https://doi.org/10.15218/zjms.2025.049

Efficacy, cure rate, recurrence rate and complications of Rubber band ligation for treatment of different grades of hemorrhoids in Koya - Erbil - Kurdistan Iraq, Retrospective Study

Received: 23/05/2024 Accepted: 29/09/2024

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Abstract

Background and objective: Hemorrhoids defined as lax fibrovascular cushions which are prolapsed, two main types of hemorrhoids are available, internal and external types, Dietary fiber deficiency, prolonged straining and prolonged use of the toilet, constipation, diarrhea, pregnancy and straining that increase intra-abdominal pressure, sedentary lifestyle, high body mass index and family history are all contributing factors. Hemorrhoids can be treated medically, surgically, and with office-based endoscopic procedures such as rubber band ligation. The aim of this retrospective study is to assess the response and cure rate, complications, and recurrence rate of grades 2 and 3 of Hermorrhoidal Disease treated as out-patient procedure by rubber band ligation in Koya-Erbil –Kurdistan –Iraq.

Methods: This Retrospective study includes 400 patients seeking consultation and treatment at General Surgery Private Clinic between June 2018 and August 2021, who underwent rubber band ligation as out-patient procedure.

Results: (59%) of cases were male and (41%) were female, mean age and SD was 38.42 ± 12.54. The most common chief complaint of the patients on presentation were abdominal distension, perianal itching, and abdominal pain, three Rubber Band Ligation sessions has been performed for (87.5%)of cases, but the remaining other 45 (12.5%) cases only need one or two sessions, Following the intervention, vast majority of the cases developed no complications and they were completely comfortable with the procedure, meanwhile only (15.25%) cases developed minor complications.

Conclusion: Rubber Band Ligationis safe and effective intervention line for second and third grades of hemorrhoids, can be done as out-patient procedure under local anesthesia with minimum side effects and complications in compare to classical surgeries that can be treated conservatively.

Keywords: Rubber band ligation; Out-patient hemorrhoidectomy; Rubber band ligation hemorrhoidectomy; Hemorrhoidectomy under LA.

Introduction

Hemorrhoids defined as lax fibrovascular cushions which are prolapsed, two main types of hemorrhoids are available, internal and external types, internal hemorrhoids (IH) lies proximal to the dentate line, meanwhile hemorrhoids located distal to this line are called external hemorrhoidal.(1,2) the anal submucosa forms a discontinuous layer of thickened tissue, creating “cushions” found in the left lateral, right anterior, right posterior positions, receiving their blood supply from the superior hemorrhoidal artery & branches of the middle hemorrhoidal arteries; with some communication with the inferior hemorrhoidal arteries. The venous drainage is provided by the superior, middle, inferior hemorrhoidal vessels, allowing for communication between the

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https://doi.org/10.15218/zjms.2025.049

portal/ systemic circulations & form direct arteriovenous communications within the cushions, so hemorrhoidal bleeding is arterial in nature rather than venous. The cushions degenerate or weaken with age and time, beginning in the second or third decade. This causes distal displacement, venous distention, erosion, bleeding, thrombosis, and prolapse. The cushions are crucial to the preservation of rectal continence. While external hemmoroids are not classified, internal hemmoroids are categorized into four groups based on the degree of prolapse into the anal canal and their reducibility, either spontaneous or manual.[1,2] The pathophysiology of hemorrhoids involves abnormal distention of the arteriovenous anastomoses within the cushions, abnormal dilatation of the veins of the internal hemorrhoidal venous plexus, and weakness of the supporting tissue of the anal cushions, which causes its downward displacement and venous dilation and prolapse. Dietary fiber deficiency, prolonged straining and prolonged use of the toilet, constipation, diarrhea, sedentary lifestyle, and family history are all contributing factors. In spite of from body mass index, there are other circumstances like pregnancy and straining that increase intra-abdominal pressure play a main role for the HD development.[1,2] The majority of anorectal symptoms are frequently thought to be caused by hemorrhoids, thus it's critical to ascertain whether the symptoms are indeed caused by hemorrhoids, other ano-colorectal issues, or a mix of all of them. After endoscopic examination, up to 50% of rectal bleeding cases that were first thought to be hemorrhoids were actually diagnosed with colorectal cancer (CRC). Most symptoms are caused by an enlarged IH; the most frequent presenting symptom is bleeding, which occurs when the IH prolapses through the anal canal and becomes traumatized and friable. Since hemorrhoids are AV plexuses, the bleeding is usually bright red, does not mix with excrement, can leak out, and gets worse when the patient strain. A darker-colored blood type indicates other, more proximal sources. Hemorrhoids that are bleeding usually do not result in a positive Hemoccult test on their own. Columnar mucosa covering IH causes mucous deposition on the perianal skin, causing itching and perineal discomfort. Fecal soiling may result from the prolapsing tissue preventing the anal margin from "sealing." Since the mucosa covering IH proximal to the dentate line is relatively insensate, these lesions are usually painless and infrequently thrombose. If there is pain, we should look for coexisting complicating conditions, such as anal fissures, CRC, SRUS, IBD, pelvic floor dysfunction, internal sphincter spasm, pelvic dyssynergia, proctalgiafugax, etc. External hemorrhoids usually don't hurt, but when they do, it's usually because of thrombosed external hemorrhoids, which cause excruciating perianal edema.[1]

