

Comparison Of Post Operative Pain Score Between Doppler-Guided Hemorrhoidal Artery Ligation And Recto Anal Repair With Open Hemorrhoidectomy On Internal Hemorrhoid Grade III-IV At Siloam Hospitals Lippo Village

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Abstract

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Background: Hemorrhoid is a common lesion affecting 5% of the general population. Open hemorrhoidectomy has been considered as gold standard. However, this method has a significant score of post-operative pain Because of this side effect, another alternative method to treat hemorrhoid has been invented which can reduce the post-operative pain. One of this method is doppler-guided hemorrhoidal artery ligation and recto anal repair (DGHAL-RAR). This study aims to know the comparison of the post-operative pain score between doppler-guided hemorrhoidal artery ligation and recto anal repair compared with open hemorrhoidectomy.

Method: The sample population of this study are internal hemorrhoid grade III-IV patients at Siloam Hospitals Lippo Village from 2018-2020. Visual analogue scale data are taken from medical records. Sample data is obtained using consecutive sampling method until 64 samples are met. The data obtained will be processed with Mann U-Whitney test.

Results : Incidence of post-operative pain more than VAS 3 occurred in DGHAL-RAR and open hemorrhoidectomy are 81,3% and 96,9% with p value of 0,104. The average score of Visual Analogue Scale score in DGHAL-RAR and open hemorrhoidectomy are 1,97 and 3,13 with p value of 0,001.

Conclusion : This study shows that the comparison of pain score in DGHAL-RAR and open hemorrhoidectomy is not statistically significant. The mean score of Visual Analogue Scale Score in DGHAL-RAR group are statistically significant lower than the mean score in open hemorrhoidectomy group.

Introduction

Hemorrhoid tissue is a normal anatomical part of the distal rectum and anal canal. However, the word hemorrhoid is often interpreted as a pathological process.¹ Hemorrhoids are a common lesion that affects 5% of the general population. Meanwhile in Indonesia, there are 166

patients suffering from hemorrhoids at H. Adam Malik General Hospital Medan with a prevalence of 69.17% (Wandari, 2011) and 113 people at Soedarso Hospital in Pontianak in 2009-2012 (Putra, 2013). The gold standard of hemorrhoid management is the open hemorrhoidectomy procedure. However, this procedure has a significant morbidity rate, in which

postoperative pain after this procedure is very disturbing to the patient. Therefore, other alternatives were found in the treatment of hemorrhoids to reduce postoperative pain. One of them is the doppler-guided hemorrhoidal artery ligation and recto anal repair (DGHAL-RAR) method. This method is one of the relatively new procedures when compared to other surgical procedures. The most frequently used method for assessing pain intensity is the visual analogue score (VAS), in which the patient describes the intensity of the pain as a point on a straight line that has a number from 0 to 10.²

Previous studies discussed the comparison of postoperative pain between the DGHAL-RAR method and open hemorrhoidectomy for grade III and IV hemorrhoids (external and internal), grade IV hemorrhoids, and grade II-IV hemorrhoids. Meanwhile, studies comparing postoperative pain in grade III-IV internal hemorrhoids are still minimal.

Open hemorrhoidectomy or better known as Milligan-Morgan hemorrhoidectomy (MMH), is a procedure commonly used in the UK. This open hemorrhoidectomy procedure was first described by Milligan Morgan in 1937 and has since become the gold standard of hemorrhoid management. This procedure begins by using a hemostat to hold the external component of the hemorrhoid in 3 quadrants (including the prolapsed part). Internal components are also held using hemostats. Hemorrhoids are common on the left lateral (3 o'clock in the lithotomy position), right anterior (11 o'clock) and right posterior (7 o'clock). With these three clamps, the classic triangle of exposure of Milligan is formed. Curved Mayo scissors are used to incise the perianal skin, and dissection of the external components of the external sphincter complex. The dissection will proceed to a more cephalic part of the internal sphincter. Then the top was ligated and the hemorrhoids were excised. Electrocautery can also be used for hemostasis. This procedure is accomplished by applying a hemostatic gauze pad into the anal canal. The margins of the skin were left open to heal on their own.³

