Comparison of injection sclerotherapy versus rubber band ligation for first and second degree haemorrhoids

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ABSTRACT

This randomized controlled trial is done to compare post operative bleeding, secondary hemorrhage, and post operative pain after rubber band ligation versus injection sclerotherapy in patients of first and second degree hemorrhoids, at Department of General Surgery Nishtar Hospital, Multan from 1st January 2017 to 1st December 2017. Among a total of 90 patients, 45 were treated with injection sclerotherapy and other 45 with rubber band ligation. On proctoscopic examination, 30% patients had 1st degree haemorrhoids while 70% patients had 2nd degree haemorrhoids.Postoperative pain was present in 35.6% patients in group A (injection sclerotherapy) and was complained of by 48.9% patients in group B (Rubber Band Ligation). Complained of per-rectal bleeding in the first 24 hours after sclerotherapy procedure was noted in 22.2% patients in group A, while in group B, it was noted as 53.3%.

Conclusion: Injection sclerotherapy is effective mode of treatment with fewer complications for the treatment of 1st and 2nd degree haemorrhoids as compare to rubber band ligation.

Keywords: Haemorrhoids, Sclerotherapy, Rubber band ligation, Complications, Pain, Bleeding.

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INTRODUCTION

The term hemorrhoids depict the pain caused by venous swelling at or inside the anal sphincter[1]. The veins distend as a result of damage to the surrounding tissue in the perivascular cushions present in the anal canal. And it leads to excoriation and bleeding from those cushions. This is usually referred to as hemorrhoids[2,3]. Hemorrhoids are classified into four grades on the basis of degree of prolapse. There are various surgical procedures performed in order to treat hemorrhoids[4]. They are rubber band ligation, clot removal, cryotherapy, infrared and bipolar electrocoagulation probe, injection sclerotherapy, and conventional haemorrhoidectomy[5].

A hardening or sclerosing agent is administered via submucosal injection into the base of hemorrhoids, in the process of sclerotherapy[6]. An inflammatory reaction is induced following the injection, which shrinks the mass and brings about adherence of mucosa and the muscles underlying it. With this technique, there is 77% recovery with no complaints of recovery[7]. In the process of band ligation, there is occlusion of vessels providing nutrition to the hemorrhoids, which results in the sloughing off and ulceration, followed by healing after weeks. For the treatment of first and second-degree hemorrhoids, band ligation (86% successful) and injection sclerotherapy (77% successful) are considered as efficacious procedures[8]. The basic approach for first to third-degree hemorrhoids, the methods of rubber band ligation is suggested. Despite, the fact that conventional hemorrhoidectomy proves to have better response. It is affiliated with higher rates of complications and pain as compared to band ligation[9]. Thus, this method should only be used in patients nonresponsive to band ligation[10].

This study is performed to determine which technique out of sclerotherapy or rubber band ligation is more yielding in treating first and second-degree hemorrhoids. We has conducted this study to compare post operative bleeding, delayed bleeding, and post operative pain after rubber band ligation and injection sclerotherapy in patients of first and second degree hemorrhoids.

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METHODOLOGY

This randomized control trial was took place at the Department of General Surgery Nishtar Hospital, Multan for the period of one year from 1st January 2017 to 31st December 2017. Total number of 90 cases were enrolled. Out of these 45 patients participated in the study of injection sclerotherapy and 45 were enrolled in band ligation class by lottery method. The inclusion criteria were patients suffering from first and second-degree hemorrhoids (regardless of their age) while the exclusion criteria comprised of patients previously treated for first and second-degree hemorrhoids, patients having third or fourth-degree hemorrhoids, patients reluctant to participate, patients already having analgesics for another disease eg arthritis. An approval from the ethics committee was taken and patients were asked to give informed consent.