Hemorrhoids become inflamed and bloated with venous blood when HD develops; as a result, external HD is typically accompanied by pain and pruritus symptoms, with bleeding or thrombosis occurring less frequently. Internal HD is a condition in which somatic nerves cause the internal hemorrhoids to grow and move toward the anus, resulting in further venous dilatation. This condition may be linked to bleeding during defecation.[2]

Hemorrhoids can be treated medically, surgically, and with office-based endoscopic procedures.[2,3] all patients should try medical care, which can relieve symptoms and prevent recurrence. This includes increasing fiber intake to prevent constipation, avoiding prolonged straining, using laxatives, and using vasoactive local soothing medications.[3]

Office-based hemmotoidal interventions include stapled hemmoroidopexy, Lord's anal dilation, classical incisional surgery, ultrasonography-guided haemorrhoidal artery ligation (HAL), and hemmoroidal coagulation (using sclerotherapy, infrared, bipolar, heater probe, cryotherapy, and

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direct currents) as well as endoscopic rubber band ligation using various office-based instruments or, more effectively, flexible sigmoidoscopy for that purpose, often performed in the retroflexed position. Senagore noted that "many patients who have undergone certain hemorrhoid therapies wish they had died, [1] despite the fact that few people have died from hemorrhoidal disease due to the unpleasant nature of hemorrhoidal surgery.

Pain is the most common post procedure complications, however urinary retention, bleeding, and perianal infection also are common, and those patients who have immune compromised conditions, inflammatory bowel disease, and pregnant ladies are at more increased risks of more severe complications.[4]

Rubber band ligation is one of the office-based procedures' frequently utilized techniques for treating HD. A little rubber band is positioned at the base and released in the conventional rubber band ligation. The bands that tighten stay in place until they finally come off. Rubber band ligation has advantages of its own with regard to the hemorrhoids' anatomic structure (it can preserve the anal function). Though the therapy helps alleviate hemorrhoids' symptoms, different facilities employ different approaches, and the severity of the hemorrhoids can also impact the effectiveness of the treatment and the result of surgery, particularly for patients with grade III hemorrhoids (hemorrhoid prolapses).[5,6]

In this retrospective study, our aim is to show the response and cure rate, complications happened, and recurrence rate of grades 2 and 3 of HD treated as out -patient procedure by rubber band ligation in Koya-Erbil –Kurdistan –Iraq.

Methods

This Retrospective study includes 400 patients seeking consultation and treatment at General Surgery Private Clinic in Koya/ Erbil, for a duration of 38 months starting from June 2018 until August 2021.

All patients were assessed by a short history taking; concentrate mainly on the symptoms, history of previous surgery, and history of anticoagulant intake, history of diabetes mellitus, hypertension, and where they reside. Afterwards, an inspection of the anus was performed to look for any obvious lesions, prolapsed hemorrhoids, anal fissure or fistula. Thirdly, we performed digital rectal examination to detect any palpable mass and to exclude lower rectal tumor which was preceded by a Proctoscopic examination with a proctoscope device using an LED light in knee-elbow position. After discussing the situation with the patient and drawing a scheme of their conditions for them, the possible symptoms are discussed with them depending on their conditions. Certain symptoms include constipation, diarrhea, pain, bleeding, itching, abdominal distention, prolapse and discharge. Afterwards, documentation takes place on whether the patient has pile exclusively or associated with fissure, skin tags and fistula in ano.

