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Clinical Study of Various Treatment Modalities in Haemorrhoids

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Abstract

Background: Haemorrhoids are tormenting human race since ancient times. It affects all people irrespective of gender, age, race, socioeconomic status and cultural differences. The exact prevalence can't be estimated accurately. Many patients don't seek medical guidance. This causes severe discomfort for patients and cause complications. There are many treatment modalities available for this condition. This study is aimed at evaluating those various modalities available.

Objectives: 1. To study the various modalities of treatment options available for the treatment of haemorrhoids at our hospital (Open Haemorrhoidectomy, Closed Haemorrhoidectomy, Rubber Band Ligation and conservative management). 2. To evaluate advantages and disadvantages of one modality over the other.

Methods: Clinically diagnosed case of haemorrhoids in a Tertiary care hospital, Kalaburagi. 50 patients clinically diagnosed case of haemorrhoid presenting between December 2017 to June 2019 (18 months) at our hospital. The presenting complaints were noted, detailed examination, diagnosis was made and treated accordingly. The relevant data was collected. Post-operative complications were noted and post-operative Follow-up was done on day 7, 1 month and 3 month.

Results: The mean age of presentation was in the fourth decade (41.36 ± 13.26 years). The disease was more in males. The major presenting complaint was Bleeding per rectum + Mass per rectum (28%) followed by Bleeding per rectum (26%). On detailed examination 11 (22%) cases were diagnosed as External Haemorrhoids, 39 (78%) cases as internal haemorrhoids, further internal haemorrhoids were graded as 9 (18%) Grade-1 cases, 10 (20%) Grade-2 cases, 10 (20%) Grade-3 cases and 10 (20%) Grade-4 cases. As treatment modality, 9 (18%) cases were managed conservatively, in 15 (30%) cases Closed Haemorrhoidectomy, in 16 (32%) Open haemorrhoidectomy and in 10 (20%) cases Rubber Band ligation was done. Post-operative pain was more in Open haemorrhoidectomy 10 (62.5%) cases, Closed haemorrhoidectomy 6 (40.0%) cases and 2 (20.0%) of cases had post-operative pain in whom RBL was done. Post-operatively bleeding was seen in 7 (43.75%) cases who underwent Open haemorrhoidectomy, 4 (26.6%) cases under Closed haemorrhoidectomy, 2 (20%). One case each under Open haemorrhoidectomy and RBL had post-operatively discharge per rectum and developed recurrence. Comparison was done between different treatment modalities; statistical Analyzis was done. Surgery was beneficial compared to conservative approach. RBL was better than other modalities with lesser rate of complication, early resumption of work and short hospital stay. Closed haemorrhoidectomy had lesser post-operative pain, bleeding and complications, when compared to Open haemorrhoidectomy.

Conclusion: Surgical intervention is better than conservative approach. In the surgical techniques RBL was better followed by Closed haemorrhoidectomy and Open haemorrhoidectomy in respect of post-operative complications, hospital stay and better wound healing.

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Keywords: Rubber Band Ligation (RBL) Open Haemorrhoidectomy, Closed Haemorrhoidectomy, Bleeding per rectum, Mass per rectum.

Introduction

Haemorrhoids are the cause of suffering for the mankind since centuries. It's one of the oldest diseases suffered by mankind.[1] It affects millions of people in the world. The exact incidence and prevalence can't be determined, as some of the patients having haemorrhoids do not have any complaints and some even if they have symptoms, they do not seek medical intervention due to personal, socioeconomic and cultural reasons. However, few epidemiological studies show prevalence of haemorrhoids ranging from 4.4% in adults in United States of America to 30% in London.[2,3]

The word Haemorrhoid is a derivative of a Greek work "Haemorrhoides" (Haem-blood, rhoos-flowing) meaning flow of blood and the word "Piles" is a derivative of a Latin word "Pila" meaning a ball or a pill. Haemorrhoids are best defined as "enlargement and distal displacement of the anal cushions." The abnormal dilatation and irregular distortion of the vessels together with damage to the supporting connective tissue is seen within the haemorrhoids.[6] A wide variety of therapeutic options have evolved over a period of time. However, no single option can be considered as the gold standard of treatment. Understanding the mechanisms of haemorrhoid development significantly helps in deciding the best therapeutic option. Among them some are Open haemorrhoidectomy, Closed haemorrhoidectomy, Banding, Infrared photocoagulation, Bipolar diathermy, Stapler haemorrhoidectomy, Injection sclerotherapy, Cryosurgery, MIPH, IRC, HAL-RAR and LASER Hemorhoidopexy

Materials and Methods

Source of data

This study was conducted in Department of General Surgery of our institution at Kalaburgi. The study group consisted of 50 cases, clinically diagnosed as a case of Haemorrhoids, for the time period of December 2017 to June 2019.

Sample size

Fifty clinically diagnosed cases of haemorrhoids, who presented to the outpatient department of general surgery of our institution from December 2017 to June 2019.

Inclusion Criteria

1. Patients who present with hemorrhoids to department of surgery of our institution, diagnosed as a case of haemorrhoid
2. Patients >18 years of age.

Exclusion Criteria

1. Patients not willing for any intervention.
2. Patients diagnosed case of portal hypertension and hepatic cirrhosis.
3. Patients with coagulation disorder or anticoagulation drugs.
4. Patients with thrombosed piles, associated with other rectal and anal diseases like anal fissure, fistula, inflammatory bowel disease and others.

Follow-up

Follow-up was done on post-operative day 7, one month and 3 months.

Results and Observations

Study observes that, maximum number of cases 28 (56.0%) belongs to the age group of 31–50 years, followed by 11 (22.0%) cases belongs to the age group of 21–30 years, 5 (10.0%) cases > 60 years, 4 (8.0%) cases belongs to age Group 51–60 years and 2 (4%) cases belongs to age Group 11–20 years. The mean age of males was 42.85 ± 15.64 and females were 39.83 ± 11.76. (Table 1 and Figs. 1, 2)

There was no statistically significant difference of age among males and females ($p > 0.05$)

Table 1: Age and sex wise distribution of cases

Age in years	Males		Females		Total	
	No.	%	No.	%	No.	%
11–20	0	0.0	2	8.7	2	4.0
21–30	8	29.6	3	13.0	11	22.0

Age in years	Males		Females		Total	
	No.	%	No.	%	No.	%
31–40	7	25.9	7	30.4	14	28.0
41–50	5	18.6	9	39.1	14	28.0
51–60	3	11.1	1	4.4	4	8.0
>60	4	14.8	1	4.4	5	10.0
Total	27	100.0	23	100.0	50	100.0
Mean ± SD	42.85 ± 15.64		39.83 ± 11.76		41.36 ± 13.26	
t-test value *p*-value			$t = 0.762$ $p = 0.450$ NS			

