

# Clinical Profile and Efficacy of Injection Sclerotherapy as a Primary Treatment in Cases of Haemorrhoids

Lalit V. Tamgadge<sup>1</sup>, Nilesh P. Mangam<sup>2</sup>, Ashok Gajbhiye<sup>3</sup>

<sup>1</sup>Department of General Surgery, Government Medical Collage, Chandrapur, Maharashtra, India.

<sup>2</sup>Department of General Surgery, Government Medical Collage, Chandrapur, Maharashtra, India.

<sup>3</sup>Department of General Surgery, Government Medical Collage, Chandrapur, Maharashtra, India.

## ABSTRACT

### BACKGROUND

Haemorrhoids are one of the common causes of rectal bleeding associated with pain and discomfort. They are one of the common causes of surgical consultations. Surgical treatment such as haemorrhoidectomy is usually reserved for grade III and IV haemorrhoids and is associated with complications such as post-operative bleeding, faecal impaction, urinary retention, constipation and infections. Sclerotherapy for haemorrhoids is a less-invasive, less-painful procedure that causes the problematic haemorrhoid to shrivel and dissipate within a short period of time. Many studies have concluded that injection sclerotherapy when properly used, is efficient, inexpensive and safe method for the treatment of bleeding haemorrhoids. We conducted this study to evaluate the effectiveness of sclerotherapy as a treatment modality for internal haemorrhoids of grade I and II.

### METHODS

This was a prospective study conducted in the department of general surgery in a tertiary care institute located in a tribal area. 100 cases of Grade I and Grade II internal haemorrhoids were included in this study on the basis of predefined inclusion and exclusion criteria. Detailed history was taken, and a thorough clinical examination was done in all the cases. Sclerosant (Polidocanol 3 - 5 mL) solution was injected into the submucosal tissue of the base of an internal hemorrhoid using aseptic precautions. Postoperatively patients were followed up to 6 months for resolution of symptoms.

### RESULTS

Out of the 100 studied cases there were 85 (85%) males and 15 (15%) females with a M : F ratio of 1 : 0.17. The overall mean age of the affected cases was found to be 44.98 years. 71% of cases had history of constipation and straining at stools. The most common presenting complaint was bleeding which was seen in 67 (67%) cases. After sclerotherapy, discomfort was reported in 20 (20%) patients whereas pain and bleeding were seen in 12 (12%) and 7 (7%) patients respectively. At 6 months follow up there was no patient with pain, prolapse, irritation or discharge (100% improvement in these symptoms). Bleeding was seen in 3 patients (3%) at 6 months follow up.

### CONCLUSIONS

Injection sclerotherapy is an effective treatment modality for the treatment of grade I and II haemorrhoids. It was found to have excellent results in terms of resolution of symptoms such as bleeding, pain, irritation, discharge and prolapse.

### KEYWORDS

Haemorrhoids, Sclerotherapy, Polidocanol, Rectal Bleeding

*Corresponding Author:*

*Dr. Lalit V. Tamgadge,  
Associate Professor,  
Department of Surgery,  
Government Medical Collage,  
Chandrapur, Maharashtra, India.  
E-mail: drlalit.t@gmail.com*

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## BACKGROUND

Haemorrhoids are abnormally enlarged anal cushions containing arteriovenous anastomosis, traditionally described as occurring in the 3, 7, and 11 o'clock positions.<sup>1</sup> They are one of the most common causes for which surgery consultation is sought. Venous cushions are normal anatomical structures in anorectal region and are invariably present in all human beings unless and until they have been removed previously for some pathology. Due to the richly vascular nature and location these cushions have an inherent tendency to prolapse and engorge which is more commonly the case in individuals with chronic constipation.<sup>2</sup> Haemorrhoids are classified into as internal and external haemorrhoids depending upon whether they have formed either on upper or lower sides of the dentate line. Internal haemorrhoids, which originate from above the dentate line of the anal canal, occur when these anal cushions are dragged down the canal. Haemorrhoids consist of clusters of vascular tissues, connective tissue and smooth muscles lying along the anal canal in three columns namely right anterior, left lateral and right posterior positions. Amongst these 3 right posteriors is the most common position. They affect millions of people around the world, and represent a major medical and socioeconomic problem.<sup>3</sup>

