



HAEMORRHOIDECTOMY : ULTRASONIC SCALPEL VERSUS DIATHERMY CAUTERY

General Surgery

Dr. P. Chandana Priyanka	Assistant professor, Department of General Surgery, Siddhartha medical college, Vijayawada
Dr. Harika Kapu*	Assistant professor, Department of General Surgery, Siddhartha medical college, Vijayawada * Corresponding Author
Dr. Bhanusagar Gajula	Final year Post Graduate, Department of General Surgery, Siddhartha medical college, Vijayawada
Dr. Done Rahul	Second year Post Graduate, Department of General Surgery, Siddhartha medical college, Vijayawada

ABSTRACT

INTRODUCTION Haemorrhoids are the most common anorectal disease seen in age group between 45-50 years. Milligan Morgan haemorrhoidectomy is the gold standard operative procedure for grade 3 and grade 4 haemorrhoids. In the last decade high frequency sound wave energy ultrasonic scalpel is used to cut and coagulate tissues in Milligan-Morgan haemorrhoidectomy. **OBJECTIVE** Our aim is to do a comparative study between the outcomes of a Milligan Morgan haemorrhoidectomy by using ultrasonic scalpel versus diathermy cautery. **MATERIALS AND METHODS** This is a prospective comparative randomized study done over a period of 6 months (April 2022-September 2022) at GGH Vijayawada. 60 patients of age group 45-65 years. They were randomly divided into 2 groups of 30 each.

Group A – Underwent haemorrhoidectomy with diathermy cautery

Group B- Underwent haemorrhoidectomy with harmonic scalpel.

RESULTS Patients who underwent harmonic scalpel haemorrhoidectomy have statistically significant P value in post operative pain, post operative urinary retention and anal stenosis. **CONCLUSION** Harmonic scalpel is better than diathermy in having relatively less post operative pain and early resumption of daily activities and less occurrence of urinary retention and anal stenosis.

KEYWORDS

Harmonic scalpel haemorrhoidectomy, Milligan Morgan haemorrhoidectomy, Visual analogue score.

INTRODUCTION

Hemorrhoids are one of the most common ailments to afflict mankind since they attained the erect posture. In ancient Greek hemorrhoids were described as flow of blood (haem- blood, rous- flow). It is estimated that 50-85% of people around the world in age group 45-65 years have hemorrhoids. Age is not only the factor as hemorrhoids can affect any age group. ^[1,2] Hemorrhoids are classified as 1- 4 degree based on the clinical finding and severity. Milligan – Morgan haemorrhoidectomy is the gold standard operative procedure for grade 3 and grade 4 haemorrhoids. ^[1] Diathermy cautery is used to perform MMH, in this decade harmonic scalpel is replacing diathermy as it is having less post operative complications.

Harmonic scalpel is a device that simultaneously cuts and coagulate tissues by producing a vibration of 55.5KHZ. when compared with conventional electrosurgical devices, this ultrasonic cutting and coagulating device has advantages such as causing minimal lateral tissue injury 1-3mm wide, less fumes, more localized impact, better hemostasis, less stimulation to neuromuscular tissues and local control of the surgical site compared to a haemorrhoidectomy performed with surgical scissors or monopolar electric cautery. ^[4,5,14,15]

The rationale for the use of harmonic scalpel in hemorrhoidectomy is relatively low temperature at which it divides the tissues by disrupting the protein hydrogen bonds through the high frequency ultrasonic energy. The relatively low temperature (80 degree Celsius) with less spread lead to less desiccation, minimal eschar formation, improved wound healing. ^[6-12] Hence harmonic scalpel is better than diathermy in having relatively less post operative pain and early resumption of daily activities and less rate of anal stenosis.

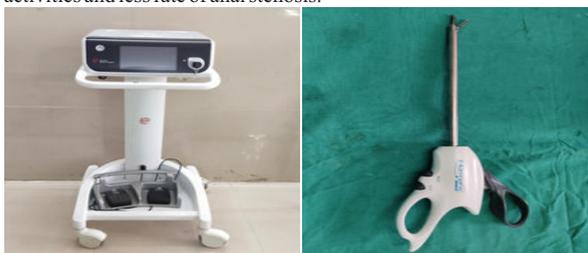


Fig 1,2 : Ethicon Harmonic Scalpel

AIMS & OBJECTIVES

Our aim is to do comparative study between the outcomes of MMH by using ultrasonic scalpel versus diathermy cautery.