It was discussed with the patient that the procedure will occur in 3 sessions with weekly intervals, using rubber band and lidocainegel as a lubricant. After taking the patient’s consent, we connected the banding device to a sucker and through the proctoscope we sucked the hemorrhoid above the dentate line and to be sure that there is no pain then rubber band applied. After applying the band, Acetaminophen tablet 500mg was used as a routine with lactulose syrup for constipated patient and full instructions to the patients regarding increase fiber diet and to avoid squeezing during defecation and to avoid lifting heavy weight.

During the second and third sessions, we focused on a variety of things including but not limited to the patient’s obedience to our instructions, (which are increased fiber diet and to stop squeezing during defecation, significant bleeding or sever pain and the site of the previous band and the color of the anus).

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Those patients with chronic anal fissure are scheduled for surgery after the band. The surgery is set to be performed under local anesthesia (lateral sphencterotomy). As for those with fistula in ano under G.A, they will be assigned for a fistulectomy. Regarding the patients who are above 60, we performed for them colonoscopy either before or after banding. We end the session with informing the patient that incase of any symptoms, such as heavy bleeding, pain, increased constipation, or discomfort, they return to us immediately.

Statistical analysis:

Data entry, Data analysis for minimum and maximum age, mean age and standard deviation, pie charts and graph charts done by Microsoft excel 2010 program.

Results

Out of 400 case who have been included in this study, 236 (59%) were male and 164 (41%) were female Figure (1), the age ranged between 13-77 years with mean and SD 38.42 ± 12.54.

