



Three Years Recurrence Free of Hemorrhoid Artery Ligation-Rectoanal Repair with No Doppler Guided on Grade III of Internal Hemorrhoid Disease

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Abstract

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BACKGROUND: Surgical treatment of internal hemorrhoid is still challenging, short- and long-term clinical outcome were the most common issue. Chronic pain and recurrence case are the most common problem. Since it has been announced, HAL-RAR with Doppler guided is the treatment of choice, although it has economic issue on using this standard technique especially in the developing country which has limitation on health insurance.

AIM: Using the same procedure as the standard HAL-RAR procedure and direct vision ligation, we hope that it could evaluate the clinical response of these modification technique on symptomatic Grade III of internal hemorrhoid cases.

METHODS: We will evaluate the long-term clinical outcome of modified no Doppler guided technique on grade III of internal hemorrhoid cases. The inclusion criteria are the grade III of internal hemorrhoid, not associated with rectal cancer. A history of previous procedure or recurrence disease will be excluded from the study. Post-operative pain, 3 years recurrence disease, will be evaluated.

RESULTS: We reported 65 patients, both of them have pain and bleeding. The procedure can be performed safely using direct vision and rectoscope. After 3 years, we reported there was no recurrence disease, no post-operative bleeding, and tolerable post-operative pain. We reported one case of chronic pain due to proctitis and could be managed conservatively.

CONCLUSION: No Doppler-guided HAL-RAR was effective in controlling the post-operative pain, acceptable long-term clinical outcome with no recurrence.

Introduction

Surgical treatment for symptomatic internal hemorrhoid has evolving continuously until nowadays. Grade III and IV of internal hemorrhoid has been accepted as the surgical indication for the treatment option. Another indication for surgery of this internal hemorrhoid is the Grade I and II which have not responded good enough with medical treatment or the presence of bleeding after evaluation [1].

Conventional hemorrhoidectomy such as Milligan-Morgan or Ferguson technique has already established as the standard surgical technique in treating the symptomatic internal hemorrhoid and another technique is Whitehead hemorrhoidectomy for circular hemorrhoid [1], [2]. We must face to the most common post-operative complication during performing surgical treatment of internal hemorrhoid. The most common early complication is post-operative pain which could be progress into chronic pain after surgery [2].

As a surgeon, we must consider about this common post-operative complication which can affect the daily living and reducing the quality of life of the

patients. Both techniques have similar post-operative pain and the Whitehead technique has additional risk factor of post-operative anal stricture. For this reason of the common post-operative pain complication of internal hemorrhoid surgery, stapler hemorrhoidopexy has been announced with better post-operative pain controlled, although it has limitation on circular internal hemorrhoid with thrombus which could not be achieve by these technique alone, sometimes combination technique with conventional hemorrhoidectomy was still needed [3].

Since it has been announced for more than a decade, hemorrhoid artery ligation with rectoanal repair (HAL-RAR) with Doppler guided is the treatment of choice on grade III of internal hemorrhoid, although it has economic issue on using this standard technique, especially in the developing country which has limitation on health insurance to cover this standard procedure. Many studies reported the benefits and the effectiveness of this standard HAL-RAR technique with Doppler guided in controlling the arterial perfusion of these plexus hemorrhoidalis in the internal hemorrhoid cases. It has been reported less post-operative pain compared with the stapler hemorrhoidopexy, although

it was not a zero pain surgical procedure. According to this limitation on performing standard Doppler-guided HAL-RAR procedure, direct ligation of the hemorrhoid pile without Doppler guided was another option to achieved the benefit and long-term clinical outcome of the standard one [4].

Using the same procedure as the standard HAL-RAR procedure and direct vision ligation, we hope that it could evaluate the clinical response of these modification technique on symptomatic Grade III of internal hemorrhoid cases.

