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Original Research Article

Effectivity of injection sclerotherapy with sodium tetra decyl sulphate in the management of first and second-degree hemorrhoids

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ABSTRACT

Background: Haemorrhoids are one of the common surgical conditions affecting anorectal region with prevalence of 4% of the population. It is usually defined as increase in size as well as downward disruption of normal functional architecture known as anal cushions. Injection sclerotherapy is time honoured outpatient's procedure that is widely practised globally to treat first and second-degree haemorrhoids.
Methods: This prospective study includes 52 patients who were underwent injection sclerotherapy at Bundelkhand Medical College and Associated Hospital Sagar from August 2015 to September 2016. Patients above the age of 18 years of both sexes with Ist and IInd degree hemorrhoids were included in the study. Pregnant patients, patients with diabetes mellitus and with third and fourth degree hemorrhoids were excluded from the study. A detailed history, clinical presentation, digital rectal examination, proctoscopy and routine investigation were done in all cases.
Results: In the present study most of the patients were male. Patients with age group ranging from 20-40 year were found of high incidence of haemorrhoids (86.53%). In present study after three doses of injection 94.23% had satisfactory result. After the first dose injection 71.15% patients had satisfactory results rest 15 patients were given second dose of injection of which 60% patients had satisfactory results. Third dose of injection given to the remaining 06 patients proved satisfactory results in only 03 cases. After three doses of injection 03 cases (5.76%) failed to show any response.
Conclusions: Sclerotherapy as a safe, easy, cheap and effective method of treatment of 1st and 2nd degree haemorrhoid devoid of any significant complication.

Keywords: Complication, Haemorrhoids, Rubber band ligation, Sclerotherapy, Sodium tetra decyl sulphate

INTRODUCTION

Haemorrhoids are one of the common conditions affecting anorectal region. Patients do not always need treatment if the symptoms are minimal.[1,2] The term" haemorrhoids" is derived from the Greek adjective (haima-blood, Rhoos -flowing) means bleeding. The term Pile derived from latin word "Pila" means ball.[3] Prevalence rate of haemorrhoids is the 4% in the world, in about 10 million people. Haemorrhoids are the clinical manifestation of the downward disruption of normal functional architecture known as the anal cushion.[4] Development of the symptomatic haemorrhoids is related to a combination of factor including venous engorgement and weakening of the supportive scaffold of connective tissue that supports these vascular structures and overlying mucosa.[5] Haemorrhoids are the common clinical condition about half of the population has haemorrhoids by the age of 50 years. It is estimated that 58% of people aged over 40 year have diseases. Almost one third of these patients presents to surgeon for

treatment. Haemorrhoids can occur at any age and they affect man and women.

Exact incidence in developing countries is unknown but the disease is being more frequently encountered perhaps due to westernized life style. There are mainly two types of Haemorrhoids external and internal. External haemorrhoids are covered with anoderm and is distal to dentate line they relate to the venous channels of inferior haemorrhoidal plexus deep in the skin surrounding anal verge and cause pain only when thrombosed. Internal Haemorrhoids they are located beneath lining of anus and occurs when Haemorrhoidal tissue of distal rectum and anus prolapse and causes painless bright red bleeding. They are symptomatic and characteristically lie at 3, 7 and 11 O'clock position primarily and secondarily between them.

Internal haemorrhoids can be classified according to the degree of prolapsed. First degree haemorrhoids bleed but do not prolapsed, second degree Haemorrhoids prolapsed on straining but reduce spontaneously, third degree Haemorrhoids prolapsed on straining and require manual reduction while fourth degree haemorrhoids are prolapsed or incarcerated cannot be reduced. There are many etiological factors for haemorrhoids which includes erect posture, constipation, straining during defecation, sedentary work, low fibre diet and heredity. Many physiological changes of anorectal region were evidenced with development of haemorrhoids.[6,7] This is followed by constipation, pain, bleeding, and discharge of mucus and prolapse of haemorrhoidal tissue.[8] Symptoms from haemorrhoids are similar to other diseases and the differential diagnosis showed include anal fissure, rectal prolapsed, abscess and fistula, inflammatory bowel diseases and neoplasia. The clinical history provides clues to the aetiology haemorrhoidal bleeding are common, but it is less common for patients to presents with anaemia.[9,10] Due to wide variety of pathology a thorough examination is required.

