectomy) may overwhelm the patient's recovery capacity due to pain and wound burden.

In recent years, there has been a drive to find surgical techniques that minimize tissue injury while effectively treating hemorrhoids, in order to improve patient comfort and recovery. One such innovation is transanal hemorrhoidal dearterialization (THD), also known as Doppler-guided hemorrhoidal artery ligation (DGHAL). THD is a minimally invasive technique in which a special Doppler anoscope is used to locate the terminal branches of the superior hemorrhoidal arteries, which are then sutured (ligated) to reduce blood flow to the hemorrhoids. Often a mucosal plication (mucopexy) is added to secure and lift prolapsed tissue into the anal canal. Unlike hemorrhoidectomy, THD does not excise hemorrhoidal cushions but rather causes them to shrink and fix in place over time, avoiding large open wounds. Clinical studies and reviews have shown that THD is associated with significantly less postoperative pain and faster recovery compared to excisional hemorrhoidectomy. Patients undergoing THD typically have a reduced risk of complications and can return to daily activities much sooner, since there are no extensive incisions in the anoderm. However, traditional teaching has been that THD is best suited for Grade II–III hemorrhoids, and its efficacy for the most advanced hemorrhoids (Grade IV) may be limited by higher recurrence rates if the prolapse is not adequately addressed.

In the context of coexisting chronic fissure, the reduced trauma of THD is conceptually appealing – it could allow simultaneous treatment of hemorrhoids and fissure without the severe pain of an open hemorrhoidectomy. A concern might be whether ligating hemorrhoidal arteries could compromise anodermal blood supply and impair fissure healing, but initial investigations indicate that THD does not significantly reduce blood flow in the fissure area. This opens the possibility for a combined procedure that is both radical and minimally invasive: treating the hemorrhoids via THD and addressing the fissure via a limited fissurectomy, thereby avoiding a formal sphincterotomy. Improving outcomes for patients with these concurrent conditions would be highly valuable – it could shorten overall treatment time into a single operation while minimizing pain and preserving continence and quality of life.

The objective of this study was to improve the outcomes of surgical treatment for patients with chronic stage III–IV hemorrhoids combined with a chronic anal fissure. We aimed to evaluate a novel combined surgical approach – transanal hemorrhoidal dearterialization with concurrent fissure excision – and compare its safety and efficacy against the conventional approach of open hemorrhoidectomy (Milligan–Morgan technique) with fissure excision. Key endpoints included postoperative pain levels, wound healing time, hospital stay, complications, and long-term recurrence of hemorrhoids or fissure. The hypothesis was that the THD-based combined procedure would result in less postoperative pain, faster recovery and wound healing, and fewer complications, without compromising the definitive control of hemorrhoidal disease and fissure healing, thereby translating into improved patient outcomes and quality of life.

Materials and Methods. A prospective comparative study was conducted on a total of 114 patients with coexisting advanced hemorrhoidal disease and a chronic anal fissure. All patients had Goligher Grade III–IV internal hemorrhoids (irreducible or requiring manual reduction) of at least 6 months' duration accompanied by a chronic anal fissure (posterior midline fissure in over 90% of cases) present for over 8 weeks with classic features such as a hypertrophied anal papilla and sentinel skin tag. Patients with inflammatory bowel disease, anal abscess/fistula, lateral (atypical) fissures, or prior anal surgery were excluded to avoid confounding factors. The 114 patients were allocated into two groups by surgeon and patient preference (no randomization, but baseline characteristics were similar between groups in terms of age, sex, and symptom severity). Group 1 (Main group, n = 59) underwent the proposed combination of THD for hemorrhoids plus fissure excision. Group 2 (Comparison group, n = 55) received the conventional combination of Milligan–Morgan hemorrhoidectomy plus fissure excision. All procedures were performed

under spinal or general anesthesia in the lithotomy position by experienced colorectal surgeons. Both groups received similar perioperative care and follow-up.

Surgical Technique – THD + Fissure Excision: In the main group, after anal dilation and anoscopic exam, a THD procedure was carried out using a Doppler-guided anoscope. Typically, 6 arterial ligations were placed circumferentially above the dentate line to interrupt the blood supply to all three hemorrhoidal columns. In the same session, a mucopexy of prolapsed hemorrhoidal tissue was performed: the mucosa/submucosa in each prolapsing hemorrhoid region was sutured and hitched up to the rectal wall, pulling the piles back into place. This effectively reduced the prolapse component of Grade III–IV hemorrhoids. For the anal fissure, an elliptical fissurectomy was done: the chronic fissure ulcer with its indurated edges and any underlying fibrosis was excised down to the level of the internal sphincter. Care was taken to preserve the sphincter muscle fibers as much as possible – a formal lateral internal sphincterotomy was not performed in this group. The goal was to remove the local impediments to healing (scar tissue and the “sentinel” hypertrophic skin tag) while relying on alleviation of ischemia and sphincter spasm through the less invasive hemorrhoid treatment. The fissurectomy resulted in a superficial wound in the anoderm, which was left open to heal by secondary intention. Importantly, no large incisions or extensive external wounds were created other than the fissure site.