NS = not significant, S = significant, HS = highly significant, VHS = very highly significant

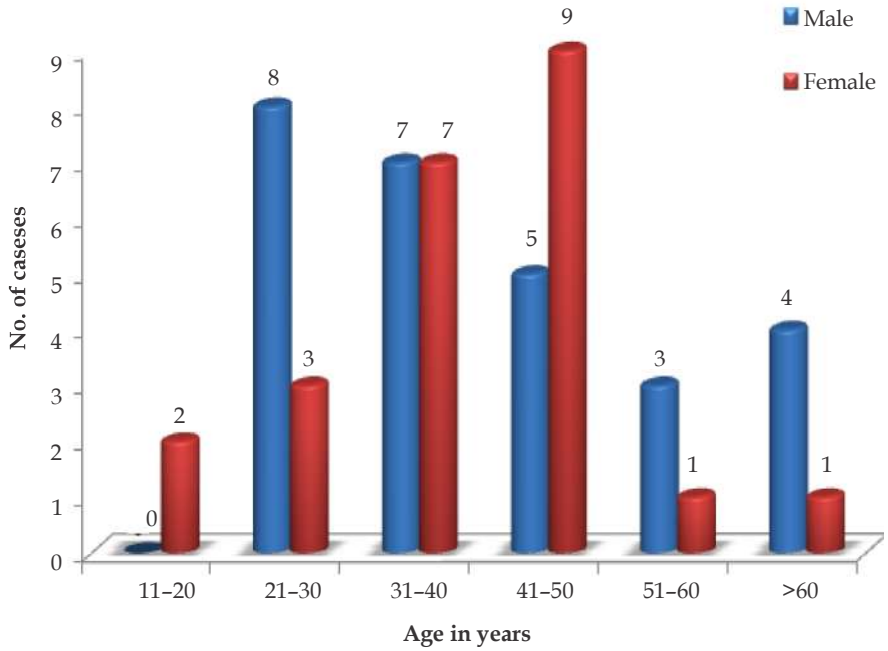

Fig. 1: Multiple bar diagram represents age and sex wise distribution of cases.

In the present study the patients who presented with only bleeding per rectum cases were 13 (26.0%), only Mass per rectum cases were 6 (12.0%), maximum number of cases were bleeding per rectum + Mass per rectum 14 (28.0%), Bleeding per rectum + Constipation cases were 8 (16.0%), Bleeding per rectum + Painful defecation cases were 3 (6.0%) Bleeding per rectum + Mass per rectum + Constipation cases were 4 (8.0%) and Bleeding per rectum + Mass per rectum + Painful defecation cases were 2 (4.0%) (Table 2 and Fig. 3)

Table 2: Presenting complaints wise distribution of cases

Presenting complaints	No. of cases	Percentage (%)
Bleeding per rectum	13	26.0
Bleeding per rectum + Mass per rectum	14	28.0
Bleeding per rectum + Constipation	8	16.0
Bleeding per rectum + Painful defecation	3	6.0
Bleeding per rectum + Mass per rectum + Painful defecation	2	4.0
Bleeding per rectum + Mass per rectum + Constipation	4	8.0
Mass per rectum	6	12.0
Total	50	100.0

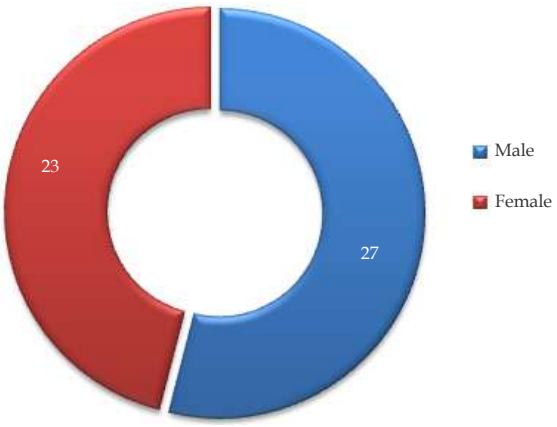

Fig. 2: Pie diagram represents sex wise distribution of cases.

Out of 50 cases, 10 (20%) cases had hemoglobin level less than 10 gm% and 40 (80%) cases had hemoglobin more than 10 mg% (Table 3).

Proctoscopy was done at the time of admission in 9 (18%) cases undergoing conservative management, 10 (20%) cases undergoing Rubber band ligation, 16 (32%) cases undergoing Open haemorrhoidectomy and 15 (30%) cases undergoing Closed haemorrhoidectomy. Sigmoidoscopy was done in 1 (2%) case undergoing Open haemorrhoidectomy which had normal findings. Colonoscopy was done in 1 (2%) case undergoing Closed haemorrhoidectomy, it was normal findings (Table 4).

Table 3: Hemoglobin level

Hemoglobin (gm%)	Number of cases	Percentage (%)
<10	10	20
>10	40	80
Total	50	100

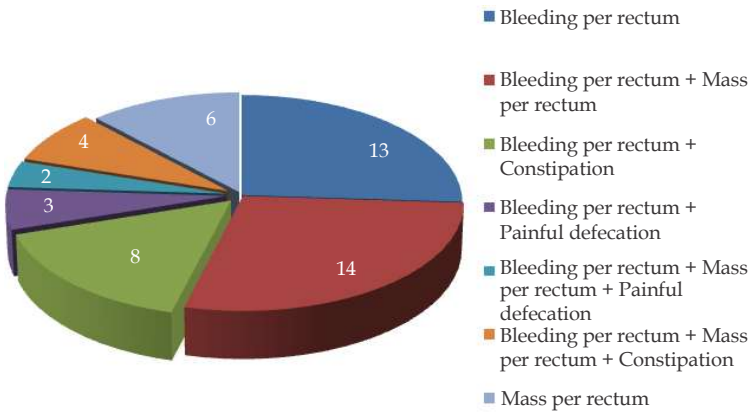

Fig. 3: Pie diagram represents Presenting complaints wise distribution of cases.

Table 4: Investigations done

Modalities of treatment	Sigmoidoscopy	Colonoscopy	Proctoscopy
Conservative[9]	–	–	+ (9)
Rubber band ligation[10]	–	–	+ (10)
Open haemorrhoidectomy[16]	+ (1)	–	+ (16)
Closed haemorrhoidectomy[15]	–	+ (1)	+ (15)
Total cases	1	1	50

In the study out of 50 cases, 11 (22.0%) cases had External Hemorrhoid and 39 (78.0%) cases had internal hemorrhoid, among internal Hemorrhoid, cases were divided in to four grades. In the Grade-1: 9 (18.0%) cases, Grade-2: 10(20.0%) cases, Grade-3: 10 (20.0%) cases and Grade-4: 10 (20.0%) cases (Table 5 and Fig. 4).