An anoscopy should be performed to identify internal Haemorrhoids or fissure. A rigid or flexible sigmoidoscopy may rule out in the presence of recto sigmoid neoplasia, proctitis or irritable bowel syndromes. There are various methods of treating haemorrhoids. Haemorrhoids have been treated by surgeons for centuries. Therapies for topical treatment of haemorrhoids date back to Egyptian papyri of 1700 B.C. Hippocrates in 460 B.C. described the first surgical treatment for haemorrhoids and suggested transfixing them with a needle and tying them with a very thick and large woollen thread.[11] There are many treatment options available depending on the degree of the haemorrhoidal disorder nevertheless the best treatment is prevention by avoiding constipation, intake of high fibre diet and administration of bulk laxatives. Local symptoms can be alleviated by some soothing creams and suppositories, but long-term benefit is not often achieved. A wide array of treatment modalities is available for first and second-degree haemorrhoids like rubber band ligation, injection sclerotherapy, photocoagulation and cryotherapy and may be helpful in 90% of patients.[12] Injection sclerotherapy is time honoured outpatient's procedure that is widely practised globally to treat first and second-degree haemorrhoids. It is started about one and half century ago and was first advocated in US by Blackwood. Moreover, the procedure is simple, safe, cost effective, less time consuming and painless. Patients soon return to the work the complications are minor and cure rate is high.[13-15] Sodium tetra decyl sulphate is an anionic surfactant used as sclerosing agents. It interacts with lipids on the vein wall thereby causing intimal inflammation, destruction of the vein and thrombosis and fibrous tissue inflammation. This eventually leads to occlusion of the injected vein. The aim and objective of this study was to evaluate the outcomes of injection sclerotherapy in the management of first and second-degree haemorrhoids.

METHODS

This prospective study was carried out in unit III department of surgery Bundelkhand medical college and associated hospital, Sagar during the periods between August 2015 to September 2016 for a period of about one year. A total of 52 patients reported to the surgical outpatient department (SOPD) of first and second-degree hemorrhoid according to Golligher's classification and above 18 years of age of both sexes were included in the study. Pregnant patients, Patients with diabetes mellitus, acute severe heart disease, patients with previous anorectal surgeries, third and fourth degree hemorrhoids, inflamed or thrombosed hemorrhoids, hypersensitive to sclerosant and having colorectal carcinoma were excluded from the study.

Detailed clinical history was taken in all cases as per the performa with particular reference to family history, Personal history, including occupation, financial status, previous history of hemorrhoids, bleeding per rectum, painful defecation, discharge per rectum and dietary habits. The history of pain and pruritus in anal region was taken. Detailed general physical examination was carried out for each patient like pulse, blood pressure, pallor, icterus and oedema was specially looked for and entered in the study questionnaire.

Systemic examination was carried out for each patient as per the standard guidelines and recorded in the study questionnaire for the present study. Rectal examination was carried out for each patient. Inspection of the anal and a perianal region was done first to see if there were any external piles, prolapsed internal piles, fissure, fistula in ano and perianal excoriation. The anal sphincter tone was roughly estimated on palpation. Search was awaited for other pathologies like rectal carcinoma, polyp, hypertrophied anal papilla and thrombosed internal piles. Routine investigations were done in all cases which include complete blood count, blood sugar, blood urea, HbsAg and HIV. Each patient was subjected to

proctoscopy and diagnosis was objectively confirmed by anal proctoscopy. Informed written consent was taken from each patient and explained about risk and benefits of the procedure. Adequate bowel preparation was ensuring by syrup lactulose two tea spoon full 8 hourly for 2 days.

