Original Article

Suction versus Forceps Band Ligation –A comparative Analysis

Mirza Arshad Beg, Sheeraz ur Rahman, Faisal Siddiqi, Salman Faridi and Ibrahim Idrees

ABSTRACT

Objective: The objective of this study was to compare mean intra and post procedure pain score of suction band ligation with forceps ligation in the treatment of 2nd degree hemorrhoids, at a tertiary care hospital in Karachi.
Study Design: Randomized Controlled Trial study.
Place and Duration of Study: This study was conducted at the Department of General Surgery at Liaquat National Hospital, Karachi from January 2014 to June 2014.
Materials and Methods: Sixty patients of either gender having 2nd degree hemorrhoids for more than two months and undergoing band ligation were included in this study. Patients with 1st, 3rd or 4th degree hemorrhoids, presence of concurrent painful anal conditions (anal fissure, anal fistula, perianal sinus, abscess, thrombosed hemorrhoids) and having inability to comprehend and respond to Visual Analog Scale were excluded. The procedure was performed by a consultant surgeon having experience more than five years. Patients were approached immediately after the procedure and responses of patients about intra procedural pain were recorded on proforma according to Visual Analog Score. Post procedural pain was assessed at 2 hours after the procedure by VAS and recorded.
Results: Age range in study was from 20 to 40 years with mean age of patients was 41.83 ± 14.07 years. The mean Intra-procedure pain was observed to be 2.27 ± 2.31. Group A (suction banding) reported a mean intra-procedure pain score of 1.13 ± 1.24 as compared to Group B (forceps banding) reporting a mean score of 3.62 ± 2.63. The mean Post-procedure pain was observed to be 0.42 ± 0.78. Participants in the Suction banding group (Group A) reported a mean post-procedure pain score of 0.20 ± 0.56 whereas; Group B participants undergoing forceps banding reported a mean VAS score of 0.76 ± 0.97, post procedure. Comparatively, the mean post-procedure pain scores were found to be highly significant. (P-value: 0.008).
Conclusion: The study has shown that treatment outcome in terms of intra-procedure and post-procedure pain is different in suction band ligation as compared to forceps band ligation in treatment for second degree haemorrhoids. There appears to be a highly significant difference in terms of intra-procedure and post-procedure pain between Suction band ligation and forceps band ligation in second degree hemorrhoids treatment.
Key Words: Hemorrhoids, Band ligation, Pain.

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INTRODUCTION

Bleeding from hemorrhoids remain the commonest reason for patient attending to the surgical clinics. It has been postulated that 5% of the population at one point in time will have symptomatic hemorrhoids[1]. Bleeding from the hemorrhoids is caused by the excessive straining raising intra-abdominal pressure and increase in venous congestion & passage of hard stools. One would receive treatment of hemorrhoids based on the degree and amount of symptoms they are producing. As a convention, 1st degree hemorrhoids are being managed conservatively with the dietary modifications, whereas 2nd and 3rd degree requires banding[2].

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Rubber Band ligation can be safely performed as an outpatient / day care procedure. Conventionally for band ligation, Baron's Ligator which bears resemblance to the McGivney apparatus. This forcep instrument is limited by its inability to grasp the full pedicle of the hemorrhoid, increasing increased risk of the slippage, bleeding and repeat procedure. Recently they are now being replaced by the vacuum suction based apparatus, which have taken care of the above mentioned limitations. This can be used a single operator with ease and ensures better gripping[3]. Post procedural pain is one of the most agonizing pains patients experience if the bands are either inadequately placed or placed too close to the dentate line. This will continue the cause pain till the bands have taken its course of shedding which may take up to 2 weeks post procedure[3].

Recent studies have shown superiority of this device over the conventional forceps based devices in terms of pain, bleeding and complication. Study conducted by Senapati PSP et al. have demonstrated statistically significant reduction in immediate and delayed post procedural pain with the use of Suction band ligation[4].