The common symptoms of haemorrhoids include discomfort, pruritis, pain and rectal bleeding. In long standing and severe cases, it may also present with rectal prolapse. Since these symptoms are non-specific and the cause may be pathologies other than haemorrhoids such as anal fissure, abscess, pruritis ani and anal condylomata, a careful history and a thorough clinical examination is must in all cases presenting with these symptoms. Though bothersome for majority of the patients more than 80% of the haemorrhoidal symptoms can usually be controlled by non-excisional techniques. It is learnt from the experience of many randomised trials that surgery is usually reserved for 3<sup>rd</sup> and 4<sup>th</sup> degree of haemorrhoids and better be avoided in 1<sup>st</sup> and 2<sup>nd</sup> degree haemorrhoids. Even in patients in whom haemorrhoidectomy is indicated there are inherent complications of haemorrhoidectomy such as post-operative bleeding, faecal impaction, urinary retention, constipation and infections.<sup>4</sup> To overcome this less invasive procedures such as stapled haemorrhoidopexy has become popular. Stapled haemorrhoidopexy though reported to be having less complications as compared to haemorrhoidectomy is also associated with complications such as pain, bleeding, skin tag, fissure and stenosis. To avoid these post-operative complications seen in stapled haemorrhoidopexy with open haemorrhoidectomy the alternative methods such as rubber band ligation and sclerotherapy is becoming popular.<sup>5</sup>

Sclerotherapy for haemorrhoids is a less-invasive, less-painful procedure that causes the problematic haemorrhoid to shrivel and dissipate within a short period of time. Many studies have concluded that injection sclerotherapy when properly used, is efficient, inexpensive and safe methods for the treatment of bleeding haemorrhoids. Injection of sclerosant leads to fibrosis and contraction of submucosa and cushion, thus relieving the engorgement of the venous plexus. Ultimately this causes fixation of the cushion in its

normal anatomic position, avoiding prolapsed and reducing the site of the cushion to limit future mucosal trauma.<sup>6</sup>

The aim of the present study was to study the cases of haemorrhoids in relation to age and sex of the patient, to find out common presentation, associated signs and complications of haemorrhoids and to study the efficacy and side effects of polidocanol as a sclerotherapeutic agent in the treatment of haemorrhoids.

## METHODS

This was a prospective study conducted in the Department of General Surgery in a tertiary care institute located in a tribal area. Institutional ethical committee approved the study and an informed written consent was obtained from all the participants. In the present study 100 cases of Grade I and Grade II internal haemorrhoids were selected for study with complaints of bleeding per rectum, pain during defecation, prolapse, discharge and irritation. Patients with Grade III haemorrhoids, thrombosed haemorrhoids and large skin tags were excluded from the study.

The demographic details such as age, gender and area of residence was recorded in all the cases. A detailed history of each patient was taken with personal history, family history and diet history. A thorough general examination and systemic examination of respiratory, cardiovascular, per abdominal examination was done to know any associated disease and to rule out any cause predisposing to haemorrhoids. Presence of co-morbidities such as, diabetes mellitus, hypertension and chronic obstructive airway disease was asked for and noted down. A local examination including proctoscopy was done as per proforma made for study and the data entered in the proforma. During local examination presence of any external piles, internal piles, fistula, perianal excoriation, anal warts or abscess was noted. Routine investigations such as complete blood count, urine examination, bleeding time, clotting time HBsAg and HIV was done in all the cases. The patients were explained in detail about their disease and the treatment modality of sclerotherapy with its advantages and disadvantages.

## Procedure

Laxatives were given on the night before the morning of planned day of procedure. Before procedure an informed written consent was obtained after explaining in detail about the procedure. Patient was put in left lateral (Sims) position while the procedure was performed. A Sclerosant (polidocanol 3-5 mL) solution was injected into the submucosal tissue of the base of an internal hemorrhoid to create a focus of aseptic inflammation. Patients in whom bleeding was seen after injection adrenalin solution was applied topically and gauge piece was left in place till bleeding was controlled. After sclerotherapy, antibiotics (ciprofloxacin), analgesics (ibuprofen and paracetamol) and laxatives were prescribed to the patients for pain and constipation. Patients were counseled to avoid straining while defecation. Patients were advised to return for

evaluation in case of hematuria, retention of urine and erectile dysfunction.<sup>5</sup>

Patients were advised to follow up after one week. At one week follow up, patients were asked about any complaints of bleeding, pain, prolapsed, pruritis and discharge from anal canal. Further follow up was advised at 1<sup>st</sup> and 3<sup>rd</sup> month and then at 6<sup>th</sup> month. Those who couldn't turn up for follow up at 3 months and 6 months follow up visits were interviewed telephonically about the complaints.