Patients placed in left lateral position sodium tetra decyl sulphate was taken in a disposable syringe with 20-gauge spinal needle and a well lubricated proctoscope was inserted gently into the rectum obturator was removed and proctoscope slowly withdrawal till the pedicle of hemorrhoid to be injected become visible. Needle of the syringe was inserted into the sub mucosal plane of the pedicle above the dentate line. Suction with the needle was done to rule out any possibility of intravascular injection after confirmation of proper placement of needle in sub mucosal plane 2ml of the solution was injected into each pile in single setting maximum 3 injections were given per session.

Needle was withdrawal slowly after 10-15 seconds so as to avoid bleeding and leakage of sclerosant slight bleeding after injection was controlled by topical application of adrenalin solution and gauge piece was left in place for a while. All the patients were advised to have tablet Ciprofloxacin 500mg 12 hourly and tablet Paracetamol if indicated and syrup lactulose 2 teaspoon full 8 hourly for next seven days. Patients were re-examined after 7 days of injection, followed up on one month, three months and six months subsequently or earlier as per need.

Second and third dose of sclerotherapy were administrated after 21 days of interval as per need. Failure of this modality was considered if the patients were not relieved after three sessions. Per rectal examination and Proctoscopy was done to evaluate the hemorrhoids. All the significant data of history, examination, management and complication were collected and recorded in a preformed data sheet.

RESULTS

A total of 52 patients who presented with first and second-degree hemorrhoids and underwent injection sclerotherapy were studied. The patients consisted of 39 males (75%) and 13 females (25%). The frequency of first and second-degree hemorrhoids is much greater in male as compared to female. Male to Female ratio was 3:1.

Table 1: Distribution of patients as per sex.

Sex	No. of patients	Percentage
Male	39	75%
Female	13	25%

The ages of the patients ranged from 21 to 58 years. The younger patient in this study was 21 years old and the oldest was 58 years old with first and second-degree hemorrhoids.

Table 2: Age distribution of the patients.

Age (years)	No. of patients	Percentage
20-30	28	53.84
31-40	17	32.69
41-50	05	9.61
>50	02	03.04

Age distribution of patients showed that the highest number of the patients 28 (53.8 %) were in the age group of 20-30 year. In this study 86.53 % of the patients were belonging to lower socioeconomic status and 13.46% of the patients were from higher socioeconomic status. This disparity is due to fact that majority of the patients that attend this hospital from rural area.

Table 3: Distribution of patients according to the nature of job.

Nature of job	No. of patients	%
Sedentary job	29	55.76
Job of prolonged standing heavy work, weight lifting etc.	23	44.23

Majority of the patients 55.76% were doing sedentary job, rest 44.23% were engaged in heavy work or strenuous job.

Table 4: Clinical presentations of the patients.

Clinical presentation	No. of patients	Percentage
Per rectal bleeding	52	100
Pain during defecation	18	34.61
Discharge	14	26.92
Pruritus	12	23.07

It is evident from the above table that most common mode of presentation was per rectal bleeding 52 patients (100%) next common was pain during defecation which was present in 18 patients (34.6%). Discharge was present in 14 patients (26.92%) and pruritus in 12 patients (23.07%). Constipation was the major risk factor which was present in 46 patients (88.46%).

Table 5: Distribution of patients as per duration of bleeding.

Duration of bleeding	No. of patients	Percentage
<1 Year	37	71.15
1-5 Year	09	17.30
>5 Year	06	11.53

Distribution of patients as per duration of bleeding it was found that maximum patients reported to the hospital within one-year history of bleeding i.e. 71.15% (Table 5). Around 17.30% of the patients reported with history of bleeding for 1-5 year. But even today we can find that there are people who still report even after 5 years of bleeding and this proportion was slightly more than 11.53% in the present study.

Table 6: Distribution of patients as per haemoglobin level.

