

10-20-2018

Comparative Analysis of Post Rubber Band Ligation and Stapled Hemorrhoidopexy Complications of Grade 2 and 3 Internal Hemorrhoids

Yarman Mazni

Division of Digestive Surgery, Department of Surgery, Faculty of Medicine, Universitas Indonesia, dr. Cipto Mangunkusumo General Hospital Jakarta, joaoarc@yahoo.com

Ibrahim Basir

Division of Digestive Surgery, Department of Surgery, Faculty of Medicine, Universitas Indonesia, dr. Cipto Mangunkusumo General Hospital Jakarta

Sumanto Sumanto

Training Program in Surgery, Department of Surgery, Faculty of Medicine, Universitas Indonesia, dr. Cipto Mangunkusumo General Hospital Jakarta

Setyawati Budiningsih

Department of Community Medicine Faculty of Medicine, Universitas Indonesia.

Follow this and additional works at: <https://scholarhub.ui.ac.id/nrjs>

Recommended Citation

Mazni, Yarman; Basir, Ibrahim; Sumanto, Sumanto; and Budiningsih, Setyawati (2018) "Comparative Analysis of Post Rubber Band Ligation and Stapled Hemorrhoidopexy Complications of Grade 2 and 3 Internal Hemorrhoids," *The New Ropanasuri Journal of Surgery*. Vol. 3 : No. 2 , Article 9.

DOI: 10.7454/nrjs.v3i2.60

Available at: <https://scholarhub.ui.ac.id/nrjs/vol3/iss2/9>

This Article is brought to you for free and open access by the Faculty of Medicine at UI Scholars Hub. It has been accepted for inclusion in The New Ropanasuri Journal of Surgery by an authorized editor of UI Scholars Hub.



Comparative Analysis of Post Rubber Band Ligation and Stapled Hemorrhoidopexy Complications of Grade 2 and 3 Internal Hemorrhoids

Yarman Mazni,¹ Ibrahim Basir,¹ Sumanto,² Setyawati Budiningsih.³

1) Division of Digestive Surgery 2) Training Program in Surgery, Department of Surgery, Faculty of Medicine, Universitas Indonesia, dr. Cipto Mangunkusumo General Hospital Jakarta, 3) Department of Community Medicine Faculty of Medicine, Universitas Indonesia.

Email: joaoarc@yahoo.com Received: 12/May/2018 Accepted: 10/Jun/2018 Published: 20/Oct/2018
<http://www.nrjs.ui.ac.id> DOI: 10.7454/nrjs.v3i2.60

Abstract

Introduction. The management of second- and third-degree internal hemorrhoid consists of non-surgical and surgical treatments. If non-surgical treatment does not succeed, then the recommended therapy is minimal invasive or surgery, depends on the clinical condition. Along with the development of science and technology, a technique known as rubber band ligation (RBL) and stapled hemorrhoidopexy emerges. In Indonesia, there is no data that can describe the distribution of postoperative complication rate.

Method. A comparative cross-sectional study was conducted by gathering short term outcomes data from the subjects' medical records that underwent RBL or SH between 2011 to 2014 in three different hospitals in Jakarta. A univariate analysis was conducted to assess postoperative complications of RBL and SH subjects of second- and third-degree internal hemorrhoids. We use chi square test to assess the factors that influence the complications of categorical variables, and Fisher test if the chi square condition is not met.

Results. Among 183 subjects, 49.2% underwent RBL and 50.8% SH. Second degree internal hemorrhoids were 40% and third degree were 60%. Postoperative complications consist of pain (RBL 4.4%, SH 8.8%), hemorrhage (RBL 2.3%, SH 4.9%), urinary retention (RBL 0, SH 2.7%), infection (RBL 0.5%, SH 1.6%) and stenosis (RBL 0, SH 0.5%). Postoperative complications on second degree internal hemorrhoidal was 8.2% and third degree 13.1% ($p = 0.71$). Complication of subject with third degree internal hemorrhoids after RBL 2.8%, SH 19.4% ($p = 0.03$).

Conclusion. Complications of second- and third-degree internal hemorrhoids post RBL are no different with SH while for third degree internal hemorrhoid, complications after RBL were significantly lower than SH.