The available data on the matter is scarce and limited by the randomized trials. Also the previous studies are limited by the appropriate sample size to ascertain the meaningful inference. Hence the purpose of the study is to evaluate the short-term effectiveness of suction band ligations as compared to forceps band ligators in reducing pain.

MATERIALS AND METHODS

This randomized controlled trial was conducted in Department of General Surgery at Liaquat National Hospital, Karachi from January 2014 to June 2014.

Inclusion Criteria: Sixty patients of either gender having 2nd degree hemorrhoids for more than two months and undergoing band ligation were included in this study.

Exclusion Criteria: Patients with 1st, 3rd or 4th degree hemorrhoids, presence of concurrent painful anal conditions (anal fissure, anal fistula, perianal sinus, abscess, thrombosed hemorrhoids) and having inability to comprehend and respond to Visual Analog Scale were excluded.

Sample size was calculated with WHO software for sample size determination. Taking P1= 4.0±2.09 and P2=1.92±1.93, with power of 80 and Confidence Interval of 95%. Ethical approval was obtained from the Ethical Review Committee of the Liaquat National Hospital before commencement of the study. Consent form were signed by the study participants, after explanation of the study purpose.

Patients were equally and randomly divided into two groups i.e. Group-A: Suction ligation and Group-B Forceps ligation by lottery method. Patient demographics and clinical history was taken before the procedure.

The procedure was performed by a consultant surgeon having experience more than five years. Patients were approached immediately after the procedure and responses of patients about intra procedural pain were recorded on proforma according to Visual Analog Score. Post procedural pain was assessed at 2 hours after the procedure by VAS and recorded on proforma.

Questionnaire was developed on the basis of published literature[4] and the visual analogue scale was used to assess pain. Questionnaire composed of patient's demographic details (age, gender, hospital case number, date of procedure), method of band ligation used, visual analog scale to assess pain as perceived by the patient during and after procedure. The final outcome analysis were done post procedure, taking into account both immediate and post procedure (2hrs) pain visual analog scores.

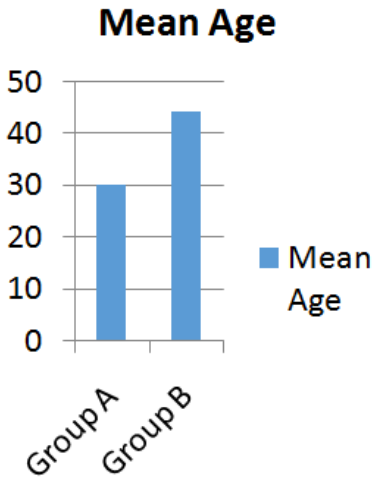
Data was entered into SPSS 19 for data compilation and statistical analysis. Analysis included descriptive measures including frequencies, percentages, mean and standard deviation. Mean ± SD were calculated for the quantitative variables i.e. age and VAS pain score (intra-procedure & post-procedure pain).

Frequency and percentages were calculated for qualitative variables i.e. gender, occupation and t-test applied to compare the mean intra-operative and post-operative VAS scores between the two groups.

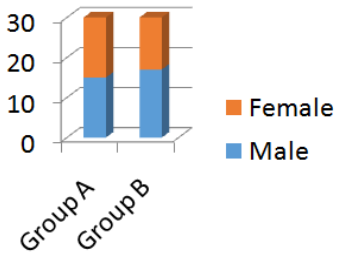
Stratification was performed on gender, age, and occupation to see effect of these modifiers on outcome using independent sample t test. P-value ≤ 0.05 was considered as significant.

