**ORIGINAL ARTICLE**

# Outcome of Open haemorrhoidectomy versus Haemorrhoidal Artery Ligation in the treatment of Hemorrhoids Grade 3 and 4

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## ABSTRACT

**Objective:** To determine the comparative outcome of Open haemorrhoidectomy (OA) versus Haemorrhoidal Artery Ligation (HALs) with recto-anal repair (RAR) in the treatment of Hemorrhoids Grade 3rd and 4th at tertiary care Hospital.

**Material and methods:** This comparative study was conducted at Isra university Hospital Hyderabad, from Jan 2017 and December 2017. All the patients presented with hemorrhoids grad III and IV and either of gender were included. Patients were divided in two groups. Patients of (HALs group) underwent HA +/- RAR and the patients of (OA group) underwent open haemorrhoidectomy. Outcome was evaluated in terms of post-operative complications including post-operative pain and hospital stay. All the data was collected via study proforma. Data was analyzed by using SPSS version 20

**Results:** Mean age of the patients HALs group was 34.56+4.22 years and OA group was 37.11+6.41. Males were in majority in both groups as 20(80.0%) in HALs and 16(64.0%) in OA group. Average postoperative pain (VAS) and post-operative Hospital stay were significantly lower in HALs group as compared to OA group (p=0.001), while average of operative time was significantly lower in OA group (p-0.001). Postoperative complications like urinary retention, bleeding and painful defecation were significantly higher in OA group as compared to Hals group (p=0.001).

**Conclusion:** Haemorrhoidal Artery Ligation (HALs) with RAR found to be feasible and effective in terms of less post-operative pain, less complications and less hospital stay in contrast to Open haemorrhoidectomy (OA) in the treatment of 3rd and 4th degree Hemorrhoids.

**Key words:** Hemorrhoids, HALs, OA, Pain, Hospital stay

## INTRODUCTION

Haemorrhoidal disease result from expansion of the plexus of the hemorrhoids and the pathological alteration in the cushions of the anus, an anal canal normal component.[1] Intended causative factors are constipation, pregnancy, ageing, prolonged staining, obesity, internal anal instability, hereditary factors, blood vessel weakness and the absence of the valves in portal vein.[2] Human erect posture is also one of the suggested predisposing factors.[2] Although in many studies, the exact pathologies still remains unclear of haemorrhoids.[2,3] Around 4% of the population is affected by the hemorrhoids and out of then 50% cases over fifty years old suffer from the symptoms at certain points in their life.[4] Internal hemorrhoids are categorized according to its presence and the severity of prolapse as; grade I (hemorrhoids without prolapsing), grade II: (don straining prolapsing hemorrhoids but spontaneously shrink), grade III; ( manually reductive prolapsing hemorrhoids) and grade IV: ( un-reducible prolapsing haemorrhoids that comprises the acutely thrombosed, incarcerated hemorrhoids.[5,6] Treatment strategies depends on the severity and nature of the haemorrhoids, preferences of the patients and surgeon expertise.[5] Throughout the previous 2 decades the treatment concept has been progressed, in attemed to decreases the post-operative pain and complications of haemorrhoids.[7] Several studies showed different surgical outcomes of surgical techniques as some reported that the Haemorrhoidal Artery Ligation with RAR is the safe and the significantly painless surgical option with best results in the management of symptoms of haemorrhoids.[8] On other hand it is observed that the Haemorrhoidal Artery Ligation "HAL" is the more painful.[1] However this study was conducted to assess the comparative outcome of Open haemorrhoidectomy (OA) versus Haemorrhoidal Artery Ligation (HALs) with recto-anal repair (RAR) in the treatment of Hemorrhoids Grade 3rd and 4th at tertiary care Hospital.

## MATERIAL AND METHODS

This comparative study was conducted at Isra university Hospital Hyderabad, from Jan 2017 and December 2017. All the patients presented with hemorrhoids grad III and IV and either of gender were included. All the patients having hemorrhoids grade I and II, inflammatory bowel disease, rectal malignancy and those who were not willing to participate in the study were excluded. Complete clinical examination and required laboratory investigation were done. After taking informed consent patients were divided in two groups. Patients of (HALs group) underwent HA +/- RAR and the patients of (OA group) underwent open haemorrhoidectomy. Outcome was evaluated in terms of post-operative complications including post-operative pain and hospital stay. Pain was measured by using the VAS. All the data was collected via study proforma. Data was analyzed by using SPSS version 20.

