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RUBBER BANB LIGATION; POSTOPERATIVE COMPLICATIONS AFTER TREATMENT OF INTERNAL HEMORRHOIDS

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ABSTRACT... Objectives: To find out the post-operative complications of rubber band ligation in 2nd and 3rd degree of hemorrhoids. Design: A descriptive study. Place and Duration of study: An eighteen month study with 2 months follow up (from January 2002 to June 2003), conducted in the department of surgery, Allied Hospital Faisalabad. Patients and Methods: 50 patients were selected (from OPD) in this study. We included all patients with uncomplicated, primary 2nd and 3rd degree hemorrhoids, above 12 years of age and having no co morbid disorders like diabetes, hypertension and bleeding disorders. With patient in the knee elbow or left lateral position (depending upon the choice of patient) digital rectal examination (ORE) was carried out after lubricating the finger with xylocaine jelly. Proctoscopy was done with lubricated proctoscope and exact sites of hemorrhoids localized. The hemorrhoids were ligated one by one. We did triple ligation on a single session. Results: Out of 50 patients, 21(42%) patients were suffering from 2nd degree hemorrhoids, while 29(58%) patients were having 3rd degree. 42(84%) patients were fully cured, 3(6%) developed mild pain, 1(2%) developed severe pain and 2(6%) suffered from mild bleeding while 2(6%) patients developed moderate bleeding. Conclusion: Rubber band ligation is an effective method for treating 2nd or 3rd degree hemorrhoids with no significant post-operative complications.

Key word: Hemorrhoids, hemorrhoidectomy, rubber band ligation.

INTRODUCTION

Hemorrhoids may be defined as; The dilatation of internal venous plexus with enlarge displaced anal cushions¹. Hemorrhoids are tumors which are made up of collections of varicose veins; which occur beneath the mucous membrane of lowest rectal segment and beneath the skin of the anal canal and peri-anal margins². One of the useful classification of hemorrhoids is;

INTERNAL HEMORRHOIDS

The dilated veins of superior or internal hemorrhoidal plexus are called as internal hemorrhoids.

EXTERNAL HEMORRHOIDS

These are the dilated veins of the inferior or external hemorrhoidal plexus and situated below the anorectal line. These are covered with modified anal skin.

MIXED OR INTERNO-EXTERNAL HEMORRHOIDS

When communicating veins of internal and external venous plexus are varicosed in association with the engorgement of the veins of these two plexus, these are called as mixed or interno-external hemorrhoids. Then internal portion of such a hemorrhoid is covered with mucous membrane (columnar epithelium) and its external portion by anal skin.

There are also other classifications of hemorrhoids. According to the classification which I follow in my study hemorrhoids are classified into four degrees^{3,4}.

1st Degree - Painless bleeding.

2nd Degree - Protrusion with straining and spontaneous reduction.

3rd Degree - Protrusion spontaneous or with bowel movement requiring manual reduction.

4th Degree - Permanent prolapsed irreducible hemorrhoids with bleeding.

Hemorrhoids are one of the commonest cause of bleeding per rectum. Both the males and females are equally suffered. The supposed pathology for this is the diseased submucosal connective tissue that allows the

cushion to displace. The bleeding per rectum is a common presentation of many patients coming in the surgical as well as in the medical OPD.

The diagnosis of hemorrhoids is made by history, clinical examination including proctoscopy. We can not palpate the hemorrhoids on ORE⁵.

The method of treatment of hemorrhoids depends on grading. These includes injection sclerotherapy^{6,7}, cryo-surgery, bipolar, infrared and laser coagulation, sphincter dilatation, doppler, guided hemorrhoidal artery ligation, rubber band ligation and Surgical hemorrhoidectomy⁸.

Continued symptoms despite conservative or minimally invasive measures usually requires surgical intervention. In addition, surgery is the initial treatment of choice in patients with symptomatic grade 4 or those with strangulated internal hemorrhoids.