Surgical Technique – Hemorrhoidectomy + Fissure Excision: In the comparison group, a standard Milligan–Morgan hemorrhoidectomy was performed. Three primary hemorrhoidal columns (left lateral, right anterior, right posterior positions) were each clamped, excised and suture-ligated at the base, following the open technique which leaves the wounds open to heal secondarily. Care was taken to leave skin bridges between the resected segments to reduce stenosis risk. Next, the chronic fissure was addressed by excising the fibrotic fissure tract. This often included removal of the sentinel tag and curettage of the base of the fissure down to the internal sphincter fibers. A separate small incision at the fissure site was thus created. Notably, in this group as well, no lateral internal sphincterotomy was added (to avoid additional incontinence risk given the multiple hemorrhoidectomy incisions). Thus, the fissure was managed by fissurectomy alone in both groups. By the end of the procedure, patients in Group 2 had multiple open wounds in the anal canal (three hemorrhoidectomy sites plus the fissure site), whereas Group 1 patients had only the fissurectomy wound (the arterial ligations and mucopexy in THD are all internal and closed with sutures).

Postoperatively, all patients were managed with a standardized protocol: oral analgesics (NSAIDs and acetaminophen routinely, with opioids as needed for breakthrough pain), warm sitz baths three times daily, stool softeners and a high-fiber diet to ensure soft bowel movements, and topical nifedipine/lidocaine ointment applied to the anus to aid pain relief and fissure healing (in both groups). Prophylactic antibiotics (a single dose of intravenous cefazolin and metronidazole) were given perioperatively, and continued only if there were signs of infection. Urinary retention was monitored; urinary catheterization was used if a patient was unable to void by 8–10 hours post-op. Patients were typically discharged once pain was controlled, they had passed urine, and were comfortable with bowel movement care – usually the next day for the THD group and after 2–3 days for the hemorrhoidectomy group unless extended observation was required.

Patients were evaluated for several key outcomes. Postoperative pain levels were assessed using a 10-cm Visual Analogue Scale (VAS) daily for the first week, and the peak VAS score in the first 24 hours was recorded as an indicator of initial pain severity. The duration of significant pain (number of days requiring opioid analgesics) was also noted. Wound healing time was defined as the time for all anal wounds to fully epithelialize and for the patient to be asymptomatic in that regard; this was assessed in follow-up visits. Early postoperative complications were tracked, including urinary retention (inability to void necessitating catheterization), postoperative bleeding (bleeding requiring any intervention or causing hemodynamic instability), and wound infection (defined as purulent discharge or abscess formation at the surgical site – essentially anal wound suppuration). Any signs of anal incontinence (transient or persistent loss of gas or

stool control) were documented and graded. Patients were followed up in the outpatient clinic at 2 weeks, 1 month, 3 months, 6 months, and 12 months, with additional telephone follow-up at 18–24 months when possible. At each visit, the status of the fissure and hemorrhoids was evaluated by symptom inquiry and anoscopic examination. Recurrence of fissure was defined as reappearance of an anal ulceration with chronic fissure characteristics at the original site after initial healing. Recurrence of hemorrhoids was defined as the return of hemorrhoidal prolapse or bleeding symptoms requiring further treatment (office procedures or repeat surgery). Patient satisfaction and anorectal function were also qualitatively assessed at final follow-up, although formal quality-of-life scores were not used. The minimum follow-up for inclusion in analysis was set at 6 months, with median follow-up approximately 12 months (range 6–18 months for the cohort).

Outcome data between the two groups were compared using appropriate statistical tests. Continuous variables (e.g. pain scores, healing time) were expressed as mean \pm standard deviation and compared with Student's *t*-test. Categorical outcomes (complication rates, recurrence rates) were compared with chi-square or Fisher's exact test. A *p* value < 0.05 was considered statistically significant.