Keywords: *hemorrhoid, rubber band ligation, stapled hemorrhoidopexy*

Introduction

The surgical intervention of internal hemorrhoid varies greatly paralleled to the advancement in the knowledge of the pathophysiology of hemorrhoids. However, to date there is no a single treatment provides an optimal result that associated with minimal postoperative complications, which is painless and accepted minimal bloody stools. For instance, recently rubber band ligation (RBL) referred to a minimally invasive chosen method applied as it provides clinical advances that may be treated as an office surgery for outpatients and with satisfactory outcomes compared with other minimally invasive modalities such as sclerotherapy and coagulation. However, the procedure if ligation is not without drawbacks; the issue of pain remains, in addition to bloody stools, thrombosis of external hemorrhoids, and the symptoms of vasovagal reflex which is found in about 1–3%, and the recurrence.^{1,4-6} In addressing this kind of treatment failure, a hemorrhoidectomy is the recommended procedure of choice. With such a surgical procedure, the hemorrhoids are totally removed. Thus, the recurrence is then reduced off, but the issue of pain as well as bleeding remains the problem and associated with prolonged recovery.^{1,2,4}

Stapled hemorrhoidopexy (SH), is a recent method of choice used to restore the anal cushions to its anatomical sites. The procedure consists of removal of mucosa of the lower part of the rectum and inhibit blood vessels that supply hemorrhoid.^{6,7} Many studies have

shown the benefit of SH. Peng (2003) found that SH is associated with less pain and minimal morbidity. In addition, it minimizes the need for a further intervention compared with RBL in those with third- to the fourth-degree internal hemorrhoid.⁸ Shanmugam (2010) found that SH controls second-degree internal hemorrhoid better than RBL in one year with no major complications. Butterworth (2012) reported that only 10% of those who underwent SH were re-admitted due to rectal bleeding, postoperative pain, and urinary retention. Sultan (2014) also found that postoperative bleeding that needed further surgery after SH was 3 to 5%.^{6,8-10}

To date, there is no data focused on the postoperative complications of RBL and SH in those with second- and third-degree internal hemorrhoid. Thus, a study aimed to find out the complication rate of RBL and SH.

Method

A cross-sectional study carried out enrolling adults with second- and third-degree internal hemorrhoid underwent RBL and SH at dr. Cipto Mangunkusumo General Hospital (RSCM), Metropolitan Medical Centre (MMC) Hospital, and Mitra Kemayoran Hospital (MKH), Jakarta, Indonesia during January 2011 to December 2014. Those underwent both RBL and SH in a single session were excluded. Subject characteristics such as age and gender, hemoglobin

content and hematocrit, leukocyte count, platelet count, prothrombin time (PT), and activated partial thromboplastin time (APTT), surgical procedure, and postoperative complications including pain, bleeding, urinary retention, infection/sepsis, were the data of interests. These data were analyzed using SPSS 17 for Windows. Numeric variables were analyzed using independent T-test, while categoric variables were analyzed using Chi-Square or Fisher's exact test. This study had been approved by the Committee of Ethic, Faculty of Medicine, Universitas Indonesia, No 670/UN2.FI/ETIK/2015 and Research bureau RSCM No LB.02.01/X,2/593/2015.

Results

A total of 183 subjects enrolled in this study. Subjects characteristics presented in table 1. The postoperative problems including pain, anal bleeding, urinary retention, infection, and rectal stenosis is demonstrated in table 2. The association of overall surgical procedure and postoperative problems with internal hemorrhoids in both of second- and third-degree presented in table 3 and for third-degree internal hemorrhoid presented in table 4. In this study we found complication rate in RBL was lower than SH ($p = 0.01$). In both of second- and third-degree of hemorrhoids, these complications were not significantly differed ($p = 0.718$), but it was shown that complication in those with third-degree internal hemorrhoid, were found lower in RBL than SH ($p = 0.03$).

Table 1 Characteristics of the subjects

Characteristic	Rubber band Ligation		Stapled hemorrhoidectomy		Total		p
	n	%	n	%	n	%	
Hemorrhoid							
1. 2 nd degree	58	77.3	17	22.7	75	40	0.000
2. 3 rd degree	32	29.6	76	70.4	108	60	
Age							
1. <45	29	36.7	50	63.3	79	43.2	0.290
2. 45-54	24	55.8	19	44.2	43	23.5	
3. 55-64	18	58.1	13	41.9	31	16.9	
4. ≥65	19	63.3	11	36.7	30	16.4	
Gender							
1. Males	56	55.4	45	44.6	101	55.2	0.410
2. Females	34	41.5	48	58.5	82	44.8	
Total	90	49.2	93	50.8	183	100	