### Statistical Analysis

Data collected were imputed into a personal computer and analysed using the Statistical Package for Social Sciences software for Windows version 14. Graphs and other charts were generated using the New Microsoft Office Excel Worksheets (version 2007). The mean and standard deviation of age of patients were determined. P value less than 0.05 was taken as significant for statistical purposes.

## RESULTS

Out of the 100 studied cases there were 85 (85%) males and 15 (15%) females with a M : F ratio of 1 : 0.17.

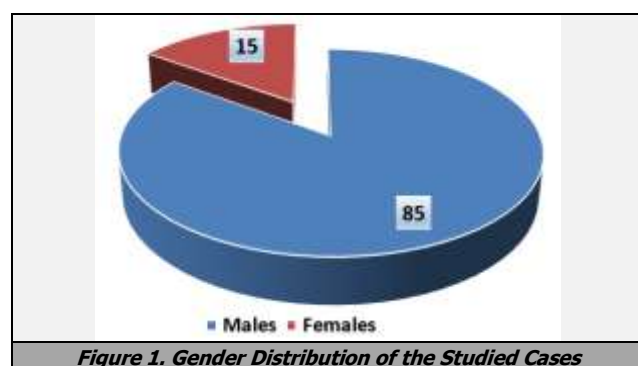


Figure 1. Gender Distribution of the Studied Cases

Amongst The studied cases the most common affected age group was found to be between 51-60 years (36%) followed by 31-40 years (27%) and 41-50 years (27%). The youngest patient was 20 years and the eldest patient was 63 years of age. In the present study the mean age for males was 46.30 +/- 10.62 years. Whereas in females the mean age was 43.66 +/- 12.46 years. The overall mean age was 44.98 years. The mean age of males and females were found to be comparable with no statistically significant difference in the mean age (P=0.3893).

	Male		Female		Total	
	No.	%	No.	%	No	%
<20	0	0.00%	1	1.00%	1	1.00%
21 - 30	6	6.00%	2	2.00%	8	8.00%
31 - 40	24	24.00%	3	3.00%	27	27.00%
41 - 50	23	23.00%	4	4.00%	27	27.00%
51 - 60	31	31.00%	5	5.00%	36	36.00%
61 - 70	1	1.00%	0	0.00%	1	1.00%
	85	85.00%	15	15.00%	100	100%
Mean Age	46.30 +/- 10.62		43.66 +/- 12.46			
P= 0.3893 (not significant); 95% CI = -8.6989 to 3.4189						
Table 1. Gender Wise Distribution of Age Groups						

Table 1. Gender Wise Distribution of Age Groups

The bowel habits of patients were noted, and patients were classified into those having regular bowel habit and having history of constipation and straining at stools. It was observed that 71% of cases had history of constipation and straining at stools. Regular bowel habits were seen in 29% of cases. Most patients i.e., about 82% of the subjects were on mixed diet consuming low fibre mostly non-vegetarian diet. Majority of the cases were manual laborers (77%) while 23 (23%) cases had occupation with sedentary workstyle.

	Type	No. of Cases	Percentage
Bowel Habits	Constipation & Straining	71	71.0 %
	Regular	29	29.0 %
Diet	Mixed Diet	82	82.0 %
	Vegetarian	18	18.0 %
Occupation	Manual Labourer	77	77.0 %
	Sedentary	23	23.0 %

Table 2. Bowel Habits, Diet and Occupation of the Studied Cases

The analysis of presenting complaints of the studied cases showed that out of 100 cases the most common presenting complaint was bleeding which was seen in 67 (67%) cases followed by pain which was seen in 53 (53%) of patients. Irritation (10%), discharge (5%) and prolapse (4%) were less common presenting complaints.