Table 5: Distribution of cases according to types of Hemorrhoid

Types of Hemorrhoid		No. of cases	Percentage (%)
External Hemorrhoid		11	22.0
Internal Hemorrhoid	Grading	–	–
	Grade 1	9	18.0
	Grade 2	10	20.0
	Grade 3	10	20.0
	Grade 4	10	20.0
	Total	50	100.0

Along with surgical procedure of open and closed haemorrhoidectomy, lords dilatation was done for all cases undergoing surgical treatment 15 (30%) in Closed haemorrhoidectomy and 16 (32%) in Open haemorrhoidectomy (Table 6).

Table 6: Procedure done along with main treatment

Procedure	Lateral sphincterotomy	Lords dilatation
Conservative	–	–
Rubber band ligation	–	–
Open haemorrhoidectomy	–	+ (16)
Closed haemorrhoidectomy	–	+ (15)

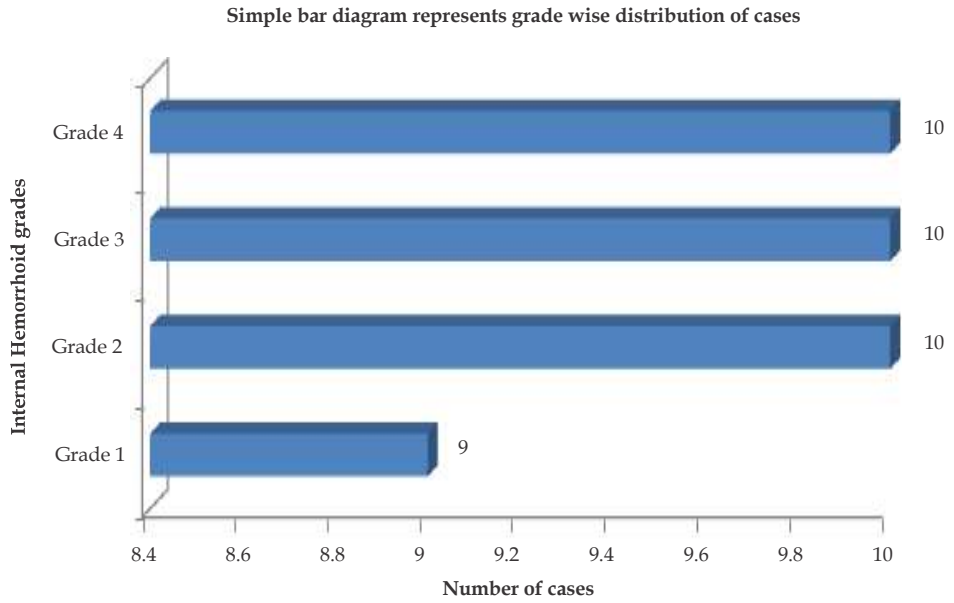

Fig. 4: Simple bar diagram represents grade wise distribution of cases.

Conservative management

It was done in 9 (18%) cases, it was done in early stage haemorrhoids and in patients who are not fit for surgery. They were managed as outpatients. They were followed up on day 7, 1 month and 3 month. Out of 9 (18%) cases, 6 (12%) cases developed recurrence during 1 month and 3 month follow-up.

Table 7: Types of anesthesia wise distribution of cases

Types of anesthesia	No. of cases	Percentage (%)
Spinal anesthesia	30	73.2
Local anesthesia	11	26.8
Total	41	100.0

Out of 50 cases, 9 (18.0%) cases Conservative method was followed as an outpatient hence no anesthesia given and 41 (82.0%) cases had given anesthesia, among them 30 (60.0%) of cases had given spinal anesthesia and for 11 (22.0%) of cases were given local anesthesia. The duration of surgery was more for closed haemorrhoidectomy, duration was 50 minutes average, followed by open haemorrhoidectomy, average duration was 40 minutes and the least for Rubber band ligation, average duration was 30 minutes (Table 7 and Fig. 5).

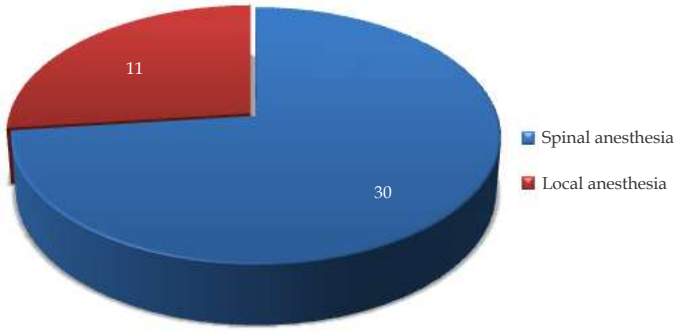

Fig. 5: Pie diagram represents types of anesthesia wise distribution of cases.

In the study Open haemorrhoidectomy was performed in 16 (32.0%) cases, Closed Haemorrhoidectomy was performed in 15 (30.0%) cases, Rubber Band Ligation (RBL) was performed in 10 (20.0%) cases and Conservative management was done in 9 (18.0%) cases as an outpatient procedure (Table 8).

Table 8: Modalities of treatment wise distribution of cases

Modalities of treatment	No. of cases	Percentage (%)
Conservative	9	18.0
Rubber Band Ligation (RBL)	10	20.0
Open haemorrhoidectomy	16	32.0
Closed Haemorrhoidectomy	15	30.0
Total	50	100.0

In the study, out of 11 external hemorrhoid cases, 6 (54.5%) cases had managed by closed haemorrhoidectomy and 4 (36.40%) of cases were managed by open Haemorrhoidectomy and 1 (9.1%) case managed by conservatively (Table 9 and Fig. 6).

Table 9: Modalities of treatment wise distribution of external Hemorrhoid cases

Modalities of treatment	External Hemorrhoid cases	
	No. of cases	Percentage (%)
Closed Haemorrhoidectomy	6	54.5
Open haemorrhoidectomy	4	36.4
Rubber Band Ligation (RBL)	0	0.0
Conservative	1	9.1
Total	11	100.0