Table 2 Complications after rubber band ligation and stapled hemorrhoidectomy

Complications	RBL		SH		Total		p
	n	%	n	%	n	%	
Pain	8	4.4	16	8.8	24	13.2	0.100
Bleeding	4	2.3	9	4.9	13	7.2	0.140
Urine retention	0	0	5	2.7	5	2.7	0.030
Infection/sepsis	1	0.5	3	1.6	4	2.1	0.320
Stenosis	0	0	1	0.5	1	0.5	0.510
No complication	78	42.6	66	36.1	144	78.6	0.010
Total	91	47.6	100	56.7	191	104.3	

RBL: Rubber band Ligation, SH: Stapled hemorrhoidectomy

Table 3 Association between both surgical procedure and hemorrhoid degree and surgical complications

Variable	Complications				p
	Yes		No		
	n	%	n	%	
Type of operation					
• RBL	12	6.6	78	42.6	0.010
• SH	27	14.8	66	36	
Internal hemorrhoid					
• 2 nd degree	15	8.2	60	32.8	0.718
• 3 rd degree	24	13.1	84	45.9	

Table 4. Association between surgical procedure and surgical complications in third-degree internal hemorrhoid

3 rd Degree	Variable	Complications				Total		p
		Yes		No				
	n	%	n	%	n	%		
Type of operation:								
1. RBL	3	2.8	21	19.4	32	22.2	0.030	
2. SH	21	19.4	55	58.4	76	77.8		
Total	24	22.2	84	77.8	108	100		

Discussion

In the study, postoperative problems such as pain, rectal bleeding, and infection following RBL showed no significant difference to SH ($p > 0.05$). The logic explanation is due to the surgical margin that is close to line of dentata, narrow anal canal, anal spasm, sphincter rigidity, and mucosal injury. Study of Fontenot (2015) showed that pain is an issue found when the surgical intervention carried out close to the mucocutaneous line.⁴⁻⁶ Garg (2013) found that postoperative pain following SH is quite minimal, while as study of Shanmugam (2010) showed that pain following RBL is not significantly different to those in SH.⁶ Rectal bleeding following the procedure of SH may occurred due to mucosal injury as well as anal mucosal inflammation. Whereas, in the procedure of RBL, necrosis of the hemorrhoid may cause rectal bleeding. Peng (2003) and Sultan (2014) showed that rectal bleeding following the procedure of SH is 3 to 5%. In the other side, Fontenot (2015) reported the incidence of postoperative rectal bleeding after RBL is 1 to 3%.^{5,8,10} Postoperative infection following SH may be found both in early and a later phase. Abscess formation, perirectal bacterial seeding, pelvic cellulitis, and perirectal necrotic tissues due to electrocoagulation. Whereas, post-RBL infection is caused by pelvic sepsis. Fontenot (2015) stated that post-RBL infection rarely occurs, and Oughriess (2005) reported that the incidence of post-SH infection was 0.5 to 0.9%.^{5,18}

The mechanism regarding urinary retention that may occur after SH remains unclear; however, the use of regional anesthetics may contribute to urinary retention. Nevertheless, the authors were unable to confirm this as they did not observe the anesthetic effect in the subjects.^{9,18}

This study showed that stenosis post-SH was 0.5%. It was associated with scar retraction and anal sphincter hypertonia. This number is not so much different compared to the number of stenosis reported by a study by Oughriess in the year 2005 (0.8 to 1.6%).¹⁸

According to the degree of the hemorrhoid, second-degree internal hemorrhoid postoperative complication did not differ significantly with third-degree internal hemorrhoid ($p = 0.718$). It could be concluded due to the expertise of the surgeon in performing RBL and SH; thus, the complication rate could be reduced.⁶ Shanmugam (2010) also found that those with second-degree internal hemorrhoid had similar postoperative complication with those with third-degree ones.

Regarding the association between surgical procedures and their complications in third-degree internal hemorrhoid (table 4), post-RBL complications were significantly lower than post-SH complications ($p = 0.03$). Although, there may seem to be an inequity in comparing an outpatient procedure with another that requires general anesthesia, yet for the patient, such differences are significant for them to weigh in the advantages and disadvantages of each procedure. This would assist them to consent for a procedure preferred. The more radical approach in SH, which are the size of the circular stapler inserted trans-anally and the magnitude of the tissue

excision, is reflected in the higher complication rate compared with RBL.⁸

The diagnosis of internal hemorrhoid worldwide has formal standards that are adopted by each physician; however, the characteristics of those with hemorrhoids in the United States, Europe and Asia differ in terms of socioeconomic level, race, lifestyle including diet and defecation, which are known to affect the course of internal hemorrhoidal disease. Despite differences in the characteristics of the research subjects, medical service standards, and diverse expertise of medical personnel, this study has findings that are similar to previous studies that were conducted in various countries regarding post-RBL and -SH complications in internal and second-degree hemorrhoids. This may be due to the similarity in the understanding of the pathophysiology of the disease and the nature of the disease.