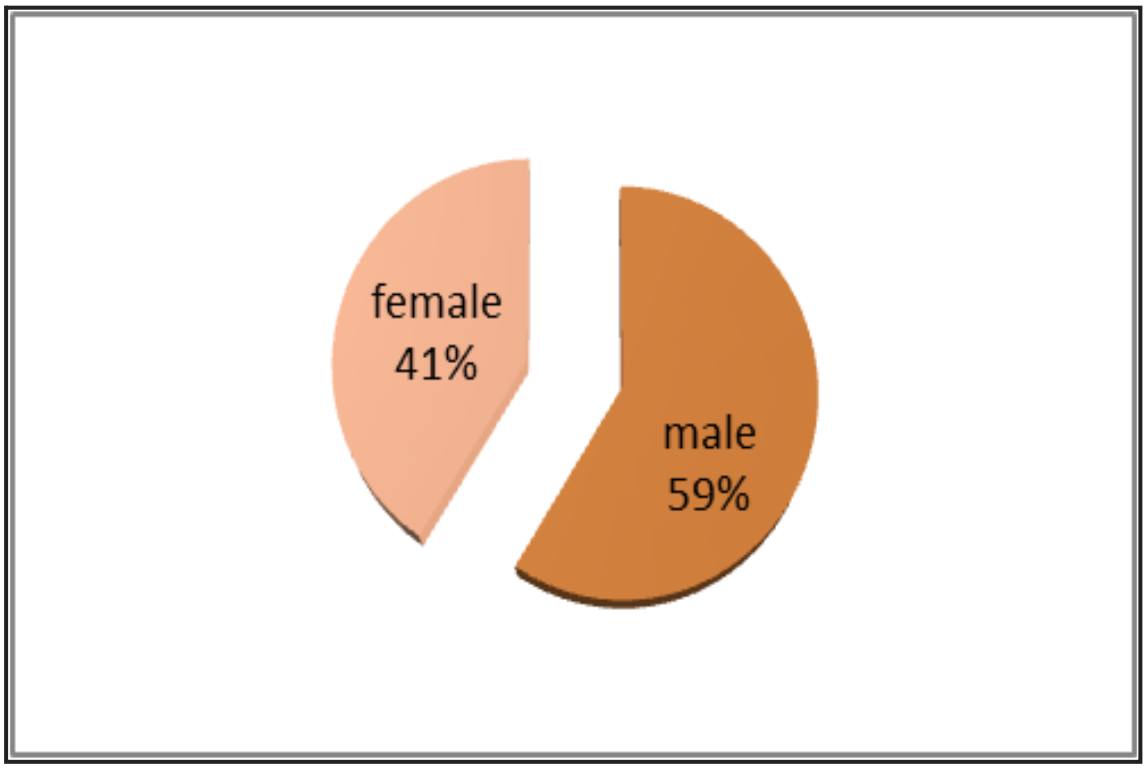

Figure 1 Distribution of the sample by gender

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The most common age group affected by hemorrhoid is 4th and 5th decades of life, making 61% of all cases, particularly age group of (30-39) years of age, with observation of least incidence among extreme age groups (below 20 and above 60 years old), these rates of incidence was the same between male and female, i.e. fourth and fifth decades s of life are more vulnerable for hemorrhoid development among both male and female patient in addition to similar incidence rate for female patients between age group of (less than 20 and 50-59 years old), (Table 1 and 2).

Table 1 Distribution of the sample (Number and percentages) according to age groups

Age groups	Number (%)
Less than 20	24 (6.0)
20-29	65 (16.25)
30-39	146 (36.5)
40-49	98 (24.5)
50-59	35 (8.75)
60 and more	32 (8.0)
Total	400 (100.00)

Table 2 Distribution of the sample according to sex variation between age groups

Age groups/Sex	Male	Female
Less than 20	9	15
20-29	37	28
30-39	93	53
40-49	56	42
50-59	20	15
60 and more	21	11
Total	236	164

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The major and most common chief complaint of the patients on presentation were abdominal distension, perianal itching, abdominal pain, and infrequent bowel motion that has been observed in nearly all patients, with noticing bleeding through anus in about two thirds of the cases, in a time perianal discharge, perianal lumpiness, melena, and diarrhea seen in rare situations (Table 3).

The diagnosis of the cases were hemorrhoids grades II and III, in spite of the presence of simultaneously associated other benign perianal diseases ranged from thrombosed pile, anal fissure with or without skin tags, to perianal fistula rectal prolapse….etc. hemorrhoid alone was present only in 30.75% of cases, while hemorrhoid in combination with anal fissure made up about 39% of the cases, hemorrhoid and skin tag observed to be double rate in compare to hemorrhoids with thrombosed (16.25% Vs. 8%), combination of hemorrhoid with polyp, hemorrhoid with thrombosed pile and fissure, and hemorrhoids with fistula and fissure were seen in minimum ranges (0.25%, 0.5%, and 0.75%) respectively, meanwhile associated rectal prolapsed and perianal fistula with hemorrhoids observed in (5 and 13 cases) respectively. (Figure 2).

Table 3 Distribution of the sample according to presentation of the disease (N=400).

Chief complaint	Number	(%)
Abdominal distension	393	(98.25)
Itching	392	(98.0)
Abdominal pain	388	(97.0)
Constipation	388	(97.0)
Bleeding	267	(66.75)
Discharge	16	(4.0)
Lump	9	(2.25)
Diarrhea	8	(2.0)
Melena	2	(0.5)