MATERIALS AND METHODS:

This is a prospective comparative randomized study done for a period of 6 months (April 2022-September 2022) at Government General Hospital, Vijayawada. 60 patients of age group 45-65 yrs were randomly divided into 30 each group. Group A underwent hemorrhoidectomy with diathermy cautery, Group B underwent hemorrhoidectomy with harmonic scalpel. Fissures, fistula-in- ano, chronic pain syndromes, neurological defects and other anorectal pathology were excluded. Post operative pain assessed on day 1, 3, 7 & after 3 weeks using VSA scale, post operative urinary retention and anal stenosis and other complications were compared and assessed. The study abides by the guidelines laid by the declaration of Helsinki. Informed and written consent was taken from all participants.

RESULTS:

In the present study the mean age of presentation was 50+5 yrs with bleeding per rectum as presentation. Patients were randomly assigned into two groups those patients who have undergone harmonic hemorrhoidectomy have relative less pain on day 1, 3, 7 days and at 3 weeks. Urinary retention was significantly seen in diathermy MMH and other post operative complications were similar in both groups anal stenosis is seen in 3 patients in diathermy MMH due to eschar formation and fibrosis due to usage of electrocautery but other complications are not much significant. Data were entered and analysed in statistical program SPSS version 28.0.1.1. Quantitative data pain score were presented as Mean + standard Deviation (range) and student “t” test was used to compare the means between two groups. A p value <0.05 was considered as statistically significant level for all comparisons.

Table 1 : Post Operative Pain On Day 1, 3, 7 And After 3 Weeks

Procedure	Diathermy Hemorrhoidectomy Mean	Harmonic Hemorrhoidectomy Mean	P value
Pain (VAS score) Day 1	7.6	4.6	<0.00000000000079 (s)

Day 3	5.6	2.67	0.0000000000089(S)
Day 7	3.23	0.90	0.00000001(s)
Week 3	1.4	0.30	0.00018(S)

Table 1: Comparison between the studied groups according to postoperative pain using VAS (from 0 to 10) during the follow up period. t: Student t-test for comparing between the two groups.

*: Statistically significant at p

Table 2: Post Op Urinary Retention

Procedure	Diathermy haemorrhoidectomy(n%)	Harmonic Haemorrhoidectomy(n%)	P Value
Urinary retention	6(20%)	2(6.70%)	0.129 (NS)

Table 2: comparison between study groups for post operative urinary retention during postoperative period using (n%) and chi- square test applied . p value of <0.05 is significant

NS: not significant

Table 3: Post Of Anal Stenosis

Procedure	Diathermy haemorrhoidectomy(n%)	Harmonic Haemorrhoidectomy n(%)	P Value
Anal stenosis	3(10%)	0(%)	0.0755 (NS)

Table 3: comparison between study groups for post operative anal stenosis during postoperative period using (n%) and chi- square test applied . p value of <0.05 is significant

NS: not significant

DISCUSSION

In Miligan Morgan hemmhrroidectomy excision can be done by using various means by scalpel,scissors, monopolar cautery ,bipolar devices and harmonic scalpel devices. The distal anoderm and external skin were left open for secondary healing in Miligan Morgan hemorrhoidectomy .This technique is effective for treating grade 3 and 4 hemorrhoidal disease but considerable morbidity is seen in patients as the wound heals by secondary intension. The main advantage of harmonic over cautery is hemorrhoidal pedicle can be coagulated and cut without suture ligation and harmonic scalpel can achieve good hemostasis.Hemrrhoidectomy with cautery there is more eschar formation and more fibrosis due to more tissue damage.



Fig3: Picture Showing Hemrrhoidectomy With Harmonic Without Ligating Pedicals Haemorrhoids Excised



Fig 4: Hemrrhoidectomy With Diathermy Showing Eschar

In the present study , post operative pain was significantly less in harmonic MMH when compared with diathermy on post operative day 1,3,7,3 weeks. This finding was supported in other studies done by Darshanjit Singh Walia &co and Shady Mohamed Naguib Ghieth & co .Urinary retention was also significantly more in diathermy group supported by Darshanjit Singh Walia & co and other post operative complications there is no significant differences.

CONCLUSION

Harmonic scalpel MMH is safe and effective when compared with diathermy in having relatively less post-operative pain and decreased usage of analgesics and early resumption of daily activities and less occurrence of urinary retention and anal stenosis and other complications.

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