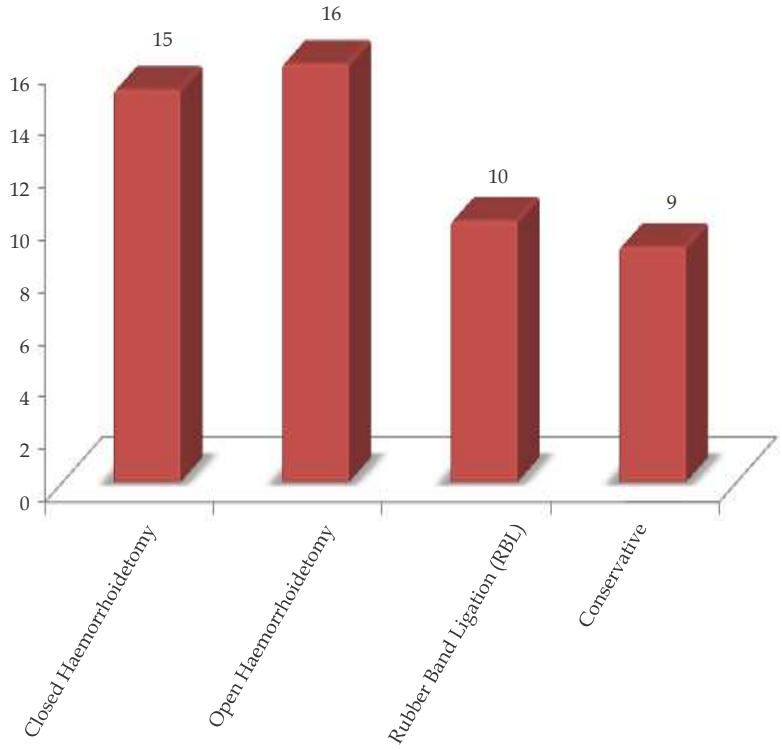

Fig. 6: Simple bar diagram represents Modalities of treatment wise distribution of cases.

Grade-1: 8 cases were managed by conservative approach, in 1 case RBL was done. In Grade-2: in 2 cases Closed haemorrhoidectomy, in 3 cases Open haemorrhoidectomy and in 5 cases RBL was done. In Grade-3: in 2 cases Closed haemorrhoidectomy, in 4 cases Open haemorrhoidectomy was done and in 4 cases RBL was done. whereas in Grade-4: in 5 cases Closed Haemorrhoidectomy and in 5 cases Open haemorrhoidectomy were done (Table 10 and Fig. 7, 8).

Table 10: Comparison of Modalities of treatment with grades of internal Haemorrhoid

Modalities of treatment	Grades				Total
	Grade 1	Grade 2	Grade 3	Grade 4	
Conservative	8	0	0	0	8
Rubber Band Ligation (RBL)	1	5	4	0	10
Open haemorrhoidectomy	0	3	4	5	12
Closed Haemorrhoidectomy	0	2	2	5	9
Total	9	10	10	10	39

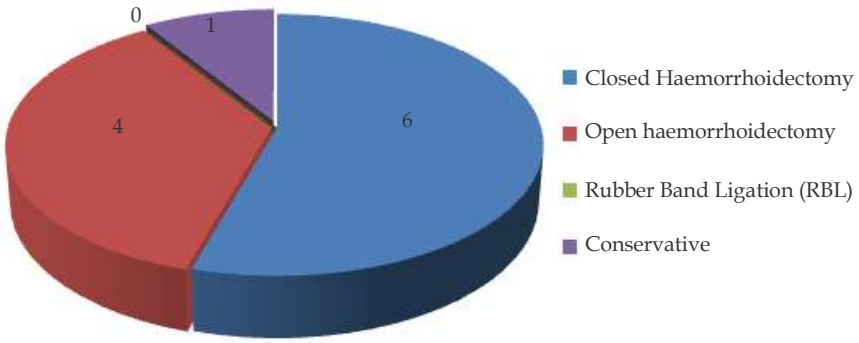

Fig. 7: Pie diagram represents Modalities of treatment wise distribution of external Hemorrhoid cases.

In Open haemorrhoidectomy 16 (32%) cases and closed haemorrhoidectomy 15 (30%) cases sharp method of dissection was done (Table 11).

For open haemorrhoidectomy 16 (32%) cases vicryl 2–0 round body was used for ligation of pedicle. In closed Haemorrhoidectomy 15 (30%) cases vicryl 2–0 was used for ligation of pedicle and closure (Table 12)

Table 11: method of excision

Surgery	Method of dissection
Open Haemorrhoidectomy 16 (32%)	Sharp dissection
Closed haemorrhoidectomy 15 (30%)	Sharp dissection

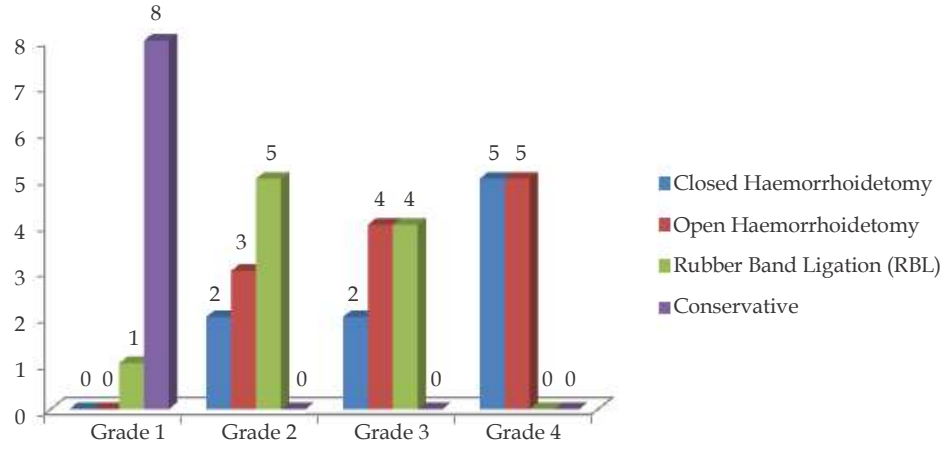

Fig. 8: Multiple bar diagram represents Comparison of Modalities of treatment with grades of internal Hemorrhoid.

Table 12: for suture materials used for surgery

Surgery	Suture material used
Open Haemorrhoidectomy 16 (32%)	Vicryl 2–0 round body (polyglactin 910)
Closed haemorrhoidectomy 15 (30%)	Vicryl 2–0 round body (polyglactin 910)

In the study 18 (36.0%) cases developed post-procedural complication of pain. Out of which the cases who underwent open haemorrhoidectomy procedure, maximum number of post-operative complication of pain was seen, that was 10 (62.5%) casesfor an average duration of 3 days. In cases who underwent Closed Haemorrhoidectomy procedure, post-operative complication of pain was seen in 6 (40.0%) cases for average duration of 2 days and 2 (20.0%) of cases had post-procedural pain in whom RBL procedure was conducted, for an average duration of 1 day. There was statistically highly significant difference of treatment procedures with post-procedural complications pain ($p < 0.01$). This pain was managed by injection tramadol 1 ampule in 100 ml NS given intravenously twice daily along with sitz bath three times daily and following passing stools (Table 13 and Fig. 9)).