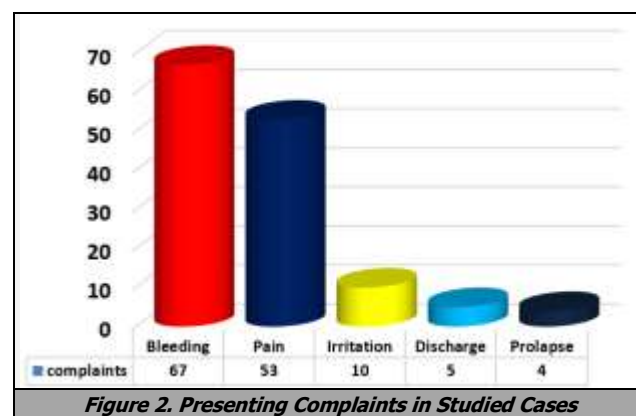


Figure 2. Presenting Complaints in Studied Cases

Following sclerotherapy of 100 cases the following post procedure complications were observed in the respective members. Out of 100 cases 39 patients experienced some or the other form of immediate post-operative complication. Discomfort was most commonly seen which was reported by 20 (20%) patients followed by pain and bleeding which was seen in 12 (12%) and 7 (7%) patients respectively.

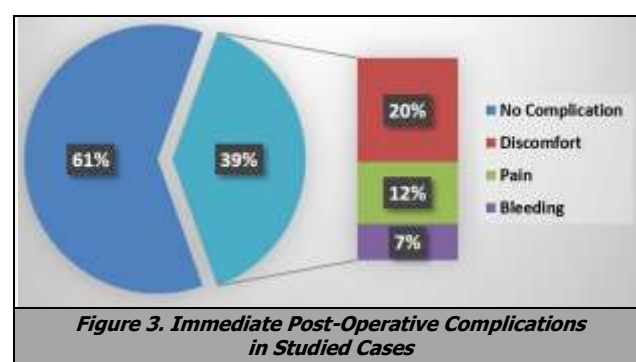


Figure 3. Immediate Post-Operative Complications in Studied Cases

The effect of sclerotherapy on symptoms improvement was assessed using parameters as bleeding, pain, prolapse, irritation, discharge, anal stenosis and anal incontinence. The patients' symptoms were analysed in immediate post-operative period and during follow up. Bleeding being most common complaint was present in 67 (67%) cases at the time of presentation at 1 week follow up only 6 patients had bleeding whereas at 6 months follow up only 3 patients were found to have bleeding (95.5% improvement). At 6 months follow up there was no patient with pain, prolapse, irritation or discharge (100% improvement in these symptoms).

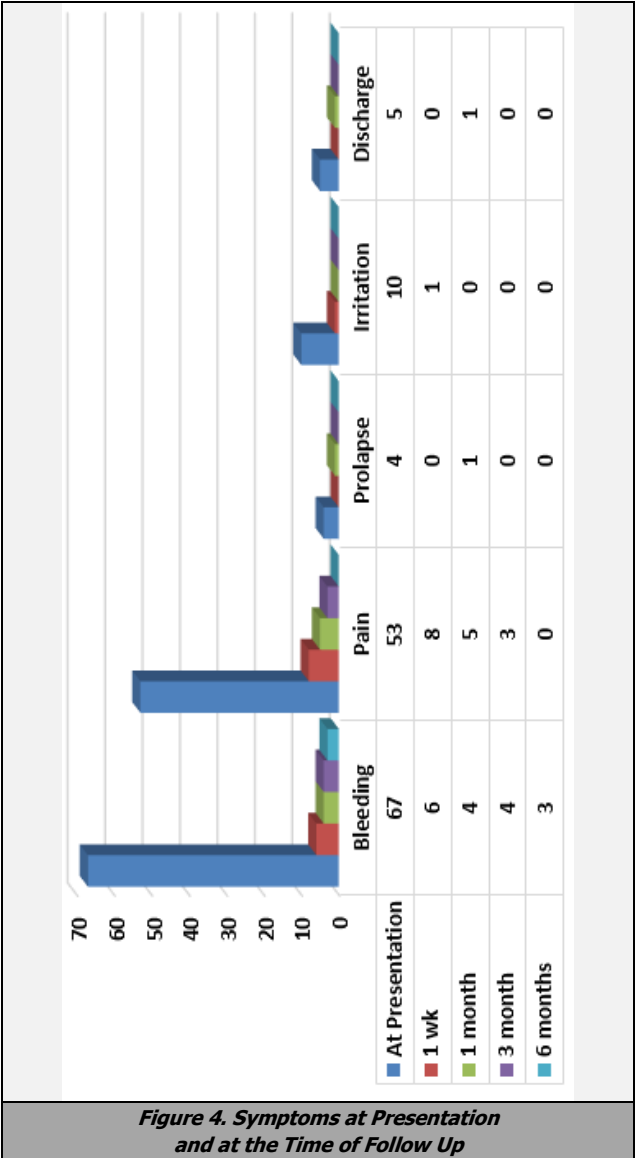


Figure 4. Symptoms at Presentation and at the Time of Follow Up

DISCUSSION

Haemorrhoids are the most common anal disease. Haemorrhoidectomy is often performed as a surgical treatment for internal haemorrhoids but is associated with postoperative pain, longer recovery times, and complications such as bleeding and anal stricture. Therefore, less invasive treatments are desired for the treatment of this disease without resection. Rubber band ligation and injection

sclerotherapy have traditionally been employed as effective treatments and have been the mainstay of nonsurgical treatment since many years.<sup>7</sup>