Conclusion

Complications of second- and third-degree internal hemorrhoids post RBL are no different with SH while for third degree internal hemorrhoid, complications after RBL were significantly lower than SH.

Disclosure

Authors declare no conflict of interest.

References

1. Sjamsuhidajat R, De Jong W. Buku Ajar Ilmu Bedah edisi 3. Jakarta: ECG; 2010; p 1083.
2. National Guideline Clearinghouse. Expert Commentaries: Management of Hemorrhoids: Mainstay of Treatment Remains Diet Modification and Office-Based Procedures [Internet]. [cited 2015 Mar 11]. Available from: <http://www.guideline.gov/expert/expert-commentary.aspx?id=37828>.
3. Song S-G, Kim S-H. Optimal Treatment of Symptomatic Hemorrhoids. *J Korean Soc Coloproctol*. 2011;27(6):277-81.
4. Rivadeneira DE, Steele SR, Tement C, Chalasani S, Buie WD, Rafferty JL, et al. Practice parameters for management of hemorrhoids (revised 2010). *Dis Colon Rectum*. 2011;54(9):1059-64.
5. Fontenot E, Landreneau SW. Hemorrhoids: Evaluation and Management for the office-based Clinician. *Gastroenterol Endosc News*. 2015;66(1).
6. Shanmugam V, Muthukumarasamy, Cook JA, Vale L, Watson AJM, Loudon MA. Randomized controlled trial comparing rubber band ligation with stapled hemorrhoidopexy for Grade II circumferential hemorrhoids long-term results. *Colorectal Dis Assoc Coloproctol G B Irel*. 2010;12(6):579-86.
7. Zinner MJ. Maingot's Abdominal Operations: 11th Edition. Chapter 24 Benign Disorders of the Anorectum. McGraw-Hill Companies; 2007.
8. Peng BC, Jayne DG, Ho Y-H. Randomized Trial of Rubber Band Ligation vs. Stapled Hemorrhoidectomy for Prolapsed Piles. *Dis Colon Rectum*. 2003;46(3):121-7.
9. Butterworth JW, Peravali R, Anwar R, Ali K, Bekdash B. A four-year retrospective study and review of selection criteria and post-operative complications of stapled hemorrhoidopexy. *Tech Coloproctol*. 2012;16(5):369-72
10. Sultan S. Longo Procedure (Stapled hemorrhoidopexy): Indications result. *J Visc Surg* 2014.
11. Snell RS. Anatomy Klinik untuk Mahasiswa Kedokteran edisi 6. Jakarta: ECG; 2006; p 968.
12. Brunnicardi F, Andersen D, Billiar T, Dunn D, Hunter J, Matthews J, et al Schwartz's Principles of Surgery Ninth Edition. McGrawHill Professional; 2009; p 1889.
13. Townsend CM, Beauchamp RD, Evers BM, Mattox K, Sabiston Textbook of Surgery 17e. Philadelphia: Saunders; 2004; p.2000.
14. Glasgow Colorectal Centre. Hemorrhoids-Piles Symptoms, Treatment & Surgery Options [Internet]. [cited 2015 June 22]. Available from: www.colorectalcentre.co.uk/hemorrhoids-piles.html
15. Garg PK, Kumar G, Jain BK, Mohanty D. Quality of Life after Stapled Hemorrhoidopexy: A Prospective Observational Study. *BioMed Res Int*. 2013;2013.
16. Chivate SD, Ladukar L, Ayyar M, Mahajan V, Kavathe S. Transanal Suture Rectopexy for Hemorrhoids: Chivate's Painless Cure for Piles. *Indian J Surg*. 2012;74(5):412-7.
17. Visual Analogue Scale-Physiopedia, universal access to physiotherapy knowledge. [Internet]. [cited 2015 Mar 23]. Available from: http://www.physio-pedia.com/Visual_Analogue_Scale.
18. Oughriess M, Yver R, Faucheron J-L. Complications of stapled hemorrhoidectomy: a French multicentric study. *Gastroenterologie Clin Biol*. 2005;29(4):429-33.