Haemoglobin (gm%)	No. of patients	Percentage
<5	0	0
5-8.9	04	7.69
9-11.9	11	21.15
>12	37	71.15

Majority of the patients in the present study had history of bleeding per rectum but very less of them i.e. 28.8% were found to be anaemic as per World Health Organization criteria. Majority i.e. 71.15% had normal haemoglobin level.

Table 7: Distribution of patients according to type of hemorrhoids.

Type of haemorrhoids	No. of patients	Percentage
First degree	31	59.61
Second degree	21	40.38

It is evident from the above table that most (59.61% n=31) had first degree hemorrhoids followed by second degree hemorrhoids (40.38% n= 21).

Table 8: Injection required for satisfactory result.

No. of injections	No. of patients	Satisfactory	Percentage	Unsatisfactory
First	52	37	71.15	15
Second	15	09	60	06
Third	06	03	50	03

Table 9: Distribution of patients according to response of sclerotherapy.

Types of haemorrhoids	No changes (%)	Reduced Bleeding (%)	Cured (%)	Total Relieved (%)
First degree (n= 31)	0	05(16.12%)	26(83.87%)	31(100%)
Second degree (n= 21)	03(14.28 %)	07 (33.33%)	11(52.38%)	18 (85.71%)
Total (n=52)	03(5.76 %)	12(23.07%)	37(71.15%)	49(94.23%)

After the first dose of injection 37 (71.15%) patients had satisfactory results rest 15 patient were given second dose of injection of which only 09 (60%) patient showed satisfactory results. Third dose of injection given to the remaining 06 patients proved satisfactory only in 3 cases. After 3 doses of injection 3 (5.76%) cases failed to show any response. All 3 patients had Second degree hemorrhoids.

Table 10: Distribution of patients according to complications.

Complications	No. of patients	Percentage
Pain	07	13.46
Bleeding	03	5.76
Retention of urine	01	1.9
Itching	02	3.8
Tenesmus	00	00
Allergic reactions	00	00

Distribution of patient according to response of sclerotherapy revealed that most (92.43%) of the patient got benefit from sclerotherapy, whereas all (100%, n=31) patients with first degree hemorrhoids were relieved.

Distribution of the patient according to complications following sclerotherapy revealed mild complications in a few patients. During the follow up period of 6 months recurrence was only observed in 3 patients (5.76 %).

DISCUSSION

Haemorrhoids are universal and have been documented since ancient times. But their true incidence and aetiology remain indecisive most patients with haemorrhoids remain asymptomatic they only seek advice once they develop symptoms. The symptoms vary from bleeding to prolapse without discharge and itching definitive treatment is required for symptomatic haemorrhoids only. Haemorrhoids are very common in India and patients are reluctant to doctors and avoid being examined by the doctors for their anal and perianal condition especially for female. So, every bleeding per rectum is considered are due to haemorrhoids until proved otherwise. Treatment for haemorrhoids is started with laxatives, lubricants and blood stooping drugs even without examining the anal region. In the present study male preponderance was observed (75%) with male to female ratio of 3:1 this was in accordance with the studies of khan et al.[16] More than half of the men and women aged 50 years and above will

develop haemorrhoids symptoms during their life time.[17] In the present study the age prevalence of haemorrhoids was noted more in the age group of 20 -40 years this was in contrary with studies of Johanson et al and Rhee JC et al.[18,19] The study also revealed that out of 52 patients 29 patients (55.76%) were engaged in sedentary job, 23 patients (44.25%) were engaged in strenuous job it suggests that military nature of job, and food habit which demands strenuous physical activity in extremes of weather with less fluids and fibre rich food intake make the troops more vulnerable to these diseases conditions. The conditions mentioned above cause's increased anal canal resting pressure as well raised intra-abdominal pressure. According to Williams and Bulstrode there is definitive association between raised anal canal resting pressure and haemorrhoids.[20] The most common clinical manifestation of haemorrhoids is rectal bleeding associated with bowel movements.[21] About 100% of the patients in the study had bleeding per rectum these results were consistent with the previous studies.[22] Pain during defecation ranked next. It was seen in 34.61% of the patients. In the present study discharge was noted in 26.92% patients and pruritus in 23.01% patients. But in study conducted by Nikooiyan et al on 120 patients clinical symptoms were observed in their patients as pruritus (45.8%), discharge (41.6%) and the lowest was anal pain (22.5%) respectively.