Table 13: Comparison of Modalities of treatment with post-procedural complication of pain following procedure

Modalities of treatment	No. of cases	Post-procedural complication Pain	
		No.	%
Conservative	9	0	0.0
Rubber Band Ligation (RBL)	10	2	20.0
Open haemorrhoidectomy	16	10	62.5
Closed Haemorrhoidectomy	15	6	40.0
Total	50	18	36.0
Chi-Square Test & *p*-value		$\chi^2_{yates} = 9.31$, $p = 0.009$, HS	

In the study 13 (26.0%) cases developed post-procedural complication of bleeding per rectum (BPR) following procedure. Out of which Open haemorrhoidectomy and Closed Haemorrhoidectomy surgery cases had post-operative complication of bleeding per rectum (BPR) more 7 (43.75%) for an average duration of 4 days and 4 (26.6%) for an average duration of 1 day respectively and rubber band ligation (RBL) had minimal bleeding per rectum (BPR), only in 2 (20%) cases for an average duration of 1 day. There was statistically significant difference of treatment procedures with post-procedural complications bleeding per rectum (BPR) following procedure ($P < 0.05$). the post procedural complication of bleeding per rectum was treated with Injection Tranostatfor three days and the bleeding was resolved (Table 14 and Fig. 10).

Table 14: Comparison of Modalities of treatment with post-procedural complication of Bleeding Per Rectum (BPR) following procedure

Modalities of Treatment	No. of cases	Post-procedural complication BPR	
		No.	%
Conservative	9	0	0.0
Rubber Band Ligation (RBL)	10	2	20.0
Open haemorrhoidectomy	16	7	43.75
Closed Haemorrhoidectomy	15	4	26.7
Total	50	13	26.0
Chi-Square Test & *p*-value		$\chi^2_{yates} = 7.13$, $p = 0.027$, S	

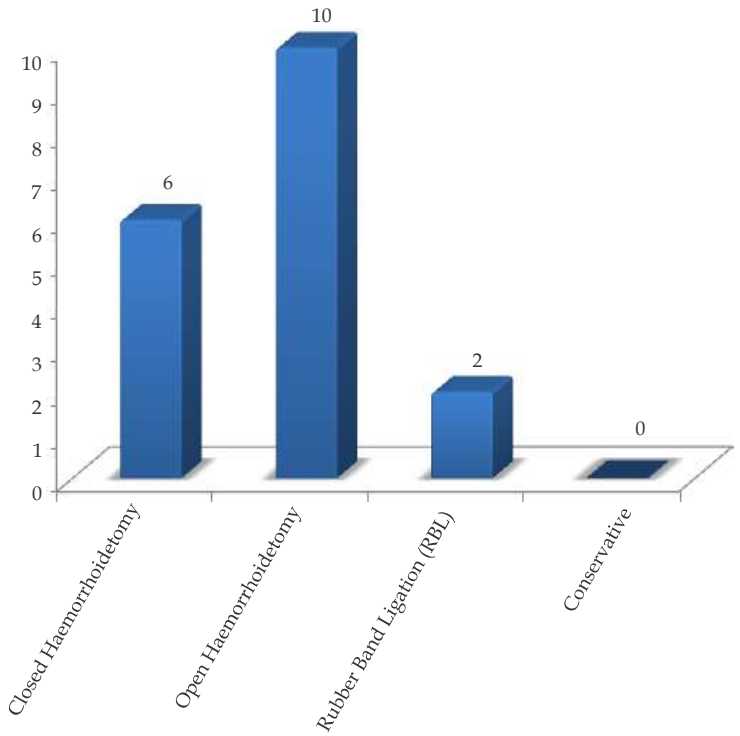

Fig. 9: Simple bar diagram represents Comparison of Modalities of treatment with post-procedural complication of pain.

In the study 2 (4.0%) cases developed post-procedural complication of discharge per rectum (DPR). Out of which Open haemorrhoidectomy case had post-operative complication of discharge per rectum (DPR) 1 (10%) case for average duration of 15 days and Rubber Band Ligation (RBL) surgery procedure had 1 (6.25%) case of discharge per rectum for a duration of 1 day. Wound healing was better in closed haemorrhoidectomy for an average duration of 10-20 days and 20-40 days in Open haemorrhoidectomy (Table 15 and Fig. 11).

Table 15: Comparison of Modalities of treatment with post-procedural complication of Discharge Per Rectum (DPR) following procedure

Modalities of treatment	No. of cases	Post-procedural complication DPR		Type of discharge
		No.	%	
Conservative	9	0	0.0	–
Rubber Band Ligation (RBL)	10	1	10.0	Serous
Open haemorrhoidectomy	16	1	6.25	Serous
Closed Haemorrhoidectomy	15	0	0.0	–
Total	50	2	4.0	Serous

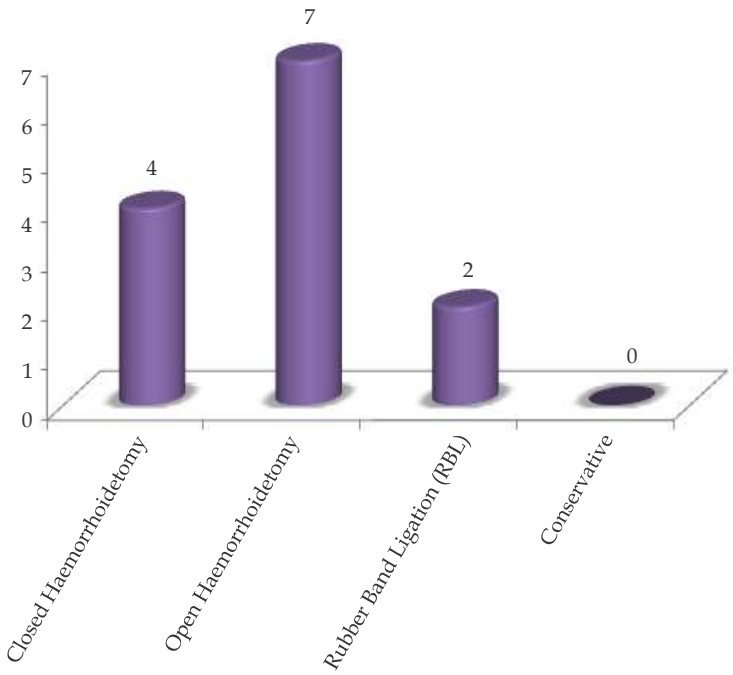

Fig. 10: Simple bar diagram represents Comparison of Modalities of treatment with post procedural complication of bleeding per rectum (BPR) following procedure.

In the study 8 (16.0%) cases had post-treatment complication of recurrence. Out of which maximum recurrence were seen with the conservative procedure 6 (66.7%), followed by Open haemorrhoidectomy and Rubber Band Ligation (RBL) each had one case of recurrence. There was statistically significant difference of management procedures with post- complications of recurrence ($p < 0.05$) (Table 16 and Fig. 12).

