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A COMPARATIVE STUDY OF DIFFERENT TREATMENT MODALITIES OF HAEMORRHOIDS

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ABSTRACT: BACKGROUND: This study was carried out to evaluate possible differences of pre and post treatment parameters between patients undergoing injection Sclerotherapy, rubber band ligation and hemorrhoidectomy. **METHODS:** The prospective study was carried out in 150 patients of haemorrhoids during August 2010 to November 2012. Each group of 50 patients treated with injection sclerotherapy, band ligation and hemorrhoidectomy and followed up for 1 year for complications. **RESULTS:** In the present study pain, bleeding and urinary retention were common following hemorrhoidectomy. One patient had anal incontinence post sclerotherapy. Anal incontinence was found to be a major problem in post hemorrhoidectomy period. Two patients had anal stenosis after hemorrhoidectomy. Second setting required in 6 patients of sclerotherapy and 4 patients of rubber band ligation. No recurrence noted in hemorrhoidectomy patients. Following sclerotherapy, 35 (70%) patients resolved, 9 (18%) improved and 3 (6%) remained unchanged. Following rubber band ligation, 32 (64%) resolved, 12 (24%) improved and 3 (6%) unchanged, while after hemorrhoidectomy, 37 (74%) resolved and 10 (20%) improved. **DISCUSSION:** Injection sclerotherapy remains the choice in first degree haemorrhoids. Rubber band ligation can be considered as first line of treatment for second degree haemorrhoids and few cases of third degree haemorrhoid. Conservative methods are acceptable to patients in outcome and in patient compliance, but repetitions of treatment may be needed. Haemorrhoidectomy remains the only form of therapy with lasting results. Thus it should be considered for all cases of third and fourth degree haemorrhoids and for uncontrollable symptomatic recurrences following conservative procedures. **KEYWORDS:** Haemorrhoids, injection sclerotherapy, rubber band ligation, hemorrhoidectomy, 3% polidocanol.

INTRODUCTION: Haemorrhoids are one of the most common ailments to afflict mankind. Johanson and Sonnenberg found that 10 million people in the United States complained of haemorrhoids, a prevalence rate of 4.4%. Of them, approximately one-third went to a physician for evaluation.^[1]

We conducted a prospective randomized study to compare the advantages and disadvantages of commonly practiced methods like rubber band ligation, injection Sclerotherapy and ligation and excision. The aim was to compare the acceptability of the above methods and evaluate the compliance of patients, to evaluate each method in regard of 'Ease of therapy', requirement of anesthesia, associated morbidity, duration of hospitalization, symptomatic relief and cost effectiveness, long term experience and symptomatic relief rate associated with different types of methods.

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MATERIAL AND METHODS: The present prospective study was carried out as a comparative study of different treatment modalities of haemorrhoids in 150 patients of symptomatic haemorrhoids during august 2010 to November 2012.

Inclusion Criteria:

1. Age 21 years to 80 years.
2. Haemorrhoid patients with symptoms.

Exclusion Criteria:

1. Patients presenting with anal fissure, fistula, complicated haemorrhoids.
2. Immunocompromised patient, pregnant patients.

METHODS: Ethical clearance from the institutional ethical committee was obtained. Patients were examined on an outpatient basis. The selection of patients was based on the degree of haemorrhoids. First and second degree patients were given Sclerotherapy, first, second and third degree patients treated with rubber band ligation on an outpatient basis.

Third and fourth degree patients planned for hemorrhoidectomy, admitted in the wards and posted on operative day. Post procedure, complications recorded in details and treated accordingly. Patient demographics, duration of symptoms, operative details, hospital stay and cost of treatment were documented. In sclerotherapy, sclerosant used was injection polidocanol 3% costing rupees 100 per ampoule of 2 cc.

Out of 150 patients, 50 were treated with injection sclerotherapy, 50 with rubber band ligation and 50 with haemorrhoidectomy. Out of 30 patients with grade I haemorrhoids, 22(73.33%) patients received sclerotherapy and 8(26.73%) patients had rubber band ligation. Out of 67 patients of grade II haemorrhoids, 28(41.79%) received sclerotherapy, 27(40.29%) had band ligation and 12(17.92%) underwent haemorrhoidectomy.

Out of 46 patients of grade III haemorrhoids, 15(32.61%) underwent band ligation and 31(67.39%) underwent haemorrhoidectomy. All patients, 7 patients of grade IV haemorrhoids underwent haemorrhoidectomy.