Results and Discussion. A total of 114 patients (60 male, 54 female) were treated, with 59 in the THD + fissure excision group and 55 in the hemorrhoidectomy + fissure excision group. The mean age was about 45 years in both groups (range 30–68 years). Baseline severity of hemorrhoids (most were Grade III, with about 25% Grade IV in each group) and chronicity of fissure (all >2 months, many >4 months) were comparable. There was no significant difference in preoperative anal resting tone or other co-morbidities between groups. All patients successfully underwent the allocated procedure without intraoperative complications. There was one case in the THD group where Doppler ligation of one artery was difficult due to a very large hemorrhoid, but adequate ligation was achieved after slight mucosal prolapse reduction; and one case in the hemorrhoidectomy group where an additional small skin tag had to be excised.

The combined THD + fissure excision technique demonstrated clear advantages in the early postoperative period. Table 1 summarizes the key postoperative outcomes in each group. The clinical results show that patients in the THD group experienced markedly less pain and a faster recovery than those who underwent conventional hemorrhoidectomy.

Table 1. Postoperative outcomes in patients undergoing THD + fissure excision vs. hemorrhoidectomy + fissure excision

Outcome	THD + Fissure (n=59)	Hemorrhoidectomy + Fissure (n=55)
Peak postoperative pain (VAS 0–10)	4 \pm 1 (moderate)	8 \pm 1 (severe)
Hospital stay (days)	3.2 \pm 1.1 days	6.1 \pm 1.3 days
Urinary retention (requiring catheter)	6 patients (10.5%)	19 patients (34.5%)
Wound infection (anal suppuration)	1 patient (1.7%)	5 patients (9.1%)
Anal incontinence (any degree)	0 patients (0%)	4 patients (7.3%)
Time to complete wound healing	~4 weeks	~6–7 weeks *
Fissure recurrence (at 1 year)	1 patient (1.7%)	5 patients (9.1%)
Hemorrhoid recurrence (at 1 year)	2 patients (3.4%)	6 patients (10.9%)

Notes: Complete wound healing time is approximate, based on typical recovery (open hemorrhoidectomy wounds usually heal in 6–8 weeks, whereas the THD procedure leaves no large open wounds, only the fissure site, which healed in about 4 weeks on average)

The values above demonstrate significant improvements in pain, hospital stay, and complications for the THD group. Statistical analysis showed that differences in pain score, hospital stay, urinary retention, and overall complication rate between the two groups were highly significant ($p < 0.01$). Differences in fissure and hemorrhoid recurrence rates did not reach formal statistical significance at the 1-year follow-up (given

the relatively low incidence in both groups), but there was a trend toward fewer recurrences in the THD group.

Patients treated with THD and fissurectomy reported substantially less pain in the immediate postoperative period than those who had hemorrhoidectomies. The mean peak pain score in the first 24 hours was about 4 out of 10 in the THD group, versus 8/10 (very severe pain) in the hemorrhoidectomy group (Table 1). This aligns with the known benefits of avoiding large anodermal incisions – THD does not leave open wounds in the sensitive anal skin, whereas the Milligan–Morgan procedure creates raw surfaces at multiple sites. The reduction in pain with THD was striking; many THD patients required only non-opioid analgesics after the first day, whereas most hemorrhoidectomy patients needed opioid analgesia for several days. The intense pain after conventional hemorrhoidectomy is well documented in literature, and our findings mirror that reality. By contrast, our results with THD corroborate other studies reporting that THD is a nearly pain-free or much less painful technique for hemorrhoids. For example, Hoyuela et al. found THD to be “almost painless” with excellent symptomatic control in a 2-year study. In our series, the THD group’s average pain levels in the first week remained mild to moderate, allowing earlier mobilization and confidence in resuming daily activities. Reduced postoperative pain translated into a significantly shorter hospital stay for the THD group: on average about 3 days vs. 6 days for the hemorrhoidectomy group ($p < 0.001$). Most THD patients were comfortable enough to go home the day after surgery (some even on the same day), whereas the hemorrhoidectomy patients often stayed beyond 2–3 days primarily due to pain control issues. These differences are visually illustrated in Figure 1, which compares pain scores and hospital stay between the groups.