Table 16: Comparison of Modalities of treatment with post-treatment complication of Recurrence (R)

Modalities of treatment	No. of cases	Post-treatment complication Recurrence	
		No.	%
Conservative	9	6	66.7
Rubber Band Ligation (RBL)	10	1	10.0
Open haemorrhoidectomy	16	1	6.25
Closed Haemorrhoidectomy	15	0	0.0
Total	50	8	16.0
Chi-Square Test & *p*-value		$\chi^2_{yates} = 7.13$, $p = 0.027$, S	

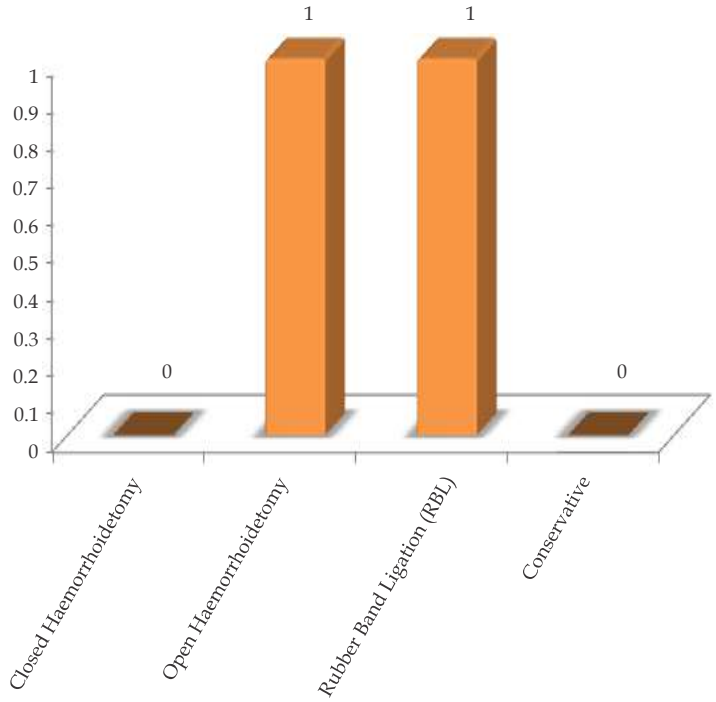

Fig. 11: Simple bar diagram represents Comparison of Modalities of treatment with post-procedural complication of DPR following procedure.

Table 17: Comparison of Modalities of treatment with post-procedural follow-up

Types of Treatment	No. of cases	Complications	Post-procedural follow-up		
			PPD 7	1 Month	3 Month
Conservative	9	Pain	0	0	0
		BPR	2	0	0
		DPR	0	0	0
		R	0	6	6
Rubber Band Ligation (RBL)	10	Pain	0	0	0
		BPR	0	0	0
		DPR	0	0	0
		R	0	0	1
Open Haemorrhoidectomy	16	Pain	4	0	0
		BPR	2	0	0
		DPR	0	0	0
		R	0	0	1
Closed Haemorrhoidectomy	15	Pain	1	0	0
		BPR	0	0	0
		DPR	0	0	0
		R	0	0	0

Study observed that, post-operative follow-up in the procedure of Closed Haemorrhoidectomy only one case had seen painat post-procedural day (PPD) 7th day and no cases of bleeding per rectum (BRP), discharge per rectum (DPR)and recurrence(R) at PPD 7, 1 month and 3 month were seen. In the Open haemorrhoidectomy 4 cases had pain and 2 cases had Bleeding Per Rectum on POD 7 and 1 case developed recurrence on 3 month Follow-up. Cases who underwent Rubber Band Ligation had no pain, Bleeding Per Rectum and Discharge Per Rectum on Post-procedural Follow-up. One case had recurrence on 3 month Follow-up visit. Out of 9 cases which were managed conservatively 6 cases developed recurrence by 1 month and remained till 3 month Follow-up visit (Table 17).

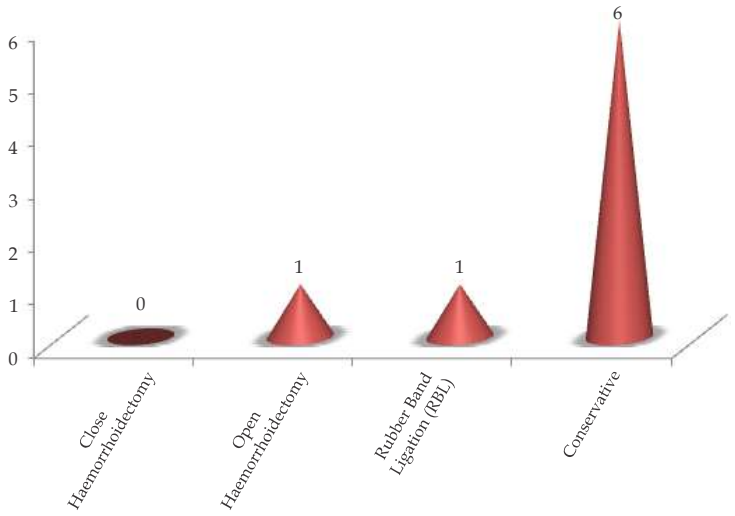

Fig. 12: Simple bar diagram represents Comparison of modalities of treatment with post-treatment complication of Recurrence.

Study reveals that, there was statistically very highly significant difference of treatment procedures with post-procedural hospital stay ($p < 0.001$). In the procedure of Open haemorrhoidectomy the mean hospital stay in days was significantly more, followed by Closed Haemorrhoidectomy and in the procedure of RBL the mean hospital stay was very less as compare to Open and closed haemorrhoidectomy. The minimal hospital day was 0 days in conservative management which were treated as an outpatient. The maximum hospital stay was 6 days in Open Haemorrhoidectomy (Table 18 and Fig. 13).