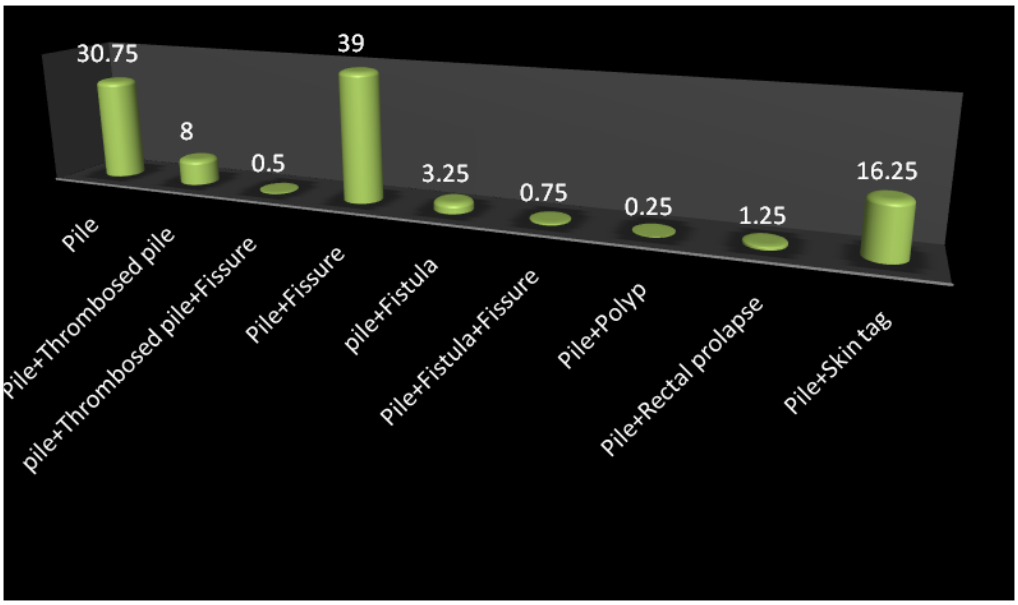

Figure 2 Percentage of the Diagnoses of the cases among the sample

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Previous surgical interventions noticed in 11 cases, while previous hemorrhoid rubber band ligation seen in only one case, in a time the vast majority (97%) of the cases had no history of previous interventions Figure (3).

After the diagnosis, all (three) sessions has been performed for 355 (88.75%) cases, but the remaining other 45 (11.25%) cases only need one or two sessions and there was no need for further sessions (Figure 4).

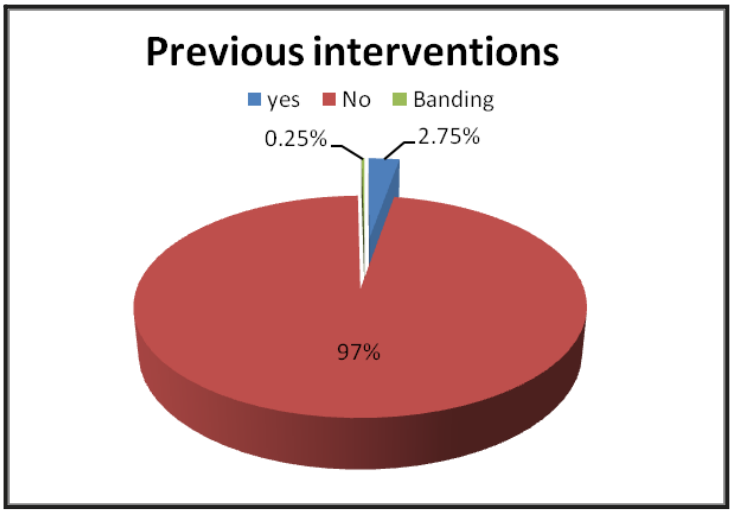

Figure 3 Distribution of the sample according to previous surgical interventions for hemorrhoids

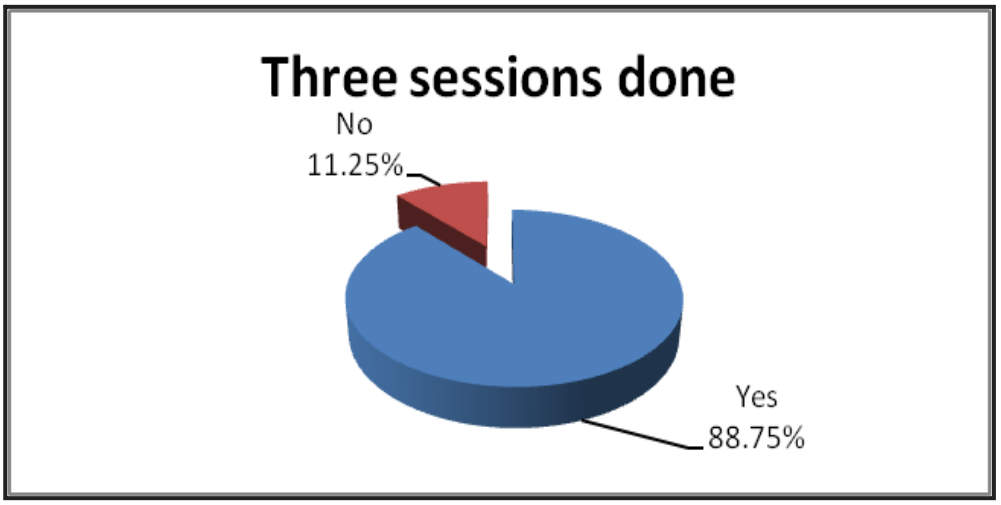

Figure 4 Sample distribution according to completing all three RBL sessions (N=400)

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Following the intervention, the majority of the cases (84.75%) developed no complications and they were completely comfortable with the procedure, meanwhile only (15.25%) cases developed complications (Figure 5) were all treated conservatively except one case of bleeding that has been returned back to operation theatre for bleeding control, the most common symptoms were constipation (8.5%) that is treated by conservative ways followed by back pain in 2.25% of cases. Abdominal pain, bleeding, diarrhea and itching were rarely observed in a rates of (1.755, 1.5%, 0.75, and 0.5%) respectively, Figure (5), in regards to the severity of complications, the majority of complications were minor meanwhile very little numbers were major complication (Figure 6).