Methods

This is an observational study, which has been conducted in Surgery Department, Moewardi General Hospital, Indonesia. We would evaluated the symptomatic Grade III of internal hemorrhoid adult patients whose already had modified standard HAL-RAR with no Doppler technique. The clinical outcome which will be evaluated were the post-operative pain, rebleeding after surgery if presence and 3 years recurrence of the hemorrhoidal disease. The inclusion criteria of this study were the adult patient of Grade III of internal hemorrhoid, no previous history of hemorrhoid surgery. Recurrence disease and hemorrhoid associated with anorectal cancer will be excluded from this study. This study has already received ethical clearance from health study of ethical committee.

Both patients will received the post-operative analgetics of 1 g of acetaminophen each 8 h for 1 until 2 days and had an prophylaksis antibiotic only of 2 g Cefazolin iv.

During performing this procedure, we used the rectoscope to guided the visualization of the anal canal when performed the ligation of the hemorrhoid pile on each side and followed by rectoanal repair using the long absorbable suture material.

This observational study has already been approved by Health Research Ethic Committee of Moewardi General Hospital, Indonesia.

The Ethical clearance number: 203/IV/HREC/2022 (February 17, 2022).

Both of the subjects of this study have already been informed about the purpose of this case study, the using of the modified technique rather than the standard HAL-RAR procedure and get patient permission on using of the clinical material such as clinical finding during operation for the publication. All of the subjects are already agreed for the using of the information about the clinical outcome to be reported into the case study, case reports, or the original research publication.

Results

Sixty five patients have been included on this study; both of them are grade III of internal hemorrhoid disease with the clinical symptoms of pain and bleeding during defecation. The internal hemorrhoid cases were diagnosed by history taking, physical examination, and rectoscopy. The patients characteristic is shown in Table 1.

Table 1: Data characteristic

Subject characteristic	
Sex	
Female	34
Male	31
Age	
<20	2
21-40	26
41-60	25
>60	12
VAS	
1	22
2	42
3	1
LOS	
1	41
2	24

All patients had more than one pile of internal hemorrhoid disease (Figure 1) which could not reducible by the patients. Using the rectoscope and direct vision during the surgical procedure, we could evaluate the extension of the internal hemorrhoid, ligation of the hemorrhoidal artery just 2-3 cm above the dentate line on the each pile using long absorbable suture material followed by rectoanal repair by mucopexy (Figure 2) could controlled the bleeding and reduced the prolapse of the hemorrhoid pile with better post-operative pain controlled (Figure 3).

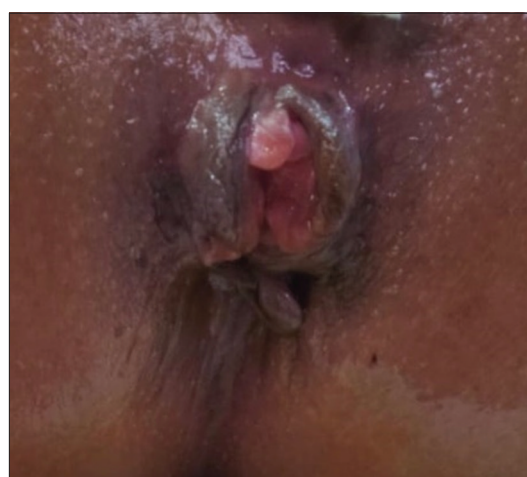


Figure 1: Grade III of internal hemorrhoid

After 3 years evaluation, we reported that there was no recurrence disease after this modified HAL-RAR procedure with no Doppler-guided technique; we found no post-operative bleeding and tolerable post-operative pain. We reported one case of chronic pain due to proctitis and could be managed conservatively with no more post-operative morbidity to be reported.



Figure 2: HAL-RAR with no Doppler technique



Figure 3: Post-operative clinical image

Discussion

The internal hemorrhoidal disease (HD) remains one of the most common conditions seen by surgeons and gastroenterologists worldwide. Knowledge of its existence as well as its treatments dates back to ancient times, and several studies on its history, epidemiology, and treatment modalities have already been published, but to date, no consensus has been reached on its exact incidence, prevalence, and pattern of attention [5].