In 1995, the Doppler-guided hemorrhoidal artery ligation and recto anal repair procedures were described by Morinaga et al. Prior to surgery, the patient will be given prophylactic antibiotics. The first stage of this operation is to prepare DGHAL standard equipment, which consists of A.M.I. Trilogy and DGHAL-RAR proctoscope. Then, a Doppler probe will be inserted about 3-5 cm above the dentate line to identify branches of the superior rectal artery. Accurate detection of branches of the superior rectal artery will be confirmed by Doppler sound. A figure of eight suture is then performed on the rectal mucosa where the artery has been identified by the proctoscope. After the ligation (confirmed by the loss of the Doppler signal), the ligation will be tightened using a pusher knot. The second stage is recto anal repair. Recto anal repair is performed in the same manner from the arterial ligation site up to 5 mm above the dentate line and it is tightly ligated to the rectal mucosa. The operation is completed if there is no prolapsed hemorrhoid or no arterial signal is found. Complications that can occur are bleeding, thrombosis, pain, and fissures. The pain after this procedure is relatively mild compared to other procedures.⁴

The most frequently used method for assessing pain intensity is the visual analogue score (VAS), where the patient describes the pain intensity as a point on a straight line with the numbers 0 to 10. On the Numeric Rating Scale (NRS) the patient uses a number to describe the intensity of his pain. 0 means no pain and 10 indicates very severe pain. Meanwhile, the Faces Pain Scale shows the patient's facial expressions ranging from painless to the worst pain.

Postoperative pain was treated using guidelines from the French Anesthesiology Society. The aim of these guidelines is to keep the VAS score below 3. Analgesics can be administered using the WHO system. Analgesics are given based on the VAS score which is divided into a VAS score of 1-3 (WHO class I analgesic), a

VAS score of 4-6 (WHO class II analgesic) and a VAS score of more than 6 (WHO class III analgesic).⁵

Methods

This study used a 2 groups unpaired numerical comparative analytic study with a cross-sectional design. This study was conducted on patients with grade III-IV internal hemorrhoids who underwent DGHAL-RAR surgery or open hemorrhoidectomy at Siloam Hospitals Lippo Village. The study was conducted from January 2020 to August 2020 using data obtained from medical records. Sampling was carried out by consecutive sampling until the quota was met. Data taken from medical records in the form of demographic characteristics (age and sex of the patient), working diagnosis of the patient (internal hemorrhoids grade III-IV), type of hemorrhoid treatment (DGHAL-RAR or open hemorrhoidectomy), VAS score, and patient's medical history. The inclusion criteria of this study were patients with grade III-IV internal hemorrhoids at Siloam Hospitals Lippo Village and undergoing DGHAL-RAR surgery or open hemorrhoidectomy at Siloam Hospitals Lippo Village. Patients who had previous hemorrhoid surgery, had thrombosed hemorrhoids, anal fissure, fistula were excluded from the study. A thrombosed hemorrhoid is described as a hematoma caused by tearing of a vein caused by excessive straining during defecation.² Anal fissure is a tear in the anoderm that is distal to the dentate line. A fistula is an abnormal communication between the anus at the level of the dentate line and the perirectal skin. Anal stenosis is a narrowing of the anal canal. This study used the SPSS (Statistical Package for Social Sciences) statistical test version 23 with the Mann U-Whitney test method in accordance with the sample calculation formula used, namely the unpaired numerical comparative analytical test of 2 groups. The author has received ethical approval from the Research Ethics Committee of the Faculty of Medicine, University of Pelita Harapan.

Result

From January 2018 - March 2020 there were 64 patients suffering from grade III-IV internal hemorrhoids at Siloam Hospitals Lippo Village. 32 patients underwent DGHAL-RAR and 32 underwent open hemorrhoidectomy.

The mean age of the sample was 41.25 years, of which the mean age who underwent DGHAL-RAR was higher (42.2 years) compared to open hemorrhoidectomy (40.3 years). Most samples were obtained in the age range 41 - 50 years where there were 21 samples (32.8%). The least sample was obtained in the age range above 60 years, as many as 3 samples (4.7%).

96.9% of patients who underwent DGHAL-RAR were diagnosed as having grade III internal hemorrhoids and only 3.1% were diagnosed as having grade IV internal hemorrhoids. Meanwhile, in patients who underwent open hemorrhoidectomy, 85.9% of patients were diagnosed with grade III internal hemorrhoids and 14.1% were diagnosed as having grade IV internal hemorrhoids.

There were 81.3% of patients in the DGHAL-RAR group experienced postoperative pain, while 89.1% of the patient group who underwent open hemorrhoidectomy experienced postoperative pain. The significance value (p value) obtained through the Fisher exact test is 0.104 (exceeding 0.05) which proves statistically that the results of this study are not significant. Therefore, the OR value obtained is negligible (meaningless).

The DGHAL-RAR group had an average VAS value of 1.97 and the open hemorrhoidectomy group had an average VAS value of 3. Based on the Mann U-Whitney statistical test, a significance value (p value) was obtained of 0.001 which means significant.

