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A prospective study of the outcome of endoscopic haemorrhoidal ligation for symptomatic internal haemorrhoids

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Abstract

Aim: To evaluate the long-term outcome of endoscopic band ligation of symptomatic internal haemorrhoids.

Methods: A total of 70 subjects fulfilling the inclusion criteria were included. After thorough history taking and proctoscopic examination, patients with symptomatic internal haemorrhoids were subjected to Endoscopic band ligation, and followed up at 2 weeks, 4 weeks, 2 months and 6 months, and assessed for pain, recurrence and bleeding.

Results: The number of band ligations averaged 2.37 per subject. 4.3% of them experienced mild pain by 4 weeks, whereas the rest were free of pain. At the end of 6 months, 5.7% of subjects were still symptomatic and 8.6% had recurrent per rectal bleed. A total of 8.6% of subjects needed repeat ligation for alleviation of symptoms, and 1.4% needed definitive surgery.

Conclusion: Endoscopic band ligation is a simple and effective procedure that can be carried out in symptomatic internal haemorrhoids on out-patient basis.

Keywords: Banding, haemorrhoidectomy, bleeding

Introduction

Haemorrhoids are the clinical manifestations of the downward displacement of normal functional structures known as anal cushions. Haemorrhoids are one of the most prevalent anorectal disorders among all adults, and nearly 50% of erotological visits in a colorectal unit are found to have haemorrhoids of varying degrees^[1]. They are found to involve all age groups and affect both males and females equally^[2], but patients with chronic increased intra-abdominal pressure as well as pregnancy are found to present more commonly with the disorder^[3]. Various therapeutic modalities for internal haemorrhoids include medical therapy, rubber band ligation, infrared photocoagulation, sclerotherapy and operative haemorrhoidectomy^[4], of which non-operative methods are considered to be the first line of treatment for symptomatic grade 1, 2 and 3 internal haemorrhoids^[2]. Rubber band ligation of internal haemorrhoids is a well-established, safe and effective technique for the treatment of Grade 1 to 3 internal haemorrhoids, and patients that underwent the procedure are less likely to require additional therapies as opposed to those treated with local injection therapy or infrared coagulation^[5]. Surgical intervention, although more definitive a procedure in symptomatic control, is a painful procedure for a relatively benign disorder as haemorrhoids. Endoscopic band ligation proves to be a simple technique for the management of symptomatic haemorrhoids, in that it does not require hospitalization or anaesthesia^[6] and has lower incidence of complications. It serves to be better than conservative line of treatment in patients with comorbid conditions, those unfit for surgery and those unwilling for surgery. Endoscopic band ligation also overcomes the limitations of conventional proctoscopic band ligation technique such as a narrow field of view and limited manoeuvrability and offers photographic capability to document treatment. The need for the present study is to review the outcome of endoscopic haemorrhoidal band ligation.

Methodology

From November 2017 to May 2019, 70 patients with symptomatic internal haemorrhoids were treated with Endoscopic Band Ligation and enrolled in the study prospectively. Patients above 18 and those who gave informed consent for the ligation procedure were selected.

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A pretested proforma was used to collect relevant information (patient data, clinical findings, etc) from all the selected patients following which the 70 patients were subjected to clinical examination, local examination of the anal region, per rectal examination and proctoscopic examination followed by endoscopic haemorrhoidal ligation.

Patients were placed in left lateral position after a cleansing enema, and an endoscope is inserted for initial examination and ligation performed if grade 2 or greater internal haemorrhoids were present. A transparent plastic endoscopic ligation tip is attached to the top of the endoscope, dentate line is identified, and haemorrhoid suctioned into the cap. A single elastic band is released, and the haemorrhoid is ligated 2-5 mm above the dentate line. If further ligation was required, another rubber band is placed on the cap. No pre medications like sedatives or analgesics are required for the procedure.

Patient was followed up in 4 visits which were on 2nd and 4th week followed by 2nd and 6th month respectively and sigmoidoscopy was performed at all visits. Haemorrhoid symptoms, recurrence and alleviation of symptoms were assessed in all visits performing repeat ligation if necessary.

Table 1: Complications distribution among subjects

		Count	%
Recurrence of bleeding (at the end of 6 months)	No	64	91.4
	Yes	6	8.6
Needed Repeat ligation	No	64	91.4
	Yes	6	8.6
Needed inpatient monitoring	No	69	98.6
	Yes	1	1.4
Needed definitive surgery	No	69	98.6
	Yes	1	1.4
Other complications	No	69	98.6
	Yes	1	1.4

Table 3: Comparison of Grade of Haemorrhoids at different periods of follow-up with initial grade

		Grade of Haemorrhoids				P value
		2		3		
		Count	%	Count	%	
Week 2	1	1	100.0%	0	0.0%	0.157
	4	0	0.0%	1	100.0%	
Week 4	1	2	100.0%	4	100.0%	-
	2	0	0.0%	2	40.0%	
2 months	1	3	100.0%	3	60.0%	0.206
	2	0	0.0%	2	40.0%	
6 months	1	3	75.0%	2	40.0%	0.294
	2	1	25.0%	3	60.0%	

Discussion

The need to treat haemorrhoids is based primarily on the severity of symptoms, but the type of treatment is based on the traditional classification of haemorrhoids, which may not correlate with symptom severity^[7].