Sclerotherapy is a non-surgical, medical procedure commonly used for I and II grade haemorrhoids and also in grade III cases which remain unfit for surgery. When injected into a vein sclerosing agent it interacts with the inner surface of the vein, which is lined with so-called endothelium. As a result, starts an inflammatory reaction, fibrosis and sclerosis.<sup>8</sup>

The age distribution of haemorrhoids usually falls in a hyperbolic pattern, with a peak between the age 45 and 65 years and a subsequent decline after the age of 65 years. Most haemorrhoidectomies are performed in patients 45-64 years old. The presence of haemorrhoids in patients younger than 20 years old is unusual. The mean age of patients with haemorrhoids in our study was found to be years 44.98 years. Similar mean age was also reported by Ray-Offor E et al.<sup>9</sup>

The incidence of male patients was more in present study because more number of male patients attending the OPD as compared to female patients. Generally, there is reluctance in female patients with anogenital complaints (including haemorrhoids) in seeking medical advice. Similar male preponderance was reported by Hosch SB et al.<sup>10</sup>

Constipation and straining were seen in 71 patients in present study. The low fibre diet causes increase in bowel transit time and forms hard stools. This causes constipation and straining of stools. Faulty habits like habit of straining even when patient had regular motions, spending hours or reading books while defecation were more prone to develop haemorrhoidal disease.<sup>11</sup>

The idea behind diet modification and stool bulking agents is to have a soft, formed stool which eliminates straining at defecation and thereby prevents prolapse of the anal cushions.

In the present study, 82 patients were on mixed diet that is low in fibre. This finding is similar to studies which showed close relationship of haemorrhoids with western type of diet which is more refined and lower in fibre.<sup>12</sup>

Occupations of the patients were divided as manual labourer and sedentary worker. There was preponderance of haemorrhoidal diseases in manual labourer with 77 patients. This observation is supported by Warshaw LJ and Turell who noted that occupational strain and stress played important role in precipitating haemorrhoids.<sup>13</sup>

The presenting symptoms of 100 cases that underwent sclerotherapy for grade I and grade II haemorrhoids were as follows. The principle presenting symptom in most studies was bleeding per rectum. Bleeding was seen in 67 patients in the present study which is in accordance with the study of Kanellos I et al<sup>14</sup> which showed 80% of bleeding cases. Similar findings have been found in another study by Bhuiya MF et al.<sup>15</sup>

The next predominant symptom was pain which was felt in 53 patients. Complaints of prolapse were seen in 10% patients of present study. Similar results were seen in the study of Takano M et al.<sup>16</sup> In the present study, patients of strictly grade I and grade II haemorrhoids were included.

This is the reason why, patients with complaints of prolapse were less.

In present study, 20 patients were complaining of discomfort. Mild discomfort after sclerotherapy was also mentioned in studies of Khoury et al,<sup>17</sup> Santos et al<sup>18</sup> and Gartell et al.<sup>19</sup> Discomfort was due to sub mucosal injection of polidocanol. Pain was felt in 1.8% patients in Tokunaga Y study and in 12 patients (12%) of present study.<sup>20</sup> Immediate bleeding was seen in 7 patients in present study which was stopped on its own.

At the end of 1 week of follow up after sclerotherapy, bleeding which was the main presenting symptom in 67 patients at presentation decreased to 6 patients. Similarly pain which was felt by 53 patients at presentation decreased to 8 patients at the end of one week.

Irritation and Discharge were seen mostly due to prolapse of lax mucosa. After sclerotherapy, the lax mucosa was fixed to anal musculature due to fibrosis preventing prolapse of mucosa. Hence, at the 1 week follow up, 100% improvement was seen in prolapse and discharge. And this signifies correct technique of sclerotherapy procedure. Irritation persisted for some time due to inherent nature of polidocanol. None of the patients in the present study had any serious complications as acute perianal sepsis, anal stenosis and faecal incontinence.