Follow up was performed on day 3, 1st week, 2nd week, one month, 3 month, 6 month and 1 year period and data recorded for complications. During follow up visits patients asked for change in symptoms, examined clinically for signs. Patient's assessment recorded as resolved or improved or unchanged or worsened.

OBSERVATIONS: In present study of 150 patients, minimum age is 21 and maximum of 80 years. Mean age of patients with SD was 43.61 (± 14.91). The maximum number of patients belong to the age group of 31 to 40 years (27.33%) (Table-1). The sex ratio (male: female) is 71.67:28.33. 25% cases had family history of haemorrhoids. 64% cases were on a mixed diet, low in fiber. Constipation was seen in 61(40.67%) cases and straining was seen in 92(61.33%) cases. 67(44.67%) patients had haemoglobin less than 10gm%.

The most common presenting complaint was bleeding per rectum in all patients (100%), followed by mass per anus in 101(67.33%) patients. While 36(24%) patients had pain during defecation, 47(31%) patients had anal irritation and 33(22%) had discharge through anus.

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Mild pain was noticed in 2(4%) cases following sclerotherapy and in 6(12%) patients after band ligation. Whereas all (100%) patients following haemorrhoidectomy. Out of them 46 (92%) patients reported mild to moderate pain up to 1 week, 30(60%) patients up to 2 weeks. And mild pain was reported in 2(4%) patients up to 1 month and 3(6%) patients up to 3 months.

After sclerotherapy minor bleeding was present in 16(32%) patients and 14(28%) patients during early and late post-procedure period respectively. Whereas 23(46%) patients and 14(28%) patients had minor haemorrhage in early and late post-procedure period following rubber band ligation. After haemorrhoidectomy, 33(66%) patients and 24(48%) patients had minor to moderate haemorrhage in early and post-procedure period.

In the present study, 22(44%) patients who underwent haemorrhoidectomy had urinary retention in early and 3 patients in late post procedure period. Some patients required catheterization. 5(10%) patients of rubber band ligation experienced urinary retention in early post-procedure period. No patient treated with sclerotherapy had retention of urine. 6 patients who underwent band ligation had mild fever in post-procedure period.

Post haemorrhoidectomy, 9 and 5 patients had fever in early and late post procedure period respectively. In the present study no patient had sepsis. No patient who underwent Sclerotherapy had fever. One patient had anal incontinence at 6th month post Sclerotherapy. No patient had anal incontinence following rubber band ligation.

Anal incontinence found to be a major problem in post haemorrhoidectomy period 5, 5 and 1 patient had anal incontinence at 1st month, 6th month and 1year post operatively. In present study 2 patients had anal stenosis after haemorrhoidectomy. Second setting required in 6 patients of sclerotherapy and 4 patients of rubber band ligation. No recurrence noted in haemorrhoidectomy patients (Table-2, 3, 4).

Injection sclerotherapy and rubber band ligation were day cases, whereas duration of hospital stay is more than 5 days in most of patients from haemorrhoidectomy group. All patients who underwent sclerotherapy cost less than 250 rupees. Out of those who underwent banding, 48 (96%) patients cost less than 250 rupees and 2 patients needed more than 250 to <500 rupees. 36 (72%) of patients who underwent haemorrhoidectomy, cost more than 500 rupees and 3 (6%) cost between 250 to 500 rupees and 11(22%) patients cost less than 250 rupees.

Following sclerotherapy, 35(70%) patients resolved, 9(18%) improved and 3(6%) remained unchanged. Following rubber band ligation, 32(64%) resolved, 12(24%) improved and 3(6%) unchanged, while after haemorrhoidectomy, 37(74%) resolved and 10(20%) improved. No patient in the study had worsened (Table-5).

DISCUSSION: In the present study, presenting complaints are comparable with studies conducted by Murie et al [2], Arabi et al [3], David Marshman et al [4] and David Steinberg et al. [5]

Santos et al [6] found that Sclerotherapy was associated with a reduced incidence of bleeding (P <0.05). Groves et al [7] ligated only one pile at each visit and 77% of the patients required either two or three ligations. After follow-up periods of 4 to 40 months, 66% of the patients considered the results to be excellent and a further 25 were improved. Steinberg et al [5] done a long term assessment of the value of rubber band ligation treatment and found that complete absence of symptoms was obtained in 44% of patients.