Rubber band ligation has got much popularity in the management of hemorrhoids. In different centers it is being used for the treatment of 2nd and 3rd degree of hemorrhoids⁹. This is technically an easy procedure and no specific investigations are required. A rubber band is applied at the base of hemorrhoid with the help of rubber band applicator. Necrosis of apical hemorrhoidal tissue occurs within a few hours. It results in thrombosis of hemorrhoids, development of submucosal scarring.

rubber band ligation provides definite cure in 2nd and 2nd degree of hemorrhoids without necessity of hospitalization and anesthesia¹⁰. The percentage of complications in rubber band ligation is less than

hemorrhoidectomy¹¹. The rubber band ligation has been declared as safe, reliable and effective treatment for 2nd degree of hemorrhoids^{12,13}.

The complications of rubber band ligation includes^{14,15};

1. Immediate dropping off of rubber band if tissue mass is too small or too large.
2. Pain may be immediate, late, mild or severe.
3. Bleeding occurs in some patients¹⁶.
4. Thrombosis of hemorrhoids distal to the rubber band ligation.
5. Localized infection or abscesses.
6. Fulminant spsis¹⁷.

Most of the surgeons believe that hemorrhoidal incidence in children is negligible. But some like Gant and Schapiro found hemorrhoids in 17 of 263 and 25 in 2700 children respectively.

RUBBER BAND LIGATION

Indications are: Second degree hemorrhoids. Third degree hemorrhoids.

Contraindications are: Infective perianal and anal lesions, Fissure or fistula in ano.

Position of the patient: Knee elbow position, Left lateral

position or Lithotomy. No preparation is required and procedure can be carried out in OPD.

Equipment: Barren gun¹⁹, Rubber bands and Large diameter proctoscope with light arrangement.

Technique: Hemorrhoids are visualized with the help of proctoscope. A grasping forceps is passed through the distal ring of Barren's gun loaded with rubber band. The most prominent part of the hemorrhoid is grasped and pulled outwards gently and loaded gun is triggered, and the rubber bands encircle and strangulate the hemorrhoid at its base and redundant mucosa.

If it is close to the dentate line or below it will cause pain and requires removal and higher application. The second hemorrhoid is similarly ligated²⁰. It has been documented that the ligation for three hemorrhoids in single session is safe. We have also adopted triple ligation in a single session one by one. With a few days the strangulated hemorrhoid necrosis takes place, the rubber band slough off, leaving small raw area which heals quickly.

Suggested prescription after rubber band ligation²¹ do not attempt to have a bowel movement for 24 hours. No aspirin first 2 weeks.

Do not insert anything (thermometer, suppository, enema, canula) into the anal canal for a month. For one month: Liquid paraffin: 1 teaspoonful three times a day.

In case of pain: Analgesics, according to usual habits: e.g., paracetamol+destropropoxyphene, acetaminophen. Avoid codeine because it causes constipation.

In case of severe pain during the first 48 hours: NSAIDS e.g. piroxicam 20mg per day for 7 days. In the opinion of some authors Metronidazole 500mg TDS for 7 days should be a combined prescription along with NSAIDS. Errors to be avoided: Traction of the mucosa should be gentle and totally painless. If this is not the case, pain will be very severe since the ligature has been applied too low in the neighborhood of the pectinate line, and hence in area of the anal canal sensitive to pain.

Complications and methods of dealing them: immediate dropping off the rubber band:

It will take place if the tissue mass is too small to retain the rubber band or too large, leading to application of extensive tension to the elastic. Dropping off is favored by early defecation. The patient should be advised to avoid bowel

movements for 24 hours.

"Immediate pain: Rubber band should be removed by dividing with the scalpel.

*Pain during subsequent days: Analgesic e.g, NSAIDS or paracetamol can be given either alone or with metronidazole.

*Pain of Late Onset: This indicates an infection. It require antibiotic prescription.

