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Original Research Article

Conventional versus diathermy coagulation haemorrhoidectomy - a prospective study

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ABSTRACT

Background: Haemorrhoids is one of the most frequently encountered anorectal disorders in clinical practice of surgeon. The main aim of the study was to compare conventional haemorrhoidectomy to diathermy coagulation.
Methods: 60 patients irrespective of their age and sex suffering from the late second and third degree hemorrhoids were divided into 2 groups of 30 patients each. Group A patients were subjected to conventional closed haemorrhoidectomy. Group B patients were subjected to diathermy coagulation of the pedicle.
Results: The results were compared by comparing complications and relief of symptoms after each surgery. The follow up was done for 3 months.
Conclusions: The traditional method of mass ligature of haemorrhoidal pedicle is not necessary and electrocoagulation of haemorrhoidal pedical is safe, economical and less time consuming.

Keywords: Diathermy, Haemorrhoidectomy, Haemorrhoids

INTRODUCTION

Haemorrhoids have been affliction of the mankind since the dawn of history and is said to be the price paid for the erect posture.[1] Haemorrhoids may be defined as varicose dilatation of haemorrhoidal veins of anus and rectum.[2]

Various methods of treatment have been described since antiquity with writing dating back to Babylonian era.

Many types of remedies have been tried including ointments, suppositories, application of leeches.

Treatment options includes

- Non operative treatment ranging from injection sclera-therapy, band ligation, to, infrared coagulation, anorectal bandotomy with ligation of piles and direct current electrocoagulation of haemorrhoids.[3-7]
- Operative treatment ranging from Submucosal haemorrhoidectomy, closed haemorrhoidectomy, diathermy haemorrhoidectomy, stapled haemorrhoidectomy and diathermy coagulation.[8,9]

This prospective study was carried out to compare the results (in terms of early post-operative complications, late complications and relief of symptoms) of conventional closed haemorrhoidectomy and haemorrhoidectomy by diathermy coagulation on 60 patients with late 2nd or 3rd degree haemorrhoids who came to SGRDIMSR, Amritsar.

METHODS

The study was carried out on 60 patients with late second and third degree haemorrhoids that came to SGRDIMSR, Amritsar. These were randomly divided in 2 groups of 30 patients each.

Group A (conventional closed haemorrhoidectomy)

With the patient in lithotomy position, the sphincter was gently stretched and traction was applied on haemorrhoid which displayed the pedicle. Each pedicle was grasped and V shaped incision made keeping each limb on one side of clamp. Each haemorrhoidal mass was dissected 1 to 2 cms above the dentate line. The pedicle was doubly transfixed and ligated with no. 1 chromic catgut .The pedicle was excised 1.25 cms distal to ligature, mucosal and anodermal defect was then closed with continuous suture using 3-0 catgut .Adequate mucosal and skin bridges were left between each area of excision.

Group B (haemorrhoidectomy by diathermy coagulation)

After making the pedicle prominent as described above, current was passed through the base of pedicle using bipolar diathermy. The haemorrhoid was then excised using cautery and the defect of mucosa and anoderm then was closed using catgut 3-0. In both the groups' anal canal was lightly packed after surgery which was removed on third day.

Apparatus and equipment

- Bipolar diathermy
- Pile grasping forceps
- Wide bore proctoscope
- Xylocaine jelly
- Artery forceps, scissors
- No.1 and 3-0 chromic catgut

All the patients were admitted to hospital a day before surgery for preoperative work up and assessment. All patients were put on syrup Duphalac , 4TS/HS and metronidazole TID.

Position-lithotomy

Anaesthesia-caudal block

Post-operatively intramuscular injection of tramadol and/or oral diclofenac was given on demand, to patients. Topically 5% lignocaine jelly was prescribed twice a day. A liquid paraffin mixture was used to prevent constipation. Sitz bath and oral antibiotics continued for 7 days. Patients were discharged after first bowel movement and followed up for 3 months.

Follow up

Following things were noted

- Pain- post operative pain was recorded by blind observer and after discharge the patient was given a chart and taught to record the pain score
- Usage of analgesics
- Discomfort, haemorrhage, urinary retention, infection, perianal edema, hematoma
- All patients were reviewed in OPD at one week, 2 weeks, 4 weeks, 8 weeks, 12 weeks after the operation. Digital rectal examination findings were recorded for palpable fibrosis at the site of healed haemorrhoidectomy as a stricture. Non symptomatic strictures were classified as mild and treated by bulk forming laxative alone. Strictures requiring anal dilatation or surgical procedure were classified as severe
- If a patient required returning to operation theatre within first 24 hours of surgery for rectal bleeding, it was classified as having reactionary bleeding. Patients who were readmitted for bleeding per rectum after discharge from the hospital following haemorrhoidectomy were classified as secondary haemorrhage
- Anal continence after complete wound healing was judged by asking the patients for symptoms of impairment of continence for flatus, liquid stools, and solid stools
- A record was also made regarding relief of symptoms like bleeding discharge, constipation, pain, pruritis, prolapse 1, 2, 4 weeks after surgery.