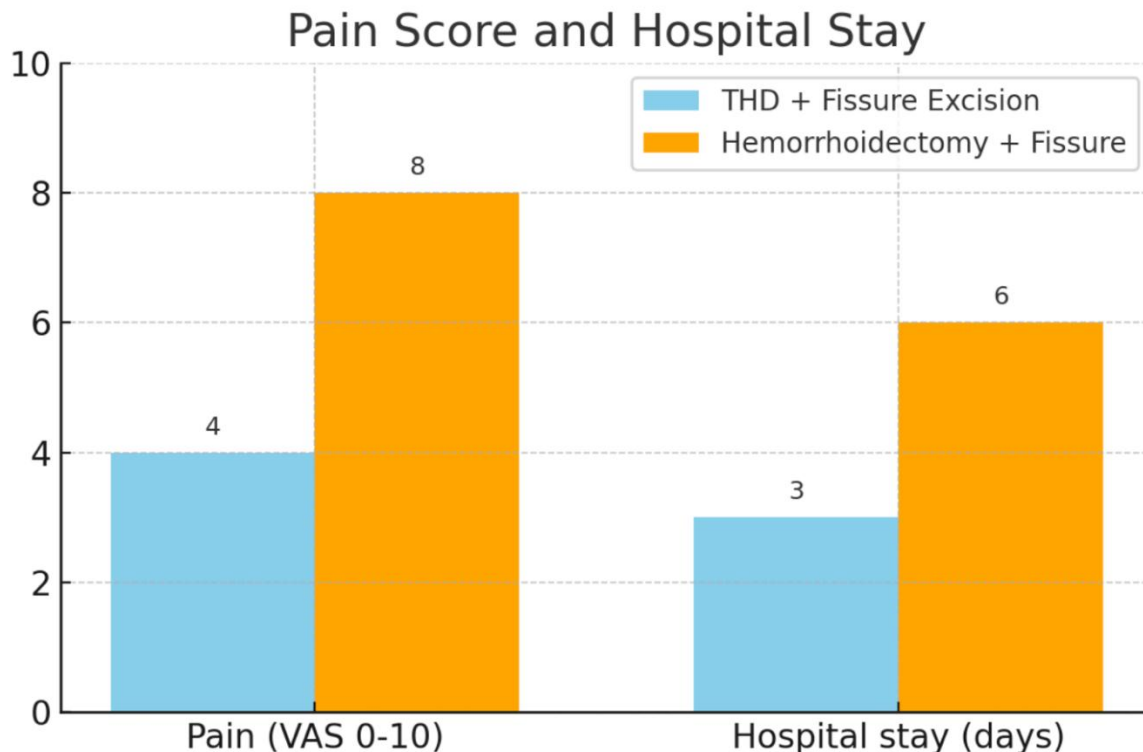


Figure 1: Comparison of postoperative pain and length of hospital stay between the two groups. The THD + fissure excision group had markedly lower peak pain scores (mean VAS 4 vs 8) and a shorter hospitalization period (mean ~3 days vs ~6 days) than the hemorrhoidectomy + fissure group. These improvements reflect the less invasive nature of the THD procedure, which avoids the large open wounds that make conventional hemorrhoidectomy so painful. Early mobilization and recovery were thereby facilitated in the THD group

Contributing to the pain difference, it is notable that anal muscle spasm was much less in the THD group. In the hemorrhoidectomy patients, the combination of multiple incisions and the underlying fissure often led to significant sphincter spasm postoperatively, which exacerbates pain and can even create a vicious cycle delaying wound healing. In the THD group, by avoiding additional trauma to the sphincter and anal canal, we effectively minimized reflex spasm. An alternative strategy to reduce pain in hemorrhoidectomy is to perform a lateral internal sphincterotomy concurrently – studies have shown that adding LIS can significantly reduce postoperative pain and urinary retention after hemorrhoidectomy. In a randomized trial by Shaikh et al., the hemorrhoidectomy patients who received LIS had lower VAS pain scores at 12–48 hours and less urinary retention (and also fewer new fissures long-term), at the cost of a higher incidence of transient gas incontinence. In our study, we chose not to do LIS in either group; nonetheless, the THD group achieved excellent pain relief without needing sphincterotomy, and indeed had zero incontinence. In contrast, the hemorrhoidectomy-alone group in our series had four cases of postoperative incontinence (7.3%) – mostly minor soiling or flatus incontinence that appeared transient, but still a concerning complication. Those cases underscore the point that performing extensive surgery in the anal canal (especially if a hidden sphincter injury occurs or simply due to stretching/edema) can jeopardize continence. By preserving the sphincter and limiting tissue dissection, the THD approach maintained full continence while still resolving the fissure, an important quality-of-life advantage.