Surgical treatment by excising the hemorrhoid pile has been considered the most effective method to eliminate symptoms and prevent recurrence. As “radical” pile resection became the gold standard of therapy for decades, its post-operative course, short- and long-term consequences, and better understanding of hemorrhoid pathophysiology have prompted colorectal surgeons to try other forms of treatment. Therefore, methods of preserving the anoderm of the distal rectum and anal canal, such as dearterialization and mucosal pexi (or elevation), which have been described in the past two decades, have found wide acceptance. Mucosal staple

resection and anopexy, also known as prolapse and hemorrhoid (PPH) procedures, and hemorrhoidal artery ligation (HAL), also known as transanal hemorrhoidal deformity (THD), comprise recent advances that are important in this direction. THD, may be Doppler-guided or not, and done with or without mucopexy, these controversies were still remain debatable between pros and cons [6], [7].

The transanal hemorrhoidal dearterialization (THD) procedure is an effective treatment for internal hemorrhoidal disease. Ligation of hemorrhoidal arteries (“dearterialization”) can cause a significant reduction in arterial blood flow to hemorrhoidal tissues. The plication of the excess rectal mucosa/submucosa (“mucopexy”) can reposition the prolapsed tissue to its original anatomical site [8], [9].

With long-term follow-up, THD leads to a resolution of symptoms in the majority of patients. The most common complication is transient but sometimes painful tenesmus. Rectal bleeding occurs in a very limited number of patients. There is little to no risk of fecal incontinence or chronic pain. Anorectal manometry and endoanal ultrasound show no evidence of a violation of the physiological function of the sphincter [9], [10], [11].

Study by Popovtsev *et al.* reported the comparison between the standard HAL-RAR and the other modification using direct palpation of the hemorrhoid pile, they reported regarding the incidence of hemorrhoidal prolapse ($p = 0.74$) and hemorrhoidal bleeding ($p = 0.71$), there is no significant advantage of Doppler-guided HA ligation over palpation. Pain syndrome ($p = 0.24$), incidence of post-operative complications ($p = 0.51$), and recurrences ($p = 0.31$) showed comparable safety for both techniques [10].

Doppler-guided ligation of hemorrhoid vessels has been suggested as a treatment for Grades 2 and 3 hemorrhoids. Many researchers combine this procedure with mucopexy or hemorrhoid lifts to more effectively control a prolapse. The present study was conducted in patients with third degree hemorrhoids to determine the benefit of Doppler-guided hemorrhoidal artery ligation compared to mucopexy for prolapsed hemorrhoids and compared to mucopexy for hemorrhoids alone. Gupta *et al.*, on his study in 2011, reported that the suture ligation of hemorrhoids is a simple, cost-effective, and convenient modality for treating Grade 3 hemorrhoids. Doppler assistance in ligating the hemorrhoidal vessels before hemorrhoidal mucopexy offers no advantage and is a time-consuming procedure, although another study did not support them and still suggested the standard Doppler guided in performing hemorrhoid artery ligation with rectoanal repair [9], [12].

Economic issue is one of the limitations in performing the standard HAL-RAR with Doppler technique, many modification has been announced including by direct vision of ligation, using the palpation

technique or selective dearterialization. The current study by Sobrado *et al.* reported and supported this modification technique. Selective dearterialization and mucopexy is secure and achieves good enough controlled of prolapse and bleeding and, through minimizing sutures within side the anal canal, post-operative morbidity is diminished. Doppler probe is not sensible for this procedure, which makes it additionally extra-exciting from an financial perspective.

By performing the selective dearterialization and mucopexy only on the symptomatic internal hemorrhoid pile was most effective, which is essentially adapting the principles of conventional excisional hemorrhoidectomy to the brand new minimally invasive THD manner and most effective treating the symptomatic pile.

Conclusion

Hemorrhoid artery ligation with no Doppler-guided technique has good long-term clinical outcome with feasible technique which can be used as an alternative of standard Doppler guided technique in treating internal hemorrhoid by direct ligation of the hemorrhoid pile above the dentate line with better post-operative pain response and acceptable long-term recurrence.

Author's Contributions

Budhi Ida Bagus has contribute on conception, design the study, data collection, data interpretation, and manuscript writing.

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Ethical Statement

The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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