All observations were recorded in enclosed performa.

All results were expressed as median and range unless otherwise specified.

RESULTS

From the present study following observations were made

Majority of the patients were in between 21 to 60 years of age with 85%of patients being males and 15% females. 90% of patients complained of fresh bleeding per rectum during or after the act of defecation.

Table 1: Pain score (median).

Day	Group A	Group B
1	7	7
2	5	4
3	2	3
4	2	2
5	1	1
6	1	1

In the study it was noted that on first day median pain score was 7 in both the groups. There was statistically no significant difference in the pain score of both the groups during postoperative stay.

There was complaint of post-operative discomfort on first two days in both the groups mainly because the anal canal was packed. Later only two patients in each group

complained of pain on third day. There was no significant difference between two groups hence statistically not significant.

Table 2: Discomfort (no. of patients).

Day	Group A	Group B
1	10	9
2	8	9
3	2	2
4	0	0
5	0	0
6	0	0

Table 3: Haemorrhage (no. of patients).

Day	Group A	Group B
1	10	6
2	8	6
3	12	10
4	4	1
5	2	1
6	1	1

Table 4: Urinary retention.

Days	Group A	Group B
1	6	6
2	1	1
3	0	0
4	0	0
5	0	0
6	0	0

33.3% patients of group A had soakage of pad with blood on day 1, while the no. of patients showing bleeding in group B was 20% .On day 2, the no. was 26.6% for group A and 20% for group B. On day 3 there was little increase in no. of patients who had mild bleeding probably because of removal of packs on 3rd day. But at the end of 6 days there was no difference hence statistically not significant.

20% patients in each group complained of urinary retention and required one time evacuation of urine with catheter. The incidence was 3.33% on 2nd day in each group. Thus there was no difference between both groups hence statistically not significant.

13.3% patients from group A showed edema on 2nd day. The no. was 10 % in both groups on day 3. At the end of 6th day one patient from group A showed edema but none of group B. Thus in group B there is slightly more incidence of edema but was not significant hence statistically not significant.

Table 5: Edema.

Days	Group A	Group B
1	0	0
2	4	5
3	3	3
4	1	1
5	0	1
6	0	1

Table 6: Feeling of defecation.

Days	Group A	Group B
1	8	8
2	5	5
3	0	0
4	0	0
5	0	0
6	0	0

26.67% patients from each group complained of feeling of defecation on day 1 whereas the no. was 16.67 % in each group on 2nd day. No patient complained on day 3rd and after the pack was removed on 3rd day. There was no difference between two groups hence statistically not significant.

Table 7: Late complications.

	15th day		1st month		2nd month		3rd month	
	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B
Anal stenosis	0	0	1	1	1		0	0
Anal fissure	0	0	0	0	0	0	0	0
Incontinence	0	0	0	0	0	0	0	0
Wound and sloughing	0	0	0	0	0	0	0	0

3.3% patients from each group presented with anal stenosis one month after the surgery who were advised finger dilatation and all responded to repeated dilatation. At the end of 3rd month no patient showed anal stenosis.

Therefore there was no difference in both groups regarding post operative anal stenosis No patient from any group presented with anal fissure, incontinence, or wound sloughing. None of the patients in both groups showed infection and/or perianal edema.

Table 8: Relief of symptoms.

	1st week		2nd week		3rd week	
	Group A	**Group B**	**Group A**	**Group B**	**Group A**	**Group B**
Bleeding	29	29	30	30	30	30
Discharge	30	30	30	30	30	30
Constipation	29	29	27	28	25	24
Pain	27	28	30	30	30	30
Pruritis	30	30	30	30	30	30
Prolapse	30	30	30	30	30	30

1st week

At the end of 1st week all the patients were free from symptoms of discharge, pruritis and prolapse. One patient from each group complained of bleeding and constipation. 90% from group A whereas 93.3% from group B showed some degree of relief from pain.