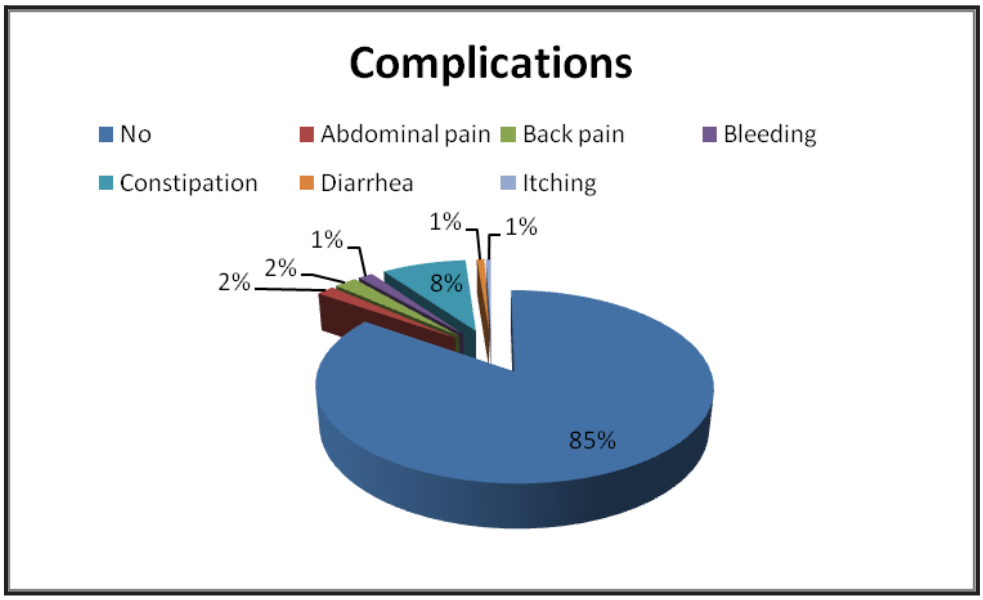

Figure 5 Complication rates developed after the procedure

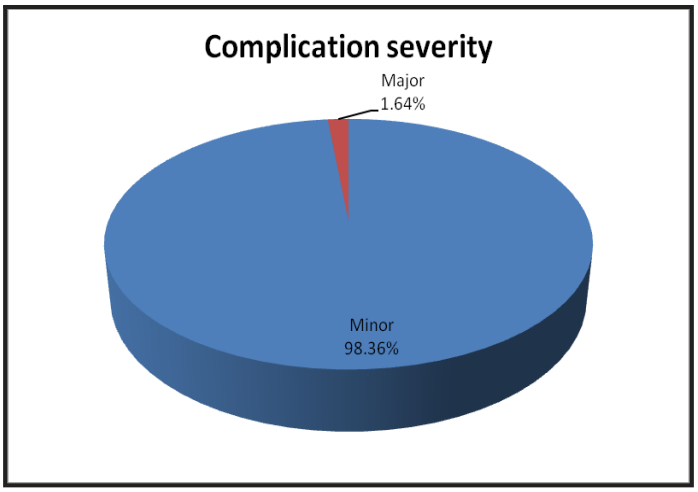

Figure 6 Minor and major complications following the procedure among the sample

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Discussion

In a study done in India.[7] Gender incidence for hemorrhoids was 66.67% for males and 33.33% for females, this will be near to the result seen in our study which showed 59% Vs. 41% for male and female respectively, in the mentioned study the most common age group affected was below 40 years, again this is in concordance with our study result which showed 58.75% incidence in patients below 40 years of age with observation of more than 77% incidence rate for the age of 20-49 years (Table 1).