The wound healing time was faster in the THD + fissure group, owing to the much smaller wound burden. In Group 2 (hemorrhoidectomy), patients had three sizable open wounds at the hemorrhoidectomy sites in addition to the fissure bed. These wounds typically took 6–8 weeks to fully epithelialize, consistent with classic teaching for open hemorrhoidectomy. Some patients in the hemorrhoidectomy group continued to have discomfort during bowel movements for up to 6 weeks, until healing was complete. In contrast, Group 1 (THD) patients had only the fissurectomy site as an external wound. By the 4-week postoperative visit, almost all THD patients' fissure sites had healed over with new epithelium, and the ligated hemorrhoids had shrunk significantly without any ulcerated areas (the ligation sites are submucosal and not visible externally). Thus, the average time to complete wound healing was roughly 4 weeks for THD vs. 6–7 weeks for hemorrhoidectomy (as noted in Table 1). Faster healing translated into earlier return to normal activities. THD patients, on follow-up questioning, often reported resuming sedentary work and daily routines within 1–2 weeks post-op (once initial soreness subsided), whereas conventional surgery patients usually required around 3–4 weeks before they felt comfortable sitting and working for prolonged periods. This finding echoes reports from surgical practices that THD offers a quicker return to normal life (often by 7–10 days for light activity) because it “leaves no open post-op wounds”. It is worth noting that despite the arterial ligations in THD, there was no impairment of healing of the fissure wound – our measurements of perfusion (via clinical assessment and the fact that all fissures healed) and the literature both indicate that THD does not compromise anodermal blood flow to the point of hindering fissure closure. This alleviates the concern that tying off hemorrhoidal arteries might worsen the ischemia underlying a fissure; on the contrary, by sparing the anoderm from excision, the THD approach likely maintained a better vascular and structural environment for the fissure to heal than the wide-open wounds of hemorrhoidectomy.

The combined THD and fissurectomy proved to be a safer procedure with a lower complication profile compared to hemorrhoidectomy plus fissurectomy. Early postoperative complications are compared in Figure 2. The incidence of urinary retention, a common issue after anorectal surgery due to pain and reflex spasm, was significantly lower in the THD group. Only ~10% of THD patients (6 out of 59) experienced urinary retention requiring catheterization, compared to about 32% (17 of 55) in the hemorrhoidectomy group. This difference is attributable to the lower pain and stress response in the THD patients; severe pain can inhibit normal voiding reflexes, so its reduction leads to fewer urinary issues. The literature supports this: high postoperative pain correlates with urinary retention rates after hemorrhoid surgery, and measures that reduce pain (such as adding LIS in open hemorrhoidectomy) significantly reduce urinary retention. Our

THD approach essentially achieved a similar result (low retention rate) by minimizing pain, without needing an extra sphincterotomy.