Constipation was believed to be one of the risk factor to cause haemorrhoids.[8] Many studies failed to correlate the incidence of haemorrhoids with constipation. But constipation and straining during defecation may precipitate the development of symptoms such as bleeding and prolapse in patients with history of haemorrhoidal diseases.[23] In the present study constipation was seen in 86.4% (46 cases). Proctoscope is the main instrument by which the diagnosis is made. Active treatments of haemorrhoids are injection sclerotherapy, elastic band ligation, photocoagulation and operative treatment.[14] Operative treatment is indicated in the case of third and fourth degree haemorrhoids. Injection sclerotherapy is indicated in first degree haemorrhoid which bleed and in second degree haemorrhoid. Authors have studied the role of sclerotherapy in the management of symptomatic first and second-degree haemorrhoids. Sclerotherapy is the gold standard in the first-degree haemorrhoid treatment similar to rubber band ligation, injection sclerotherapy may also be undertaking in the outpatients setting.[24,25] Injection sclerotherapy is preferable to current coagulation for the outpatients of haemorrhoids because it's quicker, less tedious and a more comfortable procedure with equally effective early results. Sclerotherapy for haemorrhoids is a less invasive, less painful procedure that causes the problematic haemorrhoids to shrivel and dissipate within a short period of time.[26] A long spinal needle is used via anoscope. Induration is the indicator of proper depth.[27] The most common sclerosing agent used is 5% phenol in Almond oil which is mainly effective for haemorrhage.[28] Other agents include sodium tetra decyl sulphate, phenol in arachis oil, Polidocalol and 50% dextrose. Sclerosing agent blocks vessels and causes inflammation and fibrosis that fixes haemorrhoids to the surrounding tissues preventing prolapse.[29] Sclerotherapy has the least complication among other haemorrhoids treatments which prevents the progression of diseases.[30] Complications with sclerosants are rare but include local infection, prostatitis, portal pyaemia and erectile dysfunction.[31] Urological complications are due to anteriorly misplaced injections in the substance of prostate / urethra or periprostatic venous plexus.[32] So, it is not recommended to use sclerotherapy in the anterior haemorrhoids. Other complication includes allergic reaction, psychogenic reactions, infection, incontinence, prostatic abscess and very rarely retroperitoneal sepsis, necrotising fasciitis of rectum and life threatening sepsis.[33,34] In present study after three doses of injections 49 patients (94.23%) had satisfactory results 71.15% patients were relieved of bleeding after first dose and of the 60% patients were relieved after the second dose and 20% patients were relieved after the third dose. In a study Bhuiya et al using 5% phenol in olive oil as sclerosant satisfactory results were seen in 60.41% patients after the first dose, 15.78% patients after the second dose and 3.12% after the third dose injection sclerosant.[35] Clark et al reported that injection treatment is generally painless and well tolerated. Major symptoms of bleeding were often dramatically relieved by injection therapy. Greca et al claimed that injection sclerotherapy is a treatment of choice for first and nearly 2nd degree internal haemorrhoids. Alexander et al found satisfactory results in patients with first degree haemorrhoids. Varma JS et al stated that "Early cure rates for bleeding were 84% for sclerotherapy'.

CONCLUSION

To conclude sodium tetra decyl sulphate is an effective and safe sclerosant for the treatment of first and second-degree haemorrhoids.

Injection sclerotherapy is an effective method of treatment of first and second-degree hemorrhoids. This method is easy, safe, well tolerated, convenient and cheap. It can be done at outpatient department. This method is well accepted and comfortable for the patient. Virtually there is no complication, no loss of work and the result is also satisfactory.

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