Table 18: Comparison of Modalities of treatment with post-procedural hospital stay

Modalities of Treatment	No. of cases	Post-Procedural Hospital stay in days
		Mean ± SD
Conservative	9	0.0 ± 0.0
Rubber Band Ligation (RBL)	10	1.40 ± 0.51
Open haemorrhoidectomy	16	4.19 ± 0.88
Closed Haemorrhoidectomy	15	3.27 ± 0.68
ANOVA Test & p-value		$F = 41.21$, $p = 0.000$, VHS

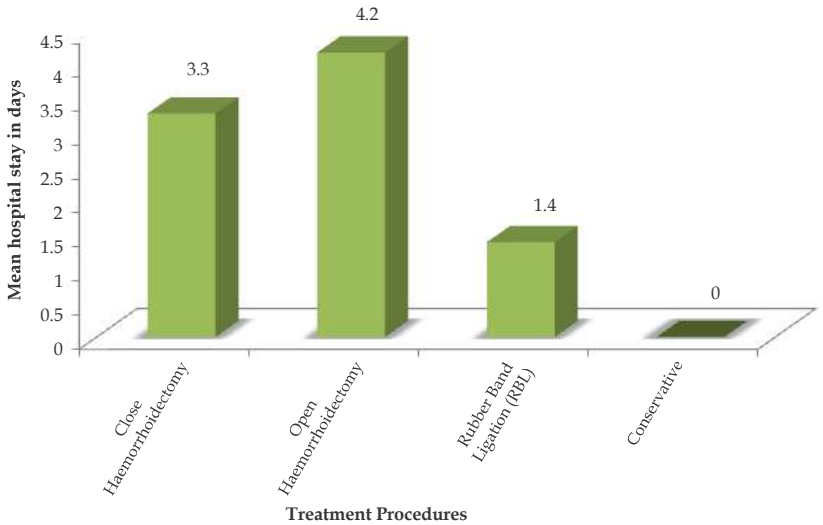

Fig. 13: Simple bar diagram represents comparison of Modalities of treatment with post-procedural hospital stay.

Discussion

Haemorrhoids is among the earliest diseases suffered by humans. It's presumed that it's since the time human assumed the erect posture.[7] The exact prevalence of this disease is not exactly known. Lack of education and awareness about it might be few causes. There have been various modalities for treatment of haemorrhoids. But then again, each modality has their own advantages and complications. The treatment depends on grade of haemorrhoids and patient fitness for surgery.

Demographic Data

In our study the mean age distribution for males was 27–58 (42.85 ± 15.64) years and for females was 28–52 (39.83 ± 11.76) years. The overall mean age distribution was 28–55 (41.36 ± 13.26) years. This was comparable to study conducted by El nakeeb et al.[8] the age distribution was 15–90 years. In study conducted by Arbman et al.[10] the mean age of distribution was 25–81 years. In study conducted by Hemant Borse et al.[11] the mean age of distribution was 31–40 years (Table 19).

Table 19: Age Distribution

Studies	Arbman et al.[10] (2000)	EL Nakeeb et al.[8] (2008)	Hemant Borse et al.[11] (2016)	Present study (2019)
Age distribution	25–81 years	15–90 years	31–40 years	28–55 (41.36 ± 13.26) years.

In this present study haemorrhoids was predominantly seen in males, which is consistent with the findings of other studies by El nakeeb,[8] Hemant Borse.[11] In these studies, male predominance was observed. In our study males were 27 cases (54%) and female were 23 cases (46%). (Table 20)

Table 20: Gender Distribution

Studies	Male	Female
El nakeeb[8] (2008)	627	123
Hemant Borse[11](2016)	56	14
Present study (2019)	27	23

In our study the major presenting complaints were Bleeding per rectum 13 (26%) cases, Mass per rectum 6 (12%), Bleeding per rectum + Mass per rectum 14 (28%) cases, painful defecation 5 (10%) and constipation 12 (24%). The major presentation was Bleeding per rectum and Mass per rectum, which are comparable to the study conducted by Arbman et al.[10] 74 (94.8%) patients presented with Bleeding per rectum, 61 (79.2%) patients presented with Mass per rectum and 61 (79.2%) patients presented with painful defecation, no cases were mentioned regarding constipation. In study conducted by Hemant Borse et al.[11] the major complaint was Bleeding per rectum 90% (63), mass per rectum 63% (44.1) and painful defecation was 34% (23.8), no cases reported of constipation. In study conducted by El Nakeeb et al.[8] major presenting complaint was bleeding 63 (90%) cases, followed by mass per rectum 496 (63%) cases, painful defecation was 30 (4%) cases and 267 (35.68%) had constipation (Table 21).

Table 21: Complaints

Presenting complaints	Arbman et al.[10] (2000) 77 cases	El nakeeb et al.[8] (2008) 750 case	Hemant Borse et al.[11] (2016) 70 case	Present study (2019)
Bleeding	74 (94.8%)	612 (81.6%)	63 (90%)	44 (88%)
Prolapse (Mass per rectum)	61 (79.2%)	496 (66.13%)	44 (63%)	26 (52%)
Painful defecation	61 (79.2%)	30 (4%)	24 (34%)	5 (10%)
Constipation	–	267 (35.6%)	–	12 (24%)

Pre-operative findings proctoscopy

Patient who presented with following complaints were done a thorough examination and 11 (22%) were diagnosed a case of External Haemorrhoid, 39 (78%) cases were diagnosed a case of Internal haemorrhoid, out of which 9 (18.0%) cases were

Grade 1 internal haemorrhoid. 10 (20%) cases were Grade-2; 10 (20%) cases were Grade-3 internal haemorrhoid; 10 (20%) cases were Grade-4 internal haemorrhoid.

Conservative management

It is suitable for early haemorrhoids in initial stages Grade 1 and 2 and for the patient who are not surgically fit.

The relief of symptoms is minimal.

The rate of recurrence is very high.

Not a definitive modality of treatment.

In a study conducted by El Nakeeb AM et al.,[8] RBL was compared with other modalities for treatment of haemorrhoids. Post-operative pain was seen in 31 (4.13%) cases, bleeding was seen in 31 (4.13%) cases, recurrence was seen in 71 (11.04%), no cases of discharge per rectum. In another study by G. Accarpio[92] of 7850 cases, post-operative pain was seen in 1934 (24%) cases, bleeding was seen in 209 (2.6%) cases and recurrence was seen in 750 (9.5%) cases, no cases were reported of discharge per rectum. It was shown that RBL is a simple, effective and safe method, which do not alter ano-rectal function. It can be done as an out-patient procedure or a day care surgery purpose. Similar findings were noted in our study, RBL was safe, effective with minimal post-operative pain 2 (20%) cases, Bleeding per rectum 2 (20%) cases, Discharge per rectum 1 (10%) case and 1 (10%) case had recurrence, with minimal post-operative hospital stay of 1–2 (1.40 ± 0.51) days. These were statistically less when compared to other modalities. Hence RBL was simple, effective, provided better quality of life, immediately from the post-operative period (Table 22).

