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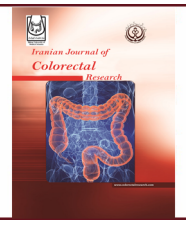

A Preliminary Study on Hemorrhoid Artery Ligation with Recto-anal Repair (HAL-RAR) without Doppler Guidance for Grade III Internal Hemorrhoids

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Abstract

Background: Many techniques have been announced for managing internal hemorrhoids. Hemorrhoid artery ligation with recto-anal repair (HAL-RAR) is a safe and almost painless technique that successfully controls hemorrhoidal symptoms. This procedure should be considered an effective first treatment option for hemorrhoids. The most common problem that should be discussed is the cost of this procedure, especially in developing countries. Here, we report the safety and effectiveness of HAL-RAR without Doppler guidance in treating stage III internal hemorrhoids in a single-center teaching hospital in Indonesia.
Methods: As a modification from the standard Doppler-guided HAL-RAR procedure, we evaluated the clinical outcomes of HAL-RAR without Doppler guidance on grade III internal hemorrhoids. All patients with no previous hemorrhoid surgery were included in this study; cases associated with proctitis and colorectal cancer were excluded.
Results: A total of 61 patients with grade III internal hemorrhoids were managed via the modified HAL-RAR technique. The patients accepted this technique well; pain control was achieved early on the first postoperative day. The average pain score (visual analog scale) before being discharged was 1.8, and the average postoperative length of stay was 1.4 days, with no postoperative bleeding found during the follow-up period.
Conclusion: We found HAL-RAR without Doppler guidance to be safe and effective, resulting in minimal pain and a short hospital stay. This modification reduces the expenses and could be a reasonable option in managing patients with symptomatic internal hemorrhoids.

Keywords: Pain, Length of stay, HAL-RAR, Doppler guidance, Internal hemorrhoid

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Introduction

A surgical hemorrhoidectomy is the gold standard treatment for hemorrhoidal disease but is associated with postoperative pain and complication rates of up to 15%. During the last two decades, the concept of treatment has evolved, with the main goal of minimizing the postoperative pain and

complications of complete anatomical excision of hemorrhoids (1). The goal is to control hemorrhoidal symptoms with less invasive techniques such as sclerotherapy and rubber band ligation. The hemorrhoid artery ligation with recto-anal repair (HAL-RAR) concept approaches the problem using a different modality: the goal is to treat the patients' symptoms without tissue destruction. Hemorrhoidal artery ligation (HAL) is achieved selectively under Doppler guidance, where the terminal branches of the superior hemorrhoidal artery are ligated to reduce (but never totally block) the blood supply, causing atrophy of the hemorrhoidal cushions (1, 2). The second step is to perform a mucopexy or recto-anal repair (RAR) to reintroduce and fix the hemorrhoids into the anal canal. Their atrophy and posterior fibrosis will keep them in their natural position, preventing recurrence and enhancing the results provided by the isolated HAL technique. Although HAL-RAR is safe and effective, some concerns persist, especially about its cost in our clinical setting. Hence, we conducted a preliminary study to evaluate this procedure when performed without Doppler guidance (3).

Methods

This observational study involved modifying the standard Doppler-guided HAL-RAR technique by removing Doppler guidance. Ligation of the hemorrhoid artery was done just above the dentate line on the same side of the hemorrhoid pile using long absorbable suture material. The inclusion criteria were grade III internal hemorrhoids, both sexes, no previous history of hemorrhoid surgery, and informed consent. All cases associated with proctitis and colorectal cancer were excluded. The clinical outcomes evaluated were the level of postoperative pain using the visual analog scale (VAS) and the length of stay after the procedure. Furthermore, all patients were followed up for one year to assess re-bleeding and recurrence.