*Bleeding: It occurs in 2 to 6% of cases. The patient should be warned of this possibility. Hospital surveillance or even surgical hemostasis may be required in some cases. The patient should be concerned if bleeding occurs which results in evacuation of blood in the absence of any bowel movement. Tulinant sepsis after RBL has been reported but is uncommon²².

PATIENTS AND METHODS

We conducted this study in the department of Surgery, Allied Hospital Faisalabad to study the postoperative complications of rubber band ligation as a treatment of symptomatic 2nd and 3rd degree of internal hemorrhoids when treated on outdoor basis.

50 patients were selected for this study. All the patients were selected from the OPD, after completely explaining them the procedure. Following inclusion and exclusion criteria was observed.

We included all patients with uncomplicated, primary 2nd and 3rd degree hemorrhoids, above 12 years of age and having no co-morbid disorders like diabetes, hypertension and bleeding disorders.

METHODS OF RUBBER BAND LIGATION

After selection of patients, brief history and clinical examination were recorded in protocol proforma. Patients were taken to the OPD procedure room, where light source, wide bore proctoscope and table

were available.

With the patient in the knee elbow or left lateral position (depending upon the choice of patient) ORE was carried out after lubricating the finer with xylocaine jelly. Proctoscopy was done with lubricated proctoscope. With the help of proctoscope we located exact sites of . hemorrhoids.

The hemorrhoids were ligated one by one. We did triple ligation in a single session. First of all through the proctoscope we introduced forceps to hold the hemorrhoid, then we fired the loaded rubber band ligator. Rubber band, in this manner was applied to the base of hemorrhoid.

Special care was taken in consideration to apply the rubber band above the dentate line. The patients were advised to take rest for 15 minutes completion of rubber band ligation.

The patients were sent home, after making sure that they did not develop immediate complication. They were advised to take Tab. diclofenic sodium 50mg BID in case of pain, and take high fiber diet and some laxative (if needed) to avoid constipation. In the follow up patients were asked to visit OPD on day3,7,15 and at the end of first and second month after ligation. They were asked to contact us in case of any complication.

RESULTS

We applied rubber bands on 50 patients. 35(70%) were males while 15(30%) were females. 21 our of 50 patients (42%) were suffering from 2nd degree of hemorrhoids while 29 out of 50 patients (58%) were suffering from 3rd degree hemorrhoids.

10 patients were between 22-32 years. 11 were between 33-42 years. 10 patients between 43-47 years of age. 9 patients were between 48-52 years while 10 patients were between 53-72 years of age.

Sex* complaint cross tabulation				
	Complaint			
	None	Mild Pain	Mild bleeding	Moderate bleeding
Sex Male Count % within sex	29	2	2	2
%within complaint	82.9%	5.7%	5.7%	5.7%
% of Total	69.0%	66.7%	100%	100%
	58.0%	4%	4%	4%
Sex Female Count	13	1	–	–
within sex	86.7%	6.7%		
%within complaint	31.0%	33.3%		
% of Total	26.0%	2%		
Total Count	42	3	2	2
within sex	84.7%	6%	4%	4%
%within complaint	100%	100%	100%	100%
% of Total	84%	6%	4%	4%

	Complaint	Total
	Severe Pain	
Sex Male Count within sex	.	35
%within complaint		100%
% of Total		70%
		70%
Sex Female Count within sex	1	15
%within complaint	67%	100%
% of Total	100%	30%
	2%	30%
Total Count within sex	1	50
%within complaint	2%	100%

% of Total	100%	100%
	2%	100%

42 patients were completely cured with no postoperative complications. Three patients developed mild pain. The pain was relieved by giving analgesics (diclofenic sodium). Two patients developed mild bleeding. This bleeding was due to the detachment of the rubber band during the first postoperative week. It was self limiting and no treatment was given for it, two patients developed moderate bleeding. These patients were examined again. Small ooze was found at the site of detached rubber band. Packing the area for next 24 hours successfully controlled this bleeding. 1 patient developed severe pain. This was due to low application (below the dentate line of the hemorrhoids). The band was removed immediately and re-application was done after a couple of week.