The trend may suggest that the procedure is more effective in treating grade 3 haemorrhoids, although more studies are required to evaluate the same. In other studies, the reported success rate varies between 69% and 97%, depending on the degree of internal haemorrhoids, the ligation technique, and the duration of follow-up^[8,9]. Serious complications, such as life-threatening massive bleeding^[10,11] and sepsis are extremely rare, but are possible^[12,13]. Dickey and Garrett^[14] found that haemorrhoid banding using video-endoscopic anoscopy and a single handed ligator compared favourably with traditional haemorrhoid banding by anoscopy. This video-endoscopic technique may be preferred in the office setting. MacRae *et al.*

Results

Although a majority of them experienced various degrees of pain on the day of procedure (98.6%), at the end of 4 weeks, only 4.3% of them persisted to perceive pain, the difference of which was found to be statistically significant ($p=0.038$). On follow up at 2 weeks, 1 patient had grade 1 haemorrhoids (on proctoscopy), and 1 had grade 4 thrombosed) haemorrhoids, which he developed immediately after the procedure, and needed inpatient monitoring for the same. He was managed conservatively, and symptoms resolved by the 3rd week. At the end of 6 months, 7.1% of the subjects had grade 1 haemorrhoids (detected on proctoscopy, asymptomatic for the same), whereas 5.7% had grade 2 haemorrhoids and were symptomatic for the same. At the end of 6 months, 8.6% of the subjects had recurrent per rectal bleed. Those with recurrent symptoms were treated conservatively at first, and 8.6% of them who did not have symptomatic relief needed further treatment in the form of repeat banding, and 1 subject needed definitive surgery. It was noted that recurrence of bleeding was more often associated with those subjects who had grade 2 haemorrhoids at initial presentation (12.9% of all grade 2), compared to those with initial grade 3 haemorrhoids (5.3%). The association was also seen among those who needed repeat ligation (12.9% of all with initial grade 2, as opposed to only 5.3% of those with grade 3).

Table 2: Pain score comparison

	Mean	N	SD	P value
Day 0	4.00	7	2.000	
2 weeks	2.86	7	0.900	0.231
4 weeks	1.67	3	1.155	0.038
2 months	-	-	-	
6 months	-	-	-	

performed a meta-analysis of 23 studies that compared rubber band ligation, sclerotherapy, haemorrhoidectomy, infrared photocoagulation, and manual dilation of the anus for patients with Grade 1 to 3 haemorrhoids^[15]. They found that rubber band ligation was more effective than sclerotherapy, less likely to require additional therapy than either infrared photocoagulation or sclerotherapy, but more likely to cause pain. Stiegmann and Goff^[16] was the first to propose elastic band ligation for the treatment of oesophageal and gastric varices using a device attached to the tip of a video-endoscope to deploy the bands. Endoscopic band ligation of oesophageal varices is now preferred to sclerotherapy because of equivalent efficacy, ease of use, and relatively fewer complications^[17,18]. The application of the same device and technique to eradicate internal haemorrhoids is a logical extension of this procedure. Trowers *et al.*^[19] reported a preliminary experience with endoscopic haemorrhoid ligation in 1997 in which 95% of internal

haemorrhoids were reduced by more than one grade after treatment, which corresponds to our study where reduction in grade was observed in 94% of subjects. Berkelhammer and Moosvi^[20] used retroflexed endoscopic band ligation to treat internal haemorrhoids and achieved excellent results in 80% of patients with Grade 2 haemorrhoids. In addition, the results with treatment of patients with Grade 2 haemorrhoids were more likely to be excellent compared with those for patients with Grade 3 haemorrhoids, in contrast to our study. Band ligation of haemorrhoids is safe in patients with cirrhosis and portal hypertension as reported by Vassillios *et al.*^[21], Bat *et al.*^[22] and Bayer *et al.*^[23] reported that only 2.2% of their patients complicated by rectal bleeding. Watson *et al.*^[24], in their study of 183 cases of rubber band ligation, found that 41 patients (30%) of patients had vasovagal symptoms. Kumar *et al.*^[25] reported that 15.3% of their study group (98 patients) had vasovagal symptoms. We, however, did not observe any such occurrence in our study.

Conclusion

Endoscopic band ligation of haemorrhoids is a simple and effective procedure, that can be carried out in symptomatic grade 2 and grade 3 internal haemorrhoids on out-patient basis. The procedure has a low recurrence rate and is well-tolerated in patients with minimal post procedure pain on follow up. Multiple bands can be applied in a single setting, and most of the recurrences can be treated by repeat ligation. The procedure may therefore be considered as an alternative out-patient based treatment approach in patients with symptomatic internal haemorrhoids, with benefit to patients who are unfit or unwilling for surgical procedure.

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