A pre-test performa was made for keeping the record of patient's profile having his name, gender, and age. The performa also held the detailed description of patient's history and general physical examination. DRE was performed and recorded along with protoscopic findings and diagnosis of first and second-degree hemorrhoids. All necessary investigation were also done. There were two major divisions of the patients, Group A comprised of the patients undergoing injection sclerotherapy while Group B included patients having band ligation. The place of procedures was the outdoor clinic. "3 ml of mixed solution of Ethanolamine+almond oil" was injected in spaces around the vessels of hemorrhoids in the process of injection sclerotherapy. While in band ligation, for every hemorrhoids, a rubber band was ligated in its base. There was no use of painkiller or anesthesia during the trial. After keeping the patients for one hour in OPD, they were asked to fill out a performa regarding scoring for pain after an hour. On follow up patients were asked about post operative bleeding episodes and pain. All founding were recorded in separate proforma by registrar or attendant surgery.

Data Analysis: SPSS-24 was used. Standard and mean deviation were measured for age. Frequency and rates of occurrence of bleeding, delayed bleeding, or postoperative pain were calculated for the band ligation or injection sclerotherapy. For the comparison of these frequencies, Chi-square test was applied. A P value of less than 0.05 was considered statistically significant.

RESULTS

A total number of 90 patients were enrolled in this study, both genders. The study patients were further divided into two equal groups i.e. group A and B respectively. The mean age of group A patients was 38.68±5.87 years. There were 64.4% (n=29) males and 35.6% (n=16) were females. While, the mean age of group B patients was 36.91±6.25 years. There were 57.8% (n=26) males and 42.2% (n=19) were females. The differences were statistically insignificant.

Among all the participants, 32.2% (n=29) had complaints of per rectal bleeding without mention of prolapsed while 67.8% (n=61) has bleeding accompanied by complaints of something coming out of the anus. On proctoscopic examination, 30% (n=27) patients had 1st degree haemorrhoids while 70% (n=63) patients had 2nd degree haemorrhoids. The differences were statistically insignificant.

Postoperative pain was present in 35.6% (n=16) patients in group A (injection sclerotherapy) and was complained of by 48.9% (n=22) patients in group B (Rubber Band Ligation). The frequency of complaints on Wong-Baker pain rating score is revealed in (Table-I). The differences were statistically significant.

Table-I: Frequency of Post operative pain in both groups (N=90)

Characteristics	Group A (n=45)	Group B (n=45)
Grading of post-operative pain according to the Wong Baker scale		
No Pain	32 (71.2%)	51.1% (n=23)
Pain present but does not limit activities	7 (15.6%)	15.6% (n=7)
Mild pain, annoying	1 (2.2%)	9 (20%)
Can do most of the activities, rest pain	2 (4.4%)	3 (6.7%)
Nagging pain, uncomfortable, troublesome	1 (2.2%)	2 (4.4%)
Intense, dreadful, horrible pain	2 (4.4%)	1 (2.2%)
Post-Operative Pain		
Yes	16 (35.6%)	22 (48.9%)
No	29 (64.4%)	23 (51.1%)

Complained of per-rectal bleeding in the first 24 hours after sclerotherapy procedure was noted in 22.2% (n=10) patients in group A, while in group B, it was noted as 53.3% (n=24). The difference was a statistically significant between the frequencies of postoperative bleeding among the two groups, (p=0.002). (Table-II). Delayed bleeding, occurring from 24 hours post-procedure to 7 days post-procedure, was present in 8.9% (n=4) patient, in group A, and 31.1% (n=14) patients in group B. The difference was statistically significant in frequency of delayed bleeding among the two groups, (p=0.008).