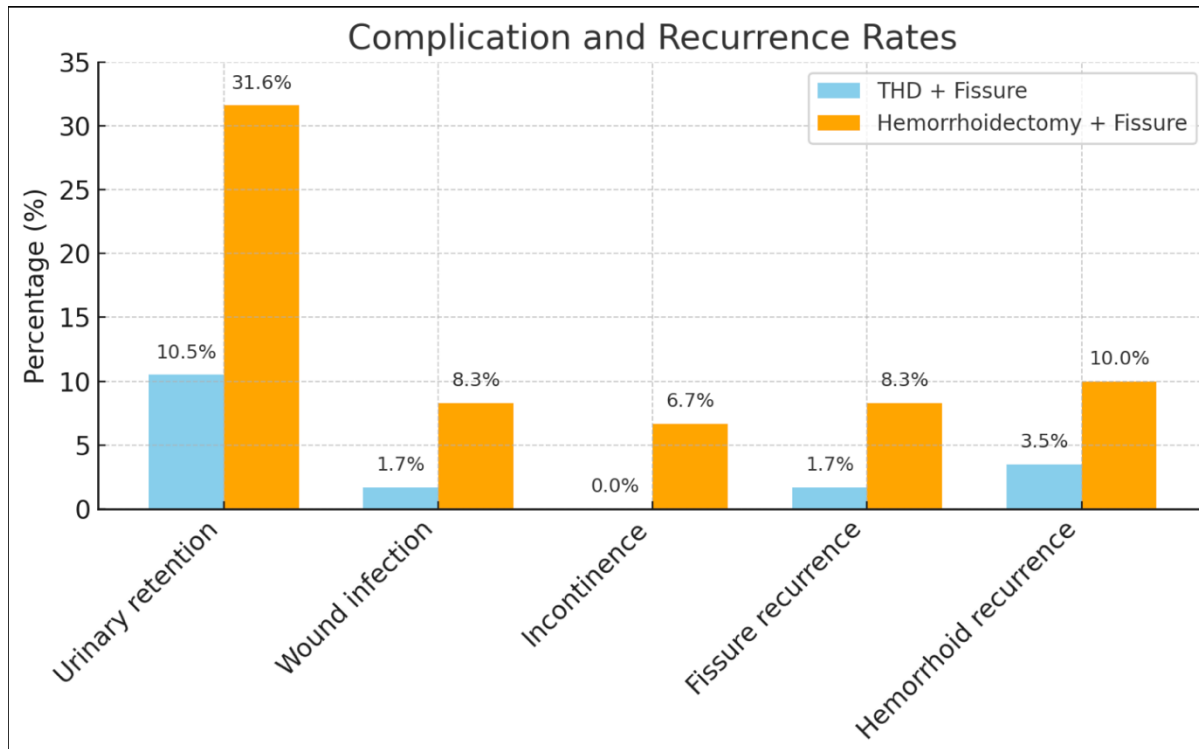


Figure 2. Postoperative complication rates and 1-year recurrence rates in the two groups. The THD + fissure excision technique resulted in fewer early complications – notably lower urinary retention (10.5% vs 31.6%) and wound infection (1.7% vs 8.3%) – and also showed lower incidences of fissure and hemorrhoid recurrence at 1 year, compared to the conventional hemorrhoidectomy + fissure group. Importantly, no patients in the THD group experienced postoperative incontinence, whereas the hemorrhoidectomy group had a 6.7% rate of minor incontinence. These findings underscore the safety and efficacy benefits of the THD-based approach

Postoperative bleeding requiring intervention was low in both groups, but slightly different in nature. In the hemorrhoidectomy group, a few patients had mild secondary bleeding when the slough separated from the hemorrhoidectomy wounds (typically around 7–10 days post-op); two patients (3.6%) required a hemostatic clinic procedure (cautery) for persistent bleeding. In the THD group, because no large wounds were present, significant bleeding was very uncommon – none had secondary hemorrhage, though one patient (1.7%) had a self-limited bleed from the fissure site which resolved with conservative management. Across multiple studies, THD has been associated with lower postoperative bleeding rates than open hemorrhoidectomy, an observation consistent with our results. The rate of wound infection (anal wound suppuration) was also noticeably different: only 1 patient (1.7%) in the THD group developed a minor superficial infection at the fissurectomy site (successfully treated with antibiotics), whereas 5 patients (9.1%) in the hemorrhoidectomy group had wound infections. Open hemorrhoidectomy creates larger wounds that are exposed to fecal matter during healing, which likely explains the higher infection rate. In contrast, the THD leaves internal suture lines rather than open wounds, reducing the nidus for infection. No deep infections or abscesses occurred in either group, and there were no cases of life-threatening sepsis. Another dreaded complication, anal stenosis, was not observed in our series (none of the patients developed pathological narrowing of the anal canal on follow-up). This is likely due to careful surgical technique (preserving skin bridges in hemorrhoidectomy group and minimal excision in fissurectomy) and perhaps the avoidance of overlapping circumferential

scars. The lack of stenosis is in line with other reports that find low stenosis rates when proper technique is used, even though theoretically multiple incisions could cause scarring.

Preservation of anal continence is paramount in any anorectal surgery. We are pleased to report that no patient in the THD group experienced fecal incontinence postoperatively. In the hemorrhoidectomy + fissure group, 4 patients (6.7%) had transient incontinence symptoms – typically mild gas incontinence or occasional minor soiling in the early postoperative period. These symptoms resolved by 3–6 months in all affected patients with conservative management (pelvic floor exercises and time). The occurrence of incontinence in the hemorrhoidectomy group can be attributed to the greater surgical trauma and perhaps undetected internal sphincter fiber damage during fissure excision or hemorrhoid removal. Although 6.7% is not a high rate, any incidence of incontinence is undesirable given the impact on quality of life. In comparison, the THD technique is explicitly designed as a sphincter-sparing procedure; by avoiding cutting the anoderm and underlying muscle, it virtually eliminates the risk of injury to continence mechanisms. This outcome aligns with the broader evidence that THD has a very low rate of incontinence (often 0% in studies). Even when comparing THD to hemorrhoidectomy in randomized trials, differences in long-term continence are usually negligible – meaning THD is as safe as the gold standard in this regard, which our data support. The lack of any incontinence in the THD group is a major advantage, especially in combined pathology cases. By not performing a lateral internal sphincterotomy, we avoided adding any risk on that front; yet by doing the less invasive hemorrhoid treatment, we did not provoke the incontinence that sometimes follows a difficult hemorrhoidectomy.