Somalia study revealed ages of 45-65 years for both genders is associated with increased prevalence of hemorrhoid in which (57%) were men and (43%) were women with a mean age of 47.6 (range: 35 -65) years,[8] this also nearly similar to our result regarding sex incidence that estimates male and female incidence of 59% vs. 41% respectively. Figure (1) with a difference in mean age in compare to our study (38.42 years) that may be due to reporting many cases within younger age groups and second with third decades of life which has not been observed in the mentioned Somalia study.

The most reported symptoms among participants with hemorrhoids in a study in Saudi Arabia were pain with defecation (76.2%), discomfort (63.5%), and swelling (55.6%),[9] but our study results showed that abdominal distension, abdominal pain, constipation and perianal itching are main symptoms of the HD (Table 2).

In our opinion the predominance of these symptoms in our study is due to low fiber diet life style causing constipation, and the constipation in turn leads to bowel and abdominal distension and abdominal pain, and the cause of itching is due to protrusion of grade II and III hemorrhoids causing perianal itching to be one of the major discomforts among other symptoms, however lump feeling was observed in only 2.25% of cases in our study but the explanation of perianal itching may be due to the presence of other benign perianal conditions coinciding with hemorrhoids such as perianal fistula, anal fissure, skin tags, polyps, thrombosed piles and prolapse that made about more than two thirds of all cases since presence of hemorrhoid alone in our study noticed in less than one third of the cases (Figure 2).

An evaluation of patient-reported dissatisfaction at a year later showed no difference between RBL & HAL, according to a recent editorial comment on a research article published in the Lancet comparing HAL with RBL. This suggests that multiple RBL had similar effectiveness to HAL from the patients' perspectives. Contrary to popular opinion, HAL is not a painless method of managing hemorrhoids. RBL is a useful procedure that can be carried out using rigid or flexible endoscopes. Flexible endoscopes make it simpler to perform many ligations, but they also seem to cause more discomfort and expense. In terms of pain and intraprocedural hemorrhage, suction band ligation was found to be superior to forceps ligation.RBL had a similar safety profile but was more successful in treating 45 patients with chronic rectal bleeding caused by second- and third-degree internal hemorrhoids when they were randomly assigned to receive it or bipolar coagulation treatment. At a year, recurrent symptoms were comparable. Because erroneous band placement too close to or below the dentate line might cause substantial pain.[10,11] In compare to this study, our study results showed excellent results, since no any complications or post procedural complaints has been noticed in 84.75% of cases, meanwhile minor complications happened in the remaining cases and all treated conservatively (Figure 5) except one case of post-operative bleeding urgently admitted to the operation theatre for massive bleeding, (Figure 6), however after taking general anesthesia and thorough examination and searching for bleeding sources revealed no active bleeding that stopped spontaneously.

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Experts advise against performing RBL of internal hemorrhoids on sedated patients. In order to reduce symptoms, some specialists advise banding only one hemorrhoidal group at a time rather than more than three in a single session.[10,11] same was done in our procedure, since 87.5% of cases completed all three sessions for three hemorrhoids and the remaining 12.5% treated by one to two sessions and either they did not require further sessions or they disappeared from follow up. The necessity for a later operational hemorrhoidectomy was shown to be increased in cases of hemorrhoidal illness requiring the implantation of four or more bands,[10,11] but in our study maximum sessions used was three sessions since there was no need for further interventions and the majority of the patients were satisfied with the result of the procedures and not complained from obvious recurrence (Figure 5).

There is discrepancies for the results of RBL between two studies,[12,13] In contrast to our study which showed excellent result, safety and efficacy (Figure 5), high rates of postoperative recurrence following rubber band ligation are a prevalent problem in one of the studies.[12] The surgical techniques, ligation tools, and degree of internal hemorrhoids all have a substantial impact on the post-operative recurrence rate,[12] Meanwhile our result was in concordance to the second study which has been done in China[13] which showed the therapeutic efficacy of MRBL is comparable to that of MMH and it can effectively treat post-operative pain and discomfort following surgery. They hypothesize that MRBL is the best option for treating internal hemorrhoids of grade III.

Conclusion

RBL is safe and effective intervention line for second and third grades of hemorrhoids, can be done as out-patient procedure under local anesthesia with minimum side effects and complications in compare to classical surgeries that can be treated conservatively.

Competing interests

The authors declare that they have no competing interests.

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