RESULTS

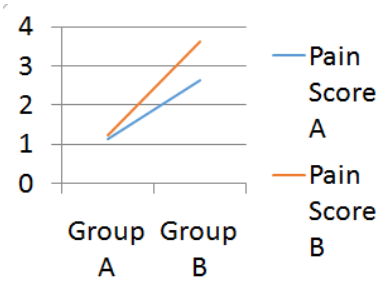
Age range in study was from 20 to 40 years with mean age of patients was 41.83 ± 14.07 years. In Group A (Suction banding), the mean age was observed to be 29.83 ± 8.8 and in Group B (Forceps banding), the mean age was 44.1±21.9 as shown in Graph-I.



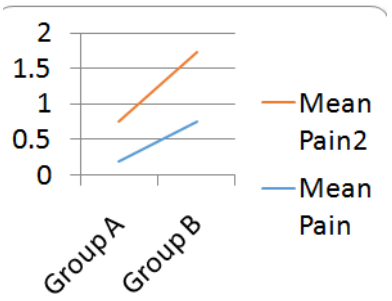
Graph No.1: Mean age of the patients in both groups



Graph No.2: Patients Gender in both groups



Graph No.3: Intra-procedure pain scores in both groups



Graph No.4: Mean Post-procedure pain in both groups

There were 32 males (53%) and 28 (47%) females who participated in this study. Group A consisted of 15 (25%) males and 15 (25%) females, whereas, Group B comprised of 17 males (28%) and 13 females (22%) as shown in Graph-2.

Patients were divided between four categories of occupation, including housewife, laborer, professional and retired groups. There were a total of 24 Housewives (40%), 10 Laborers (17%), 20 Professionals (33%) and 6 Retired (10%) personnel participating in the study.

The mean duration of Symptoms was observed to be 4.37 ± 4.81 months. In Group A mean duration of symptoms was 4.75 ± 5.187 months as compared to Group B, the mean duration of symptoms was 3.93 ± 4.413. Comparatively, the duration of symptoms were found to be statistically insignificant (p-value: 0.511).

Out of 60 patients, the mean Intra-procedure pain according to the Visual Analog Score was observed to be 2.27 ± 2.31. Group A (suction banding) reported a mean intra-procedure pain score of 1.13 ± 1.24 as compared to Group B (forceps banding) reporting a mean score of 3.62 ± 2.63. The intra-procedure pain scores were found to be highly significant between the two groups. (P-value: 0.001) as shown in Graph-3.

Out of 60 patients, the mean Post-procedure pain according to the Visual Analog Score was observed to be 0.42 ± 0.78. Participants in the Suction banding group (Group A) reported a mean post-procedure pain score of 0.20 ± 0.56 whereas; Group B participants undergoing forceps banding reported a mean VAS score of 0.76 ± 0.97, post procedure. Comparatively, the mean post-procedure pain scores were found to be highly significant. (P-value: 0.008) as shown in Graph-4.

DISCUSSION

Internal hemorrhoid is a common disease in surgical practice. Treatment varies from medical to surgical, depending on its severity. Usually, dietary control and medications such as bulk forming agents or micronized purified flavonoids are recommended for first and second degree internal hemorrhoid. However, with persistent bleeding, discomfort or the presence of significant prolapse, other types of treatment are indicated.[5,6]

These include rubber band ligation, injection sclerotherapy, infrared coagulation, bicap coagulation, or cryotherapy. However, the most effective and most popular treatment is rubber band ligation.[7,8] Blaisdel was the first to describe the rubber band ligation technique in 1958[9] but it was Barron who improved the technique and demonstrated its effectiveness in 1963.[10] It is now used worldwide because of its simplicity and safety. The need to treat haemorrhoids is based primarily on the severity of symptoms but the type of treatment is based on traditional classification of haemorrhoids, which may have little to do with symptoms severity.[5,10]

Multiple retrospective series[11,12] involving 100-6600 patients undergoing RBL have also shown efficacy of rubber band ligation. However, the retrospective studies included all grades of hemorrhoid patients and based their results on their available data. In our study, we have only included second degree hemorrhoid patients and excluded patients presenting with other grades of hemorrhoids. Furthermore, prospective randomized controlled trials have also included grades 2 and 3 hemorrhoid patients and compared them to serial banding, hemorrhoidectomy and lateral sphincterotomy.[13-15] Our study, has only compared suction band ligation with forceps band ligation in second degree hemorrhoid patients in a single session.