Table 1. Demographic data by age

Age	DGHAL-RAR		Open Hemorrhoidectomy		Total	
	n	%	n	%	n	%
<31	5	15,6	8	25	13	20,3
31-40	9	28,1	6	18,8	15	23,4
41-50	8	25	13	40,6	21	32,8
51-60	9	28,1	3	9,4	12	18,8
>60	1	3,1	2	6,3	3	4,7
Total	32	100	32	100	64	100
Mean	42,2 tahun		40,3 tahun		41,25 tahun	

Table 2. The distribution of the degree of internal hemorrhoids

Degree	DGHAL-RAR		Open Hemorrhoidectomy		Total	
	n	%	n	%	n	%
3 rd degree	31	96,9	24	75	55	85,9
4 th degree	1	3,1	8	25	9	14,1
Total	32	100	32	100	64	100

Table 3. Postoperative pain incidence

Types of surgery	Post-Operative Pain				Total		OR (95%CI)	P value
	No Pain		Pain					
	n	%	n	%	n	%		
DGHAL-RAR	6	18,8	26	81,3	32	100	7,154 (0,809- 63,299)	0,104
Open Hemorrhoidectomy	1	3,1	31	96,9	32	100		
Total	7	10,9	57	89,1	64	100		

Table 4. Average Visual Analogue Score

Types of surgery	n	mean ± standard deviation	median	P Value
DGHAL-RAR	32	1,97±1,121	2	0,001
Open Hemorrhoidectomy	32	3,13±1,385	3	

Discussion

Of the 64 patients, 55 patients were diagnosed with grade III internal hemorrhoids and the remaining 9 were diagnosed with grade IV.⁶ In a study conducted by Tarek Mohammad Sherif and Abd Elrahman Amin Sarhan, the study involved 126 grade IV hemorrhoid patients. IV.⁷ Whereas in Sadq Ghaleb Kadem's study there were 49 grade II hemorrhoids, 29 grade III hemorrhoids and 22 grade IV hemorrhoids. Research conducted by Hossein Shabahang, Ghodratolah Maddah, Asieh Sadat Fattahi, Leila Bahadorzadeh and Sadjad Noorshafiee contained 100 patients with grade III and IV hemorrhoids.⁸ The mean score of the visual analogue scale for the DGHAL-RAR group was 1.97 with a standard deviation of 1.121. While the mean value of the visual analogue scale score of the open hemorrhoidectomy group was 3.13 with a standard deviation of 1.385. The highest VAS score was 4 in the DGHAL-RAR group and 8 in the open hemorrhoidectomy group. The significance value of the comparison of the mean VAS score of the two measures was 0.001 which was statistically significant ($p < 0.05$). The results of this study are in accordance with the results obtained in the study conducted by Tarek Mohammad Sherif and Abd Elrahman Amin Sarhan where VAS in the DGHAL-RAR group was 2.66 ± 2.19 and VAS in the open hemorrhoidectomy group was 5.20 ± 2.24 . Where it can be concluded that the VAS value in the DGHAL-RAR group was lower than the open hemorrhoidectomy group and was considered statistically significant (p value < 0.05).

Conclusion

Patients who underwent DGHAL-RAR management had less complaints of postoperative pain than the group of patients who underwent hemorrhoid management using the open

hemorrhoidectomy method. The mean visual analogue score in the DGHAL-RAR group was lower than that in the open hemorrhoidectomy group. This result is statistically significant.

The results obtained from this study are in accordance with previous studies. However, this study has several differences with the studies that have been conducted which may affect this research. The first is that the design of this study is a cross-sectional study with retrospective secondary document tracing. The sample used was only grade III-IV hemorrhoid patients at Siloam Hospitals Lippo Village using secondary data (medical records) for the period 2018 - 2020. This was done because of the limitations of the study time. Because this study uses secondary data, there are several shortcomings, such as researchers cannot ensure the accuracy of the data written in medical records. This study also has a smaller number of samples when compared with other studies that have been conducted. This study did not take into account the type and dose of analgesics in each treatment. In addition, this study also did not know the number of hemorrhoid components handled. This data is not included in the patient's medical record. This can affect the pain score felt by the patient after surgery. The minimum number of samples can also affect the results of the study. Previous studies have not only compared the degree of postoperative pain between the two procedures, but also compared the postoperative complications that are prone to occur in patients. Therefore, this study cannot provide a full picture of the comparison between these two methods of treating hemorrhoids.

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Conflict of Interest

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