## CONCLUSIONS

Injection sclerotherapy is an effective treatment modality for the treatment of haemorrhoids in selected cases. It is easy and safe and particularly useful in 1<sup>st</sup> and 2<sup>nd</sup> degree haemorrhoids and in patients in whom surgery may be contraindicated due to comorbidities. It has excellent results in terms of resolution of symptoms such as bleeding, pain, irritation, discharge and prolapse. Moreover, no serious complications were seen in any of the patients who had undergone injection sclerotherapy in this study.

Financial or Other Competing Interests: None.

## REFERENCES

- [1] Nisar PJ, Scholefield JH. Managing haemorrhoids. *BMJ* 2003;327(7419):847-851.
- [2] Sun Z, Migaly J. Review of hemorrhoid disease: presentation and management. *Clin Colon Rectal Surg* 2016;29(1):22-29.
- [3] Lohsiriwat V. Hemorrhoids: from basic pathophysiology to clinical management. *World J Gastroenterol* 2012;18(17):2009-2017.
- [4] Kunitake H, Poylin V. Complications following anorectal surgery. *Clin Colon Rectal Surg* 2016;29(1):14-21.
- [5] MacRae HM, McLeod RS. Comparison of hemorrhoidal treatments: a meta-analysis. *Can J Surg* 1997;40(1):14-17.
- [6] Agbo SP. Surgical management of hemorrhoids. *J Surg Tech Case Rep* 2011;3(2):68-75.
- [7] Rabau MY, Bat L. Treatment of bleeding hemorrhoids by injection sclerotherapy and rubber band ligation. *Isr J Med Sci* 1985;21(7):569-571.
- [8] Albanese G, Kondo KL. Pharmacology of sclerotherapy. *Semin Intervent Radiol* 2010;27(4):391-399.
- [9] Ray-Offor E, Amadi S. Hemorrhoidal disease: predilection sites, pattern of presentation and treatment. *Ann Afr Med* 2019;18(1):12-16.
- [10] Hosch SB, Knoefel WT, Pichlmeier U, et al. Surgical treatment of piles: prospective, randomized study of Parks vs. Milligan-Morgan hemorrhoidectomy. *Dis Colon Rectum* 1998;41(2):159-164.
- [11] Johannsson HO, Graf W, Pählman L. Bowel habits in hemorrhoid patients and normal subjects. *Am J Gastroenterol* 2005;100(2):401-406.
- [12] Peery AF, Sandler RS, Galanko JA, et al. Risk factors for hemorrhoids on screening colonoscopy. *PLoS One* 2015;10(9):e0139100.
- [13] Warshaw LJ, Turell R. Occupational aspects of proctological disease. *New York State Journal of Medicine* 1957;57(18):3006-3010.
- [14] Kanellos I, Goulmaris I, Vakalis I, et al. Long-term evaluation of sclerotherapy for haemorrhoids. A prospective study. *Int J Surg Investig* 2000;2(4):295-298.
- [15] Bhuiya MFA, Rahman S, Ali A. Effectivity of injection sclerotherapy on early haemorrhoids reported to surgical outpatient department. *J Armed Forces Med Coll Bangladesh* 2010;6(2):25-27.
- [16] Takano M, Iwadare J, Ohba H, et al. Sclerosing therapy of internal hemorrhoids with a novel sclerosing agent. Comparison with ligation and excision. *Int J Colorectal Dis* 2006;21(1):44-51.
- [17] Khoury GA, Lake SP, Lewis MC, et al. A randomized trial to compare single with multiple phenol injection treatment for haemorrhoids. *Br J Surg* 1985;72(9):741-742.
- [18] Santos G, Novell JR, Khoury G, et al. Long-term results of large-dose, single-session phenol injection sclerotherapy for hemorrhoids. *Dis Colon Rectum* 1993;36(10):958-961.
- [19] Gartell PC, Sheridan RJ, McGinn FP. Out-patient treatment of haemorrhoids: a randomized clinical trial to compare rubber band ligation with phenol injection. *Br J Surg* 1985;72(6):478-479.
- [20] Tokunaga Y, Sasaki H, Saito T. Evaluation of sclerotherapy with a new sclerosing agent and stapled hemorrhoidopexy for prolapsing internal hemorrhoids: retrospective comparison with hemorrhoidectomy. *Dig Surg* 2010;27(6):469-472.