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Only 3(2%) patients have had a haemorrhoidectomy. Goligher et al^[8] noted symptomatic recurrence of haemorrhoids in 5% patients and anal stenosis in 4%. 1st ever study on 150 patients in St. Marks hospital by ligature and excision was carried out by Andersen H.G et al^[9] reported in his observations that severe pain was associated with 10% of patients and moderated pain with 57% patients, 10% patients required catheterization for post-operative retention. In no case there had been a recurrence until 18 months.

Murie J A et al^[10] in second or third degree haemorrhoids, found haemorrhoidectomy caused pain in all cases, lasting for more than 48hours in 35 patients. Rubber band ligation was painless in 5 patients and produced pain for more than 48hours in 15 patients. Cheng FC et al^[11] found that, haemorrhoidectomy caused pain in all cases, band ligation was painless in 26 out of 30 patients. Shah et al^[12] revealed significantly higher ($p<0.001$) proportion of patients with pain who underwent band ligation than whom underwent injection Sclerotherapy.

Sim AJ et al^[13] following sclerosant injections, 4 out of 18 patients initially presenting with bleeding per rectum did not have further episodes of bleeding within the three year follow-up period compared with 13 out of 17 patients treated with band ligation. Syed Asad Ali et al^[14], found bleeding as a significant complication of haemorrhoidectomy group (10%) compared to rubber band ligation group (2%).

Shah et al^[12] found that minor bleeding was present in 11 patients in sclerotherapy and 10 patients in Rubber band ligation. Retention of urine is more commonly seen following operation in perianal region especially when carried out in spinal anaesthesia. Syed Asad Ali et al^[14], found that, urinary retention was common complication in haemorrhoidectomy group (12%) as compare to rubber band ligation group (2%) cases.

Lin YH^[15] found that overall urinary retention rate was 32.8% (n=153). Shanmugam et al^[16], found no incidence of faecal incontinence with either procedure but two patients suffered flatus incontinence after haemorrhoidectomy. Anal stenosis is a rare long term complication due to excess loss of anal mucosa with particular procedure and subsequent healing causes different grades of anal stenosis. Cheng FC et al^[11] found haemorrhoidectomy caused pain in all cases, anal stenosis in 2 out of 30 patients. But no patient in band ligation and sclerotherapy had similar complaints. Syed Asad Ali et al^[14] in his study anal stenosis occurred in 6% of haemorrhoidectomy group.

Bouchard et al^[17] found anal stenosis in 23 patients out of 633 patients in the one-year outcome of open haemorrhoidectomy. F. Greca et al^[18] found that, repeated treatment was necessary in 13 patients after phenol injection compared with only 4 following rubber band ligation ($P<0.05$). Walker AJ et al^[19] found recurrence of prolapse more common after infrared coagulation (54%) than rubber band ligation (27%) at 1 year. Syed Asad Ali et al^[14] found recurrence rate higher in rubber band ligation group (18%) as compare to haemorrhoidectomy group (4%).

Sclerotherapy and band ligation are simple outpatient treatments not needing much expertise to perform. They do not need for expensive equipment and can be done with minimal infrastructure without need for major operation theatre and anaesthesia. Procedures consumed very less time about 5-10 minutes and no severe complications were noted which required hospitalization.

Duration of hospital stay measures the burden in busy hospital with low bed and low manpower availability and long waiting lists. In this modern busy life, working time on the part of the patient is of much importance. All conservative procedures which reduce or eliminate the hospital

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stay with minimum time off work following treatment are with significant relief of symptoms and are acceptable to patients and convenient for hospital administration.

James Barron et al ^[20] states that, all outpatient procedures are acceptable to patients both in form of outcome and patient compliance and should be considered as the first line of treatment for smaller degrees of hemorrhoids. As hemorrhoidectomy needs hospitalization, anesthesia for the procedure, it increases the cost of treatment. Also loss of daily wages adds to it.

In the present study, symptoms and proctoscopic examination recorded together with a patient's assessment of the result of therapy at follow up examination. Patients who were completely free of their symptoms were classified as 'resolved'. Patients who said they were much improved and require no further treatment despite occasional intermittent symptoms were classified as 'improved'. Patients with persistent symptoms were classified as 'unchanged' and those who showed additional symptoms following treatment classified as 'worse'.