Table-II: Comparison of bleeding in both groups (N=90)

Procedure	Group A (n=45)	Group B (n=45)
	Bleeding	No Bleeding
Sclerotherapy	10 (22.2%)	35 (77.8%)
Band Ligation	24 (53.3%)	21 (46.7%)

DISCUSSION

There are a variety of treatments offered for the hemorrhoids. With each treatment having its own complications and risks[11]. These choices of treatment include Injection Sclerotherapy (IS) which is being used alone for first-degree hemorrhoids (76%). Many of the complications have been reported so far for this

technique, 82% of which are urological. Whereas for second-degree hemorrhoids, the method of Rubber Band Ligation (RBL) is being used widely either alone or in combination with injection sclerotherapy.

In a study done by Nasir et al[12] it was observed that band ligation for the treatment of hemorrhoids is not only an easy and non invasive procedure but it also is cost effective on the part of patients, it offers minimal postoperative infections as a result of having "controlled area of necrosis". Whereas, sclerotherapy is an invasive procedure. So it is recommended that RBL should be conducted as a treatment of choice for hemorrhoids in outpatient. The study concluded that RBL is more efficacious and propitious with regards to outcome in patients with hemorrhoids than sclerotherapy.

Another study by MacRae et al[13] demonstrates the incidence of complications of various procedures. In a comparison of RBL and hemorrhoidectomy, the technique of hemoridectmoy had better outcomes than RBL. But it came with more complications and more pain as compared to RBL. Similarly, when sclerotherapy was compared with RBL, it had better responses for all the grades of hemorrhoids.

Kumar et al[14], in their study, observed the immediate and late complications as a result of RBL. They reported that 67.3% patients presented with immediate complications, which included pain, vasovagal attacks, and bleeding. Although the cure rate of RBL is 74% but it is related to a variety of complications hence care must be taken while performing the procedure. Patients must be counseled about the complications and the aspect of pain due to the method.

Another study done by Albuquerque et al[15] focuses on the complication by RBL. Minor complications include "Mild bleeding, pain, vaso-vagal symptoms, slippage of bands, priapism, difficulty in urination, anal fissure, and chronic longitudinal ulcers" whereas major complications are "Massive bleeding, thrombosed hemorrhoids, severe pain, urinary retention needing catheterization, pelvic sepsis and death" although uncommon they are still to look upon

Gartell et al[16] concluded that although both of these therapies are effective regarding the outcome, they carried a study to evaluate the relative success of both these procedures. They found out that RBL is "superior" to injection sclerotherapy in treating outpatient hemorrhoids. It is recommended that RBL must be considered as a treatment of choice in the cases of first and second-degree hemorrhoids.

Hemorrhoids account for 4% of major complaint of the adult population[17]. Various treatment strategies have been adopted for its treatment including RBL and sclerotherapy. New modalities such as excisional surgery and stapled hemorrhoidopexy have also been introduced and accepted on a large scale. While using IS and RBL, it is advised to use a video scope in retroflexed position to achieve better control with regards to the area of treatment application as well as proves to be a better visual aid.

Kanellos et al[18] has been carried out a study to determine their additive effects that are the combination of both. It was observed that their combination has greater and significant effectiveness than sclerotherapy alone. The combination therapy showed that "more patients were symptom-free" as compared to just IS. Whereas in comparison to group RBL there was not much difference. Similarly, Simon et al[19] also conducted a study for the same purpose. When they assessed the short and long-term results of combined therapy for hemorrhoids they also observed similar results.

In a study conducted by Awan et al[20], it was seen that lesser cases of PR bleed and pain are reported as a result of injection sclerotherapy for first and second-degree hemorrhoids. 50% of patients complained of pain belonging to RBL while in IS group, only 30% of the patients complained of pain.

CONCLUSION

Injection sclerotherapy is effective mode of treatment with less complications for the treatment of 1st and 2nd degree haemorrhoids as compare to rubber band ligation.

CONTRIBUTION OF AUTHORS

Parveen K: Conceived idea, Designed research methodology, Data analysis, Manuscript writing
Ahmed S: Manuscript writing, Data compilation, Data analysis
Mehboob A: Final critical review of manuscript
Nazar MB: Data collection and compilation, Literature review

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