Results

We report our single-operator experience performing the HAL-RAR without Doppler guidance from 2012 until 2018 on a total of 61 patients with grade III internal hemorrhoids in a teaching hospital in Indonesia. A summary of the study data is presented in Table 1. The patients accepted this technique well; pain control was achieved early on the first postoperative day. The average pain score (VAS) before being discharged was 1.8, and the average postoperative length of stay was 1.4 days. No postoperative bleeding or recurrence was found during the one-year follow-up period.

Discussion

The HAL-RAR is a minimally invasive technique that is conceptually painless for patients since all maneuvers and sutures are endoanal and above the dentate line; this helps an early recovery and allows an ambulatory procedure. We must bear in mind that postoperative pain is the most common concern for patients and professionals dealing with hemorrhoids. Our modified HAL-RAR approach offered minimal postoperative pain (VAS always lower than 3); moreover, the pain was easily controlled with oral analgesia. Some patients (30%) complained of mild tenesmus, which we attribute to the considerable presence of the cushions in the lower rectum ahead of atrophy. This is well tolerated by patients; it disappears progressively over a few weeks and does not require hospitalization (1, 3).

The main goal of any treatment for hemorrhoids must be to cure the symptoms with a minimal rate of complications and a low rate of recurrence. Early complications of the HAL-RAR technique are rare and are minor when present. Bleeding may occur in a small number of cases, though neither reoperation nor transfusion is necessary.

Through a Doppler-guided selective ligation of the terminal branches of the superior hemorrhoidal artery (HAL), the blood supply is reduced (but never totally blocked), causing atrophy of the hemorrhoidal cushions. The second step is to perform a mucopexy or rectoanal repair (RAR) to reintroduce and fix the hemorrhoids into the anal canal (1-5). Although this technique is safe and effective (6), the most common problem that must be discussed is the cost, especially

Table 1: A summary of the study data (n=61)

Characteristic		Frequency	Percentage
Sex	Female	32	52.5%
	Male	29	47.5%
Age	<20	1	1.6%
	21-40	23	37.7%
	41-60	25	41.0%
	>60	12	19.7%
Pain (visual analog scale)	1	20	32.8%
	2	40	65.6%
	3	1	1.6%
Length of hospital stay (days)	1	39	63.9%
	2	22	36.1%

in teaching hospitals and in settings where public insurance does not cover it. We followed the same technique as the standard HAL-RAR but did not use Doppler guidance and achieved good clinical outcomes, including minimal postoperative pain, early discharge, and no morbidity during the one-year follow-up period.

The common dilemma in performing HAL-RAR with Doppler guidance is the economic issue. This issue is particularly prominent in developing countries, where health support structures and public insurance often fail to entirely cover the treatment costs, restricting the choices in each operative indication for internal hemorrhoid. With the current data on the short and long-term outcome evaluation of the effectiveness of this standard procedure (7, 8), we can study and compare this standard procedure with other modifications that may offer equal clinical outcomes. In particular, direct vision on ligation of the hemorrhoid pile on each site (9) has adequate effectivity in reducing the arterial flow, though the objectiveness of data on such arterial flow remains a controversial issue.

Popovtsev et al. reviewed data on the efficacy of non-Doppler guided HAL-RAR in managing hemorrhoidal disease compared with standard HAL-RAR. They reported there were no significant advantages of the routine usage of Doppler guidance; the effectiveness in reducing the prolapse and controlling the bleeding of the internal hemorrhoid was similar (10). Another study by Markaryan et al. favored the technique of digital palpation during hemorrhoid artery ligation, which offered equal clinical outcomes compared with the standard Doppler technique not only in symptomatic grade II internal hemorrhoids but also in grade III disease. The pain control and the re-bleeding rate after surgery were equal to the Doppler-guided procedure (11).

Conclusion

We found HAL-RAR without Doppler guidance to be safe and effective, resulting in minimal pain and a short hospital stay. This modification reduces the expenses and could be a reasonable option in managing patients with symptomatic internal hemorrhoids.

Conflicts of interest: None declared.

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