CONCLUSION: Injection sclerotherapy remains the choice in first degree haemorrhoids. Rubber band ligation should be considered as first line of treatment for second degree haemorrhoids and few selected cases of third degree haemorrhoids. Rubber band ligation is particularly effective in elderly and where general condition or systemic illness of the patient contraindicates hemorrhoidectomy.

Conservative methods like sclerosant therapy or rubber band ligation are acceptable to patients in outcome and in patient compliance, but further repetitions of treatment may be needed. Haemorrhoidectomy remains the only form of therapy with lasting results and should be considered for all cases of third degree haemorrhoids and for uncontrollable symptomatic recurrences following conservative procedures.

Age in year	Sclerotherapy	Rubber band ligation	Haemorrhoidectomy	TOTAL
21 – 30	11 (22%)	13 (26%)	10 (20%)	34 (22.67%)
31 – 40	9 (18%)	20 (40%)	12 (24%)	41 (27.33%)
41 – 50	8 (16%)	5 (10%)	10 (20%)	23 (15.33%)
51 – 60	9 (18%)	7 (14%)	13 (26%)	29 (19.33%)
61 – 70	4 (8%)	4 (8%)	5 (10%)	13 (8.67%)
71 – 80	9 (18%)	1 (2%)	0	10 (6.67%)
TOTAL	50	50	50	150

Table no. 1: showing age distribution of patients in three groups

*P value > 0.05 by chi square test

Early complications	Sclerotherapy	Rubber band ligation	Haemorrhoidectomy
Pain	2 (4%)	6 (12%)	50 (100%)
Discharge through anus	6 (12%)	15 (30%)	18 (36%)
Bleeding	16 (32%)	23 (46%)	33 (66%)
Urinary retention	00	5 (10%)	22 (44%)
Fever	0	6 (12%)	9 (18%)

Table no. 2: Comparison of post procedure complications (early) in study groups

p < 0.05 by fisher exact test.

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Late complications	Sclerotherapy	Rubber band ligation	Haemorrhoidectomy
Pain	0	0	42 (84%)
Discharge	2 (4%)	7 (14%)	17 (34%)
Bleeding	14 (28%)	14 (28%)	24 (48%)
Urinary retention	0	0	3 (6%)
Fever	0	0	5 (10%)
Sepsis	0	0	0

Table no. 3: Comparison of post procedure complications (late) in study groups

$p < 0.05$ by fisher exact test.

Complications	Sclerotherapy						Rubber band ligation						Haemorrhoidectomy					
	1 week	2 week	1 month	3 month	6 month	1 year	1 week	2 week	1 month	3 month	6 month	1 year	1 week	2 week	1 month	3 month	6 month	1 year
Pain	0	0	0	0	0	0	6	0	0	0	0	0	46	30	2	3	0	0
Bleeding	10	11	7	1	1	0	13	4	3	1	0	0	20	8	4	1	0	0
Irritation	2	4	0	0	0	0	13	2	2	0	0	0	14	19	5	2	0	0
Mass	1	1	1	0	0	0	2	5	5	3	3	0	0	0	0	2	0	0
Anal incontinence	0	0	0	1	1	0	0	0	0	0	0	0	3	3	5	9	5	1
Anal stenosis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Lost follow up	0	0	3	2	0	2	0	0	3	0	0	3	0	0	0	0	0	3

Table no. 4: Showing problems encountered at follow up after sclerotherapy

Patient assessment	Sclerotherapy	Rubber band ligation	Haemorrhoidectomy
Resolved	35 (70%)	32 (64%)	37 (74%)
Improved	9 (18%)	12 (24%)	10 (20%)
Unchanged	3 (6%)	3 (6%)	0
Worsened	0	0	0

Table no. 5: Comparison of patient's assessment to treatment modalities

BIBLIOGRAPHY:

1. Johanson JF, Sonnenberg A. Prevalence of hemorrhoids and chronic constipation. An epidemiologic study. *Gastroenterology* 1990; 98: 380-386.
2. Murie JA, Sim AJ, Mackenzie I. Rubber band ligation versus haemorrhoidectomy for prolapsing haemorrhoids: a long term prospective clinical trial. *Br J Surg.*1982 Sep;69(9):536-8.
3. Arabi Y, Gatehouse D, Alexander J. Williams, Keighley MRB. Rubber band ligation or lateral subcutaneous sphincterotomy for treatment of haemorrhoids. *Br J Surg* 1977; 64: 737-740.
4. Marshman D, Huber PJ Jr, Timmerman W, Simonton CT, Odom FC, Kaplan ER. Hemorrhoidal ligation. A review of efficacy. *Dis Colon Rectum.* 1989 May;32(5):369-71.