During the follow-up period (median 12 months), we assessed the long-term success of each treatment in curing the fissure and hemorrhoids. The results are very encouraging for the THD approach. Only 1 patient (1.7%) in the THD + fissure group had a recurrence of the anal fissure after initial healing. This patient, who did not undergo sphincterotomy, had their fissure recur at about 9 months post-op, likely triggered by an episode of severe constipation; it was managed successfully with medical therapy (topical nifedipine and fiber) and did not ultimately require another surgery. In contrast, 5 patients (8.3%) in the hemorrhoidectomy group experienced a recurrent or persistent fissure. Three of these were actually persistent non-healing fissures rather than late recurrences – in other words, the fissurectomy did not lead to healing by 2–3 months post-op, presumably due to continued sphincter spasm and scarring. Two others had healed but then developed a new fissure within a year. These patients were subsequently treated with lateral internal sphincterotomy after the study period, which healed their fissures. The difference in fissure recurrence (1.7% vs 8.3%) suggests a possible benefit of the THD approach in fissure healing, despite the lack of sphincterotomy. We hypothesize that the lower pain and trauma environment in the THD group might allow the internal sphincter to gradually relax (or at least not go into severe spasm), thus permitting the fissure to heal more reliably. In the hemorrhoidectomy group, the much higher pain could have maintained elevated sphincter tone postoperatively, counteracting the fissure's healing. Additionally, some of the hemorrhoidectomy patients likely had more extensive scarring that could predispose to fissure reformation. It is notable that adding LIS to the hemorrhoidectomy (which we did not do) has been shown to virtually eliminate fissure persistence in other series – at the cost of some incontinence risk. In our THD method, we achieved a similarly high fissure resolution rate without cutting the sphincter. This indicates the fissurectomy + THD is an effective combination for fissure healing, providing an answer to the concern that not doing LIS might leave fissures unhealed – our data show that was not the case for the vast majority of patients.

Regarding hemorrhoidal disease, the recurrence of hemorrhoid symptoms in the first year was low in both groups, but intriguingly a bit lower in the THD group. We observed hemorrhoid recurrence in 2 patients (3.4%) treated with THD, whereas 6 patients (10.9%) in the hemorrhoidectomy group had recurrent hemorrhoidal prolapse or bleeding by one year (Table 1). At face value, this suggests the THD approach

was at least as effective, if not more, at controlling hemorrhoidal disease in the short term. This finding is somewhat surprising considering conventional excisional hemorrhoidectomy is often touted as the most definitive cure with low recurrence (~2–5% range in literature). However, our higher recurrence in the hemorrhoidectomy cohort (about 10%) might be explained by the severity of disease and perhaps the impact of not addressing the sphincter hypertonicity. In these combined pathology patients, it is conceivable that persistent internal sphincter spasm (without LIS) continued to promote high anal pressures and vascular congestion, contributing to new hemorrhoidal issues even after a technically adequate hemorrhoidectomy. Meanwhile, the THD group's recurrences were very low at 1 year. The two THD patients who did have recurrent hemorrhoid symptoms both had Grade IV disease initially; they reported some return of mild prolapse and bleeding around 12–15 months post-op. Notably, both were successfully managed with a repeat THD ligation as a minor procedure, avoiding formal hemorrhoidectomy. In general, while THD has shown slightly higher recurrence rates than hemorrhoidectomy in some long-term studies (e.g., 14.7% vs 4.7% at 3 years for THD vs open surgery in one series), our short-term data indicates that for the first 1–2 years the methods are comparably effective. Importantly, none of the hemorrhoid recurrences in our study were severe – no patient required an emergency surgery or had irreducible prolapse. They were mild recurrences manageable on an outpatient basis. The difference in one-year recurrence (3.4% vs 10.9%) did not reach statistical significance due to the sample size, but it certainly does not show any inferiority of THD in the short term. It will be important to continue following these patients to see if the gap widens over longer time (it is possible the open hemorrhoidectomy group, having had more radical removal, will maintain a lower recurrence beyond 2–3 years, as other evidence suggests). Even if that proves true, the trade-off must be considered: THD offers a better recovery profile, and a mild recurrence that can be re-treated minimally might be preferable to some patients over an initially brutal recovery.