No patient developed life threatening complication likes fulminant sepsis. Similarly no patient need blood transfusion. All the complaints were managed on OPD basis and no patient needed readmission.

DISCUSSION

Hemorrhoid is a very common disease. There is a wide range of treatment modalities. In most cases however, swift simple and effective treatment can be given in an outpatient clinic or a health centre²³. The key to understanding the feasibility of non surgical treatment on outdoor basis is that there is no sensory nerve fibers above the dentate line in the anus. Internal hemorrhoid arise above the line, so they can be treated without anaesthesia. The clear advantages of modern methods for out patient non-surgical treatment of internal hemorrhoid are that; they are quick and relatively painless.

Patient loose little if any time of work, the complications are minor and cure rates are high. Barren (Detroit) in 1963 first time introduced RBL

as treatment of hemorrhoids. He reported satisfactory results in 150 patients²⁴. A lot of studies proved RBL as excellent method of treating hemorrhoids especially grade 2 and 3²⁵. RBL is now a days considered as most common treatment of internal symptomatic hemorrhoids grade 2 and 3. Rubber band ligation is the most widely used treatment for uncomplicated hemorrhoids. Most experts believe that it is the most effective, non surgical treatment of internal hemorrhoids. This procedure has been available since 1960. It is easy to perform and cost effective.

Rubber band ligation can be done either in a single session (triple ligation) or in different sessions (usually one hemorrhoids tide in one session). In our study we adopted triple ligation. Poon et al did a comparative study of single versus triple ligation and recommended triple ligation in a single session²⁶. In our setup most of our patients came to us from remote areas of the Punjab, It is difficult for them to travel again and again, moreover triple ligation is also cost effective. Post operative complications of rubber band ligation are only few.

In New York according to Stelzner 80% of patients improve after rubber band ligation²⁷. In Italy, Pezzuloo and Pallino done a study, according to them 86% patients developed no post operative complication¹⁰. Komborozos conducted a study in Switzerland in 500 patients, out of them 88% patients developed no postoperative complication. Pain and hemorrhage was the most frequent complication reported by them⁹.

In our study pain and hemorrhage were the main complaints. The pain was of variable intensity. Prescribing pain killers cured mild to moderate pain. However one patient suffered from severe

pain, the rubber band was divided immediately in that case. Similarly the bleeding usually occurred in the first week when the rubber band detached from the base. It was self limiting.

Queidet and Jurjus declared their results successful in 81.2% of cases. They described post operative pain in 13.5% patients²⁹. In Spain, a study was done on 232 patients²⁸. Their 86% patients improved in the follow up. Their 74% patients had complained of mild pain post operatively. In our study 6% of patients had complained of mild pain post operatively. In a study done by Ghulam Asghar Ghana at Karachi²⁹, they found that some of their patients developed vasovagal shock like symptoms after rubber band ligation. We recommended our patients 15 minutes rest in lying posture after ligation before they leave the place. We did not find this complication in any of our patients.

In a study done at Lahore¹³, 89.8% of patients after rubber band ligation were symptom free in their follow up. In another study done at Abbottabad 82% patients improved in the postoperative follow up. In our study 48% of patients were symptom free in their follow up. Only 16% patients developed pain and bleeding of varying intensity postoperatively. All the cases were done on OPD basis without anesthesia. All the post operative complications were successfully managed.

CONCLUSION

Rubber band ligation is a safe method for treating symptomatic 2nd and 3rd degree of hemorrhoids. The complications of rubber band ligation are a few and they are not serious or life threatening. Rubber band ligation is recommended for all uncomplicated 2nd or 3rd degree of hemorrhoids.

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