In our study, a total of 60 patients were included. The overall the mean age of patients was 41.83 ± 14.07 years. In Group A (Suction banding), the mean age was observed to be 29.83 ± 8.8 years and in Group B (Forceps banding), the mean age was 44.1±21.9 years. This is comparable to studies conducted by Ali[8] (Peshawar) and Komborozos[1] (Greece) who reported a mean age of 45.6 ± 3.6 and 45 ± 2.8 years respectively.

There were a total of 32 males (53%) and 28 (47%) females who participated in this study. Group A consisted of 15 (25%) males and 15 (25%) females, whereas, Group B comprised of 17 males (28%) and 13 females (22%**Error! Reference source not found.**).

It is comparable to another randomized control trial conducted by Hadi[9] which included 50 patients in both groups. They reported Fifty five (55%) male patients 45 (45%) females patients. Furthermore, studies conducted by Ali[8], Hadi[9] and Nakeeb[10] analyzed that hemorrhoids were more common in males than females. Similarly, we have noted in our study that there was a male predominance in the included patients presenting with second degree hemorrhoids.

In our study, the mean duration of Symptoms was observed to be 4.37 ± 4.81 months. In Group A, the mean duration of symptoms was 4.75 ± 5.187 months as compared to Group B, the mean duration of symptoms was 3.93 ± 4.413. Comparatively, the duration of symptoms were found to be statistically insignificant (p-value: 0.511).

This is comparable to present literature[1,2,5,10] which states that patients with hemorrhoids (second degree) usually present to the out-patient department/doctor once they develop complications including, prolapse, pain, tenesmus, itching and bleeding per rectum. The time taken for complications to develop is variable from 4 weeks to 12 weeks (1-3 months).

In our study, we compared the intra-procedure and immediate post-procedure pain in both groups whereas a similar randomized controlled study comparing suction and forceps band ligation conducted by Ramzisham[16] AR compared pain in both groups at 24 hours, 7 days and at 14 days. Pain was evaluated using visual analog score in both studies.

The mean Intra-procedure pain according to the Visual Analog Score was observed to be 2.27 ± 2.31. Group A (suction banding) reported a mean intra-procedure pain score of 1.13 ± 1.24 as compared to Group B (forceps banding) reporting a mean score of 3.62 ± 2.63. In comparison, the intra-procedure pain scores were found to be highly significant between the two groups with P-value: 0.001.

Furthermore, the mean Post-procedure pain according to the Visual Analog Score was observed to be 0.42 ± 0.78. Participants in the Suction banding group (Group A) reported a mean post-procedure pain score of 0.20 ± 0.56 whereas; Group B participants undergoing forceps banding reported a mean VAS score of 0.76 ± 0.97, post procedure. Comparatively, the mean post-procedure pain scores were found to be highly significant with P-value: 0.008).

Our results are consistent with the results of Ramzisham's[16] study; which reported a mean post-procedure pain score of 6.08 and 3.08 (p-value:<0.001). The forceps band ligation group reported a worse pain perception as compared to the suction banding group with mean post-procedure pain score of 4.0 and 1.92 respectively, at 24 hours post band ligation. Similarly, studies conducted by Mattana et al,[13] Islam M[14] and Sheikh AR[15] reported post procedure pain frequency of approximately 8% with band ligation.

CONCLUSION

The study has shown that treatment outcome in terms of intra-procedure and post-procedure pain is different in suction band ligation as compared to forceps band ligation in treatment for second degree haemorrhoids. There appears to be a highly significant difference in terms of intra-procedure and post-procedure pain between Suction band ligation and forceps band ligation in second degree hemorrhoids treatment.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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