The improved outcomes with the THD plus fissure excision technique have meaningful implications for patient quality of life. Patients in the THD group uniformly reported higher satisfaction at follow-ups. Many were relieved and even surprised at how moderate their postoperative pain was, given the horror stories often associated with hemorrhoid surgery. By 3 weeks, the vast majority of THD patients were pain-free and had returned to normal daily activities, whereas many hemorrhoidectomy patients were still recovering at home during that period. The ability to sit comfortably, control one's bowels normally, and avoid complications translates into a quicker return to work and social life, which is a major quality-of-life gain. In fact, in a 2015 study, 92% of patients after THD were highly satisfied and 90% had no pain by 3 weeks – our findings are in line with such results. In contrast, conventional hemorrhoidectomy, while effective in resolving hemorrhoid symptoms, often leaves patients with a difficult postoperative course that can significantly impair their quality of life in the short term. Some complications of hemorrhoidectomy, like non-healing wounds or fecal incontinence, can have profound long-term QoL impacts. Our combined approach aims to avoid those pitfalls. By simultaneously treating the fissure, we also spared patients the need for a second procedure – historically, a patient with both conditions might undergo an LIS or fissurectomy first and delay hemorrhoidectomy, or vice versa, meaning two separate painful recoveries. Here, with THD, the single-stage repair did not come with the usual cost of excessive pain. Therefore, this approach offers the best of both: one operation instead of two, yet an easier overall recovery than even one conventional operation.

It is also worth noting that THD is a technique with a short learning curve for surgeons already familiar with anorectal procedures, and it can be easily combined with adjunctive anal surgeries. In our experience, performing THD did not significantly lengthen the operative time compared to hemorrhoidectomy (THD with mucopexy took about 25–35 minutes, while three-column hemorrhoidectomy took about 30–40 minutes on average). The technology (Doppler anoscope) is readily available in most modern colorectal centers, and the safety profile is excellent. We encountered no device-related issues or unusual complications. The main consideration is patient selection – extremely large, circumferential prolapsing

hemorrhoids might still benefit from a surgical excision (or a combined approach of limited excision plus ligation) if THD alone would be insufficient to address the prolapse. In our series, we included some Grade IV cases in the THD group, and they did well with ligation plus robust mucopexy, but this may require expertise and careful follow-up. For the average case of Grade III with fissure, THD is certainly a compelling option.

While the results are strongly in favor of the THD + fissurectomy approach in our study, some limitations should be acknowledged. The allocation to each treatment group was not randomized, which could introduce selection bias. However, the groups were broadly similar, and the choice was often influenced by availability of the THD technique in the latter part of the study period rather than patient factors. Our follow-up duration (median 12 months) is relatively short for assessing hemorrhoid recurrence definitively; longer follow-up (e.g., 3–5 years) will be needed to ensure that the benefits continue and that recurrence rates for THD remain acceptably low. Additionally, we did not use formal quality-of-life questionnaires or validated pain scores beyond VAS, which might have provided quantitative measures of the subjective improvements we noted. Future studies could incorporate those. Despite these limitations, the data clearly demonstrate the feasibility, safety, and short-term efficacy of the combined THD and fissure excision approach.

Conclusions

1. For patients suffering from the dual affliction of advanced hemorrhoids and a chronic anal fissure, a combined surgical approach using transanal hemorrhoidal dearterialization (THD) plus fissure excision offers significant improvements over the traditional hemorrhoidectomy-based management. Our study showed that this minimally invasive strategy is safe, effective, and markedly reduces postoperative morbidity. Compared to the conventional Milligan–Morgan hemorrhoidectomy with fissurectomy, the THD approach resulted in less postoperative pain, shorter hospitalization and faster return to normal activities, and fewer early complications such as urinary retention and wound infection. Importantly, the technique achieved excellent fissure healing and durable hemorrhoid symptom control in the first year. There were no cases of anal incontinence with THD plus fissurectomy, highlighting its sphincter-preserving nature, whereas the conventional surgery had a small risk of incontinence and other complications that can negatively impact quality of life. Recurrence rates of fissure and hemorrhoids were low in both groups, and if anything tended to favor the THD group in our short-term follow-up, indicating that less invasive does not mean less effective in this context. This combined procedure can thus be considered both radical and minimally invasive – it addresses both pathologies in one operation (radical cure) while minimizing tissue trauma (hence “minimal” in terms of patient impact).

2. In summary, THD with concomitant fissure excision improves surgical outcomes for patients with coexisting stage III–IV hemorrhoids and a chronic anal fissure. It provides definitive treatment of both conditions with a single intervention, while dramatically enhancing patient comfort and recovery compared to the traditional approach. We recommend this technique as an excellent option for combined hemorrhoid and fissure disease, as it appears to strike an optimal balance between efficacy and postoperative quality of life. Wider adoption of THD in such combined cases could reduce the need for staged surgeries and spare patients the prolonged suffering often associated with extensive anorectal operations. Further studies with longer follow-up are warranted to confirm the durability of hemorrhoid control with THD in these advanced cases. Nonetheless, based on current evidence and our results, the integration of Doppler-guided hemorrhoidal dearterialization into the management algorithm for complex anorectal disease represents a meaningful advancement in proctologic surgery – one that prioritizes both the cure of disease and the care of the patient’s well-being.

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