Table 22: Studies corelating RBL with other techniques:

Post-operative complaints	El Nakeeb AM et al.[8] (2008) 750 case	G. Accarpio (2002) 7850 cases	Present study (2019) 10 case
Pain	31 (4.13%)	1934 (24%)	2 (20%)
Bleeding	31 (4.13%)	209 (2.6%)	2 (20%)
Recurrence	71 (11.04%)	750 (9.5%)	1 (10%)
Discharge per rectum	–	–	1 (10%)
Hospital stay	–	–	1–2 (1.40 ± 0.51) days

In a study conducted by You S Y et al.,[9] showed 45 (56%)cases developed pain following open haemorrhoidectomy and only 15 (18.7%) cases pain following closed Haemorrhoidectomy, no cases of bleeding per rectum and discharge per rectum nor recurrence. The days of hospital stay was 2 days in each group. In a study conducted by Hemant Borse et al.,[11] 22 (77%) cases had pain following Open haemorrhoidectomy and 18 (51%) cases had post-operative pain following Closed haemorrhoidectomy. The average duration of hospital stay was 5.2 days in Open haemorrhoidectomy and 3.8 days in Closed haemorrhoidectomy, no cases had bleeding per rectum, discharge per rectum and recurrence post-operatively. Similar findings were noted in our study 10 (62.5%) cases developed post-operative pain following open haemorrhoidectomy and 6 (40%) cases developed post-operative pain following closed haemorrhoidectomy. The duration of hospital stay was 4.19 ± 0.88 days in Open haemorrhoidectomy and 3.27 ± 0.68 days in Closed haemorrhoidectomy. 7 (43.75%) cases following Open haemorrhoidectomy had post-operative bleeding per rectum and 4 (26.6%) cases had Bleeding per rectum following Closed Haemorrhoidectomy. 1 (6.25%) case had Discharge per rectum and 1 (6.25%) case had Recurrence following Open haemorrhoidectomy. It was noted that time duration of complete wound healing during Follow-up visits was 20–40 days in Open haemorrhoidectomy and 10–20 days in Closed haemorrhoidectomy. Other complications like anal canal stenosis, stricture, incontinence, anal fissure and submucosal abscess was not seen in our study during the Follow-up visits. The open haemorrhoidectomy is the most commonapproach followed, but it has higher hospital stay, delay in wound healing and need more days for resumption of work. Closed haemorrhoidectomy is an alternative approach it is safe newer modality, it has better wound healing, early resumption of work less post-operative pain (Table 23).

Table 23: Studies corelating Open haemorrhoidectomy vs Closed haemorrhoidectomy

Studies	Open haemorrhoidectomy			Closed haemorrhoidectomy		
	You S Y et al.[9] (2005) 80 case	Hemant Borse et al.[11] (2016) 70 case	Present study (2019) 16 out of 50 cases	You S Y et al.[9] (2005) 80 case	Hemant Borse et al.[11] (2016) 70 case	Present study (2019) 15 out of 50 cases
Post-operative pain	45 (56%)	22 (77%)	10 (62.5%)	15 (18.7%)	18 (51%)	6 (40%)
Hospital stay	2 days	5.2 days	4.19 ± 0.88 days	2 days	3.8 days	3.27 ± 0.68 days
Discharge per rectum	–	–	1 (6.25%)	–	–	-
Bleeding per rectum	–	–	7 (43.75%)	–	–	4 (26.6%)
Recurrence	–	–	1 (6.25%)	–	–	-

Conclusion

When conservative management was compared with surgical procedures:

Conservative management shows benefit of reliving symptoms and minimising the risk of bleeding in most cases. It can be used in early stages of haemorrhoids and in the patients, who are not fit for surgical interventions. It plays a minor role in complicated haemorrhoids. On irregular Follow-up, there are high chance of recurrence.

Haemorrhoidectomy is the superior modality for treatment of haemorrhoids when compared with conservative and other approaches. It has a better long-term result.

RBL is a simple and effective method of treatment of symptomatic haemorrhoids, specially in Grade 1 and 2.

It can also be done as an outpatient procedure or a day care surgery.

It has fewer post-operative complications like bleeding per rectum, discharge per rectum and recurrence.

It has lesser rate of complication, early ambulation, short hospital stay and is cost effective.

It's a beneficial procedure in patient who is not fit for a surgical procedure, or in an operation apprehensive patient.

Haemorrhoidectomy is the definitive modality for the treatment of haemorrhoid, with better long-term result. Commonly done surgical procedure is open haemorrhoidectomy popularized by Miligan-Morgan. Modification of this was closed haemorrhoidectomy popularized by Ferguson.

Post-operative pain and bleeding is more in open haemorrhoidectomy less with closed haemorrhoidectomy.

Post-operative hospital stay and post-operative course is more with open haemorrhoidectomy less with closed Haemorrhoidectomy.

Wound healing and early resumption of work is better with closed haemorrhoidectomy. Its delayed in Open haemorrhoidectomy.

Recurrence is less with Closed Haemorrhoidectomy compared to Rubber Band Ligation (RBL), Open Haemorrhoidectomy and Conservative management.

So Closed haemorrhoidectomy is preferred over Open haemorrhoidectomy.

References

1. Management of Grade I and II Hemorrhoid By Sclerosant Injection: A Study of 100 Cases, Dr. Priya D Dhandore, Dr. N NHombalkar, International Education & Research Journal [IERJ], E-ISSN No Sep 2018;4(9):2454–9916.
2. Gazet JC, Redding W, Rickett JW. The prevalence of haemorrhoids. A preliminary survey. Proc R Soc Med 1970;63(suppl):78–80. [PMC free article] [PubMed] [Google Scholar].
3. Johanson JF, Sonnenberg A. The prevalence of hemorrhoids and chronic constipation. An epidemiologic study. Gastroenterology 1990;98(2):380–6. [PubMed] [Google Scholar].
4. Lohsiriwat V. Hemorrhoids: from basic pathophysiology to clinical management. World J Gastroenterol 2012;18(17):2009–17 [PMC free article] [PubMed]
5. Mounsey AL, Halladay J, Sadiq TS. Hemorrhoids. Am Fam Physician 2011;84(2):204–10. [PubMed] [Google Scholar].

6. Loder PB, Kamm MA, Nicholls RJ, et al. Haemorrhoids: pathology, pathophysiology and aetiology. Br J Surg 1994;81(7):946–54.
7. Dozois RR, "Disorders of the anal canal" Section, Chapter 32 in Sabiston Textbook of Surgery, Sabiston DC Jr., LyerlyKH, Pennysylvania, WBSaunders company, 15th edition, pp. 1036–37.
8. El Nakeeb AM, Fikry AA, Omar WH, et al. Rubber band ligation for 750 cases of symptomatic haemorrhoids out of 2200 cases, world J Gastroenterol. 14 November 2008;14(42):6525–30.
9. You S Y, Kim S H, Chung C S, et al. open versus closed hemorrhoidectomy. dis colon rectum 2005;48:108–13.
10. Gunnar Arbman, Hans Krook, Staffan Haapanaiemi. Closed vs Open Haemorrhoidectomy- is there any difference? Dis colon rectum Jan 2000;43(1):31–34.
11. Hemant Borse and Swapnil Dhake. A Comparative Study of Open (Milligan-Morgan) Versus Closed (Ferguson) Hemorrhoidectomy. MVP Journal of Medical Sciences January 2016;3(1):7–10.