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5. Steinberg DM, Liegois H, Alexander-Williams J. Long term review of the results of rubber band ligation of haemorrhoids. *Br J Surg.* 1975 Feb;62(2):144-6.
6. Santos G, Novell JR, Khoury G, Winslet MC, Lewis AA. Long-term results of large-dose, single-session phenol injection sclerotherapy for haemorrhoids. *Dis Colon Rectum.* 1993 Oct; 36 (10): 958-61.
7. Anthony R. Groves, John C. W. Evans, J. Alexander Williams M.D., Ch.M., F.R.C.S Management of internal haemorrhoids by rubber-band ligation *British Journal of Surgery* 1971, Dec, Volume 58, Issue 12, pages 923–924.
8. Goligher J C, Bennett R C, Friedman M H W., Late results of haemorrhoidectomy by ligation and excision. *British medical journal*, 1963, July 26: p 216-219.
9. Anderson H. Graeme Anderson, 'The after-results of the operative treatment of haemorrhoids: a study of three hundred cases' *Br Med J.* 1909 October 30; 2(2548): 1276–1279.
10. Murie JA, Mackenzie I, Sim AJ. Comparison of rubber band ligation and haemorrhoidectomy for second- and third-degree haemorrhoids: a prospective clinical trial. *Br J Surg.* 1980 Nov; 67 (11): 786-8.
11. Cheng FC, Shum DW, Ong GB *Aust N Z J Surg.* The treatment of second degree haemorrhoids by injection, rubber band ligation, maximal anal dilatation, and haemorrhoidectomy: a prospective clinical trial. . *Aust N Z J Surg.* 1981 Oct;51(5):458-62.
12. Shah GS, Zai R, Lal K. A comparison of two different treatment modalities for the Management of haemorrhoids, *Medical Channel*, 2011; Vol.17-no.4 :p 71-74.
13. Sim AJ, Murie JA, Mackenzie I. Three year follow up study on the treatment of first and second degree haemorrhoids by sclerosant injection or rubber band ligation. *Journal of Surgery Gynecology and Obstetrics.* 1983 Dec; 157 (6): 534-6.
14. Ali S A, Mohammad A T, Sarwar M, Javeria I, Siddiqui AJ, Dalwani AG, 'Outcome Of The Rubber Band Ligation With Milligan Morgan Haemorrhoidectomy', *Journal of Ayub Med College Abbottabad.* December 2010; 22 (4):56-60.
15. Lin YH, Liu KW, Chen HP. Haemorrhoidectomy: prevalence and risk factors of urine retention among post recipients. *J Clin Nurs.* 2010 Oct; 19 (19-20): 2771-6.
16. Shanmugam V, Thaha MA, Rabindranath KS, Campbell KL, Steele RJ, Loudon MA. Systematic review of randomized trials comparing rubber band ligation with excisional haemorrhoidectomy. *Br J Surg.* 2005 Dec; 92 (12): 1481-7
17. Bouchard D, Abramowitz L, Castinel A, Suduca JM, Staumont G, Soudan D,Devulder F, Pigot F, Varastet M, Ganansia R; Groupe de Recherche En Proctologie de la Société Nationale Française de Colo-Proctologie (GREP); Club de Réflexion des cabinets et Groupe d'Hépatogastroentérologie (CREGG). One-year outcome of haemorrhoidectomy: a prospective multicentre French study. *Colorectal Dis.* 2013 June;15(6):719-26.
18. Greca F, Hares MM, Nevah E, Alexander-Williams J, Keighley MR. A randomized trial to compare rubber band ligation with phenol injection for treatment of haemorrhoids. *Br J Surg.* 1981 Apr; 68 (4): 250-254.
19. Walker AJ, Leicester RJ, Nicholls RJ, Mann CV. A prospective study of infrared coagulation, injection and rubber band ligation in the treatment of haemorrhoids. *Int J Colorectal Dis.* 1990 May; 5 (2): 113-6.
20. Barron J. 'Office ligation of internal haemorrhoids'. *Am J Surg.* 1963 Apr; 105: 563–570.

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