2nd week

All the patients from both the groups were free from bleeding, discharge , pain , pruritis and prolapse at end of 2nd week, but 10 % from group A and 6.67% from group B complained of constipation. The differences between two groups were insignificant.

3rd week

All the patients from both groups were relieved from all the symptoms except constipation. Only 83.3% from group A and 80% from group B were free from constipation at end of 3rd week. The difference between two groups was not significant.

DISCUSSION

Haemorrhoids are defined as varicose dilatation involving one or more radicals of haemorrhoidal veins. Infact, haemorrhoidal mass is not a varicose vein but is a vascular complex with multiple channels fed by many small vessels. Traditionally, surgeons have depended upon mass ligature of haemorrhoid "pedicle" for achieving haemostasis. The policy ignores the fact that small arteries penetrate the internal sphincter and enter the operative field. Also the numerous vessels are divided when incising the mucosa to dissect the pedicle. Bleeding from these small vessels can be controlled better by electrocoagulation than simple ligation and excision. A conventional method for accomplishing the goal is careful and accurate application of coagulating electrocautery. Diathermy involves use of high frequency (300 KHz to 3 MHz) electric current to produce heat. The amount of coagulation around the electrode is dependent on amount of current and length of time which it is applied.

Our study involved sixty patients irrespective of their age and sex suffering from the late second and third degree internal haemorrhoids. They were divided into two groups of 30 patients each. Detailed clinical data of each patient was recorded in performa.

Group A patients were subjected to conventional closed haemorrhoidectomy, in which after dissection of haemorrhoid with scissors, the pedicle was transfixed with chromic catgut no. 1 and tissue was excised. The raw mucosal area was closed with catgut 3-0. Group B patients were subjected to closure with 3-0 catgut after bipolar diathermy coagulation of pedicle and excision of pedicle. The anal canal was lightly packed for two days in each group and the patients were given analgesics and laxatives during the early post-operative period.

Most of the patients in this study were between 21 to 60 years of age which shows that haemorrhoids are present in younger as well as older age groups. In this study 85% of patients were males but this could not be concluded whether the piles are less common in females or they do not come to doctor for treatment . Most of the patients in present study presented with prolapsed piles, bleeding and constipation. Median time taken for surgery in group A was 15 minutes whereas in group B was 12 minutes. The cause for taking less time was the time saved by not ligating the pedicle. A similar study showed that excision with diathermy takes less time than conventional haemorrhoidectomy.[10]

Median pain score from day 1 to day 6 was almost similar in both groups. The results are not similar with a previous study comparing diathermy coagulation and conventional method which showed reduction in post-operative pain after using diathermy coagulation.[11] The

reason given was the coagulation of pain receptors but according to our study there is no difference regarding post-operative pain. As the present study is a small study, so no solid conclusion regarding post-operative pain could be withdrawn. Another study comparing stapled rectal mucosectomy with conventional closed haemorrhoidectomy concluded that stapler technique is less painful but is inferior to closed haemorrhoidectomy in controlling bleeding.[12] Our study showed better bleeding control by diathermy coagulation than closed haemoorhoidectomy.

33.3% patients in group A and 20% patients in group B were found to be having bleeding and required changing of dressing pad on day 1. On days 2 and 3 also the incidence of bleeding was more in group A as compared to group B. No case of excessive bleeding was seen in both the groups which required any active intervention. After day 3 there was not much difference in incidence of bleeding. The results of our study differ from study done earlier.[11] This showed no difference in incidence of bleeding. The difference may be because in previous study the mucosa was left open whereas in our study the mucosa was stitched using catgut 3-0. Almost equal no. of patients complained of discomfort in both the groups during first 2-3 days which was found out to be due to packing of anal canal.

13.3% patients in each group presented with anal stenosis after one month follow up which was due to excessive excision of mucosa. All the patients responded to repeated digital dilatation. No significant difference was found between two groups regarding the incidence of post-operative complications like wound infection, hematoma formation or urinary retention. Almost all the patients of both the groups were free from symptoms at end of one month except constipation. But there was no difference between the two groups. Recurrence of prolapse was seen with stapler haemrrhoidopexy in a study, but there was no cases of recurrence of prolapse during follow up.[13] Another similar study showed return of symptoms with stapler methods as compared to diathermy. Similarly our study showed no return of symptoms during follow up.[14]

CONCLUSION

Though it is too small a series to draw important conclusions, but it appears that the traditional method of mass ligature of haemorrhoidal pedicle is not necessary and electrocoagulation of haemorrhoidal pedical is safe, economical and less time consuming. Complications are rare and symptom relief is achieved in most case.

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