## RESULTS

In this study mean age of the patients HALs group was 34.56+4.22 years and mean age of OA group was 37.11+6.41. Majority patients were males in both groups as 20(80.0%) in HALs and 16(64.0%) in OA group. Most of the patients were married in both groups i.e 17(68.0%) in Hal group and 19(66.0%) in OA group. Haemorrhoidal 3rd degree was more prevalent 17(68.0%) in HALs group and 15(60.0%) in OA group out of 25 cases in each group. Table.1

Average postoperative pain (VAS) and post-operative Hospital stay were significantly lower in HALs group as compared to OA group (p=0.001), while average of operative time was significantly lower in OA group (p-0.001) as showed in table.2

Postoperative complications like urinary retention, bleeding and painful defecation were significantly higher in OA group as compared to Hals group (p=0.001) as showed in table.3

Table.1 Descriptive statistics of basic variables n=50

| Variables | | Study groups | |
|---|---|---|---|
| | | HALs group | OA group |
| Age(years) | Mean+SD | 34.56+4.22 | 37.11+6.41 |
| Gender | Male | 20(80.0%) | 16(64.0%) |
| | Female | 05(20.0%) | 09(36.0%) |
| Marital status | Un married | 08(32.0%) | 06(24.0%) |
| | Married | 17(68.0%) | 19(66.0%) |
| Degree of Hemorrhoids | 3rd degree | 17(68.0%) | 15(60.0%) |
| | 4th degree | 08(32.0%) | 10(40.0%) |

HALs= Haemorrhoidal artery ligation OA= Open haemorrhoidectomy

Table.2 Average comparison for VAS and operative time n=103

| Variables | Study groups | | p-value |
|---|---|---|---|
| | HALs group | OA group | |
| Post-operative pain VAS | 3.21+1.34 | 6.45+2.58 | 0.001 |
| Operative time (minutes) | 50.87+10.42 | 38.30+8.44 | 0.001 |
| Hospital stay (days) | 01.22+0.81 | 3.18+1.55 | 0.001 |

HALs= Haemorrhoidal artery ligation OA= Open haemorrhoidectomy

Table.2 Comparison of post-operative complications n=50

| Complications | Study groups | | p-value |
|---|---|---|---|
| | HALs group | OA group | |
| Urinary retention | 01(04.0%) | 03(12.0%) | 0.001 |
| Bleeding | 01(04.0%) | 10(40.0%) | |
| Stenosis | 0 | 01(04.0%) | |
| Painful defecation | 0 | 10(40.0%) | |

HALs= Haemorrhoidal artery ligation OA= Open haemorrhoidectomy

## DISCUSSION

Though surgical treatment of the haemorrhoids "haemorrhoidectomy" has been observed as a gold standard, essential and confidential treatment of haemorrhoids, it is the ideal surgical option for the haemorrhoids and its severity, but is still under investigation for more progression.[9] However in this study Haemorrhoidal Artery Ligation (HALs) with recto-anal repair (RAR) was found to be effective as the average postoperative pain (VAS), postoperative complications and post-operative Hospital stay were significantly lower in HAL group as compared to OA group (p=0.001). Similarly in the study of Scheyer M et al[10] observed that the Haemorrhoidal Artery Ligation and RAR provide protracted relief among cases having haemorrhoids whose presenting with common symptoms including bleeding, pain and the pruritus, while not for those having prolapsed haemorrhoids as the initial indication. On other hand Khalil MM et al[11] observed that the doppler-guided Haemorrhoidal Artery Ligation is the easy to learn, painless and non-invasive therapeutic technique which can be used as the good alternative to all other recognized treatment options of the symptomatic hemorrhoids. All stages of haemorrhoidal disease can be treated using HAL. In the study of Ghaleb Kadem S et al[12] they also concluded that the doppler guided HAL with RAR technique is the effective alternative management option for the stage two, three and four of haemorrhoids and its most common benefit is the less postoperative pain.

In this study mean age of the patients HALs group was 34.56+4.22 years and mean age of OA group was 37.11+6.41. The median age was 50 (range 22–84) years. Scheyer M et al[10] reported that the median age of the patients was 50 years with range of 22–84 years and further they sated that the grade III hemorrhoids were 74% and grade IV were 9%. These findings were similar to this study as haemorrhoidal 3rd degree was more prevalent 17(68.0%) in HALs group and 15(60.0%) in OA group out of 25 cases in each group.

In this study males were in majority in both groups as 20(80.0%) in HALs and 16(64.0%) in OA group. Scheyer M et al[10] also reported that out of all study participants 57% were males and 43% were females. On other hand Ghaleb Kadem S et al[12] also found males in majority as 90% and females only 10%. The rectoanal repair (RAR), which combines doppler-guided haemorrhoidal artery ligation (HAL) and mucopexy via lifting of the haemorrhoidal prolapse, offers a minimally invasive alternative to conventional hemorrhoidectomy.[10]

## CONCLUSION

Haemorrhoidal Artery Ligation (HALs) with RAR technique found to be feasible and effective in terms of less post-operative pain, less post-operative complications and less hospital stay as in contrast to Open haemorrhoidectomy (OA) in the treatment of 3rd and 4th degree Hemorrhoids. Due to small sample size of the study and short term follow up, further large scale studies are recommended in this comparison.

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