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Can A Palpable Artery Predict The Outcome? : Assessment of Palpability of Superior Rectal Artery and Its Effect on Natural Course of Hemorrhoids

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Abstract

Aims and Objectives

This study aims at

1. Establishing a direct relation between the palpability of superior rectal artery and the natural course of hemorrhoidal disease
2. Predicting the nature of intervention required.

Methods

- Sample Size: 125 patients
- Per-Rectal Examination to assess the palpability of superior rectal artery
- Recording the grade of hemorrhoids at the initial visit and appropriate intervention.
- The patients were then divided into 2 cohorts as to whether the artery was palpable or not.
- Patients were followed up over next 6 months to assess the progression of grade of hemorrhoids
- The 2 cohorts were analysed and comparison of similar cohorts and outcome of the same were analysed.

Results

	Initial Presentation					AT 6 Months	
n= 125	No. of Patients	Grade of hemorrhoids	No. of Patients	Artery Palpable or Not?		No. of patients	Grade of Hemorrhoids

	56	Grade 1	20	Yes		04	Grade 1
						10	Grade 2
						06	Grade 3
			36	No		29	Grade 1
						07	Grade 2
	49	Grade 2	25	Yes		08	Grade 2
						17	Grade 3
			24	No		20	Grade 2
						04	Grade 3
	12	Grade 3	Patients Underwent Open Hemorrhoidectomy				
	8	Grade 4					

Conclusion: The palpability of superior rectal artery hence can be considered as an important factor in predicting the outcome of progression of hemorrhoidal disease and also helps in taking appropriate steps.

Hemorrhoidal disease if managed appropriately in early stages can limit the progression of the disease and will also reduce the burden of the disease in society.

Further studies in this direction can enhance knowledge in literature and can also bring up effective and efficient solution in treating hemorrhoids.

Keywords: Hemorrhoidal Disease, Palpability Superior Rectal Artery, Terminal Branches

Introduction

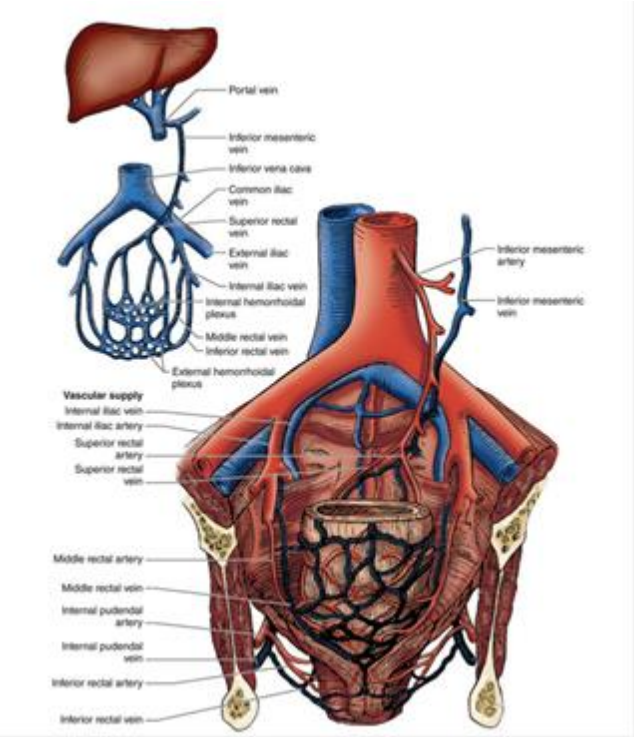
The superior rectal artery runs in the mesorectum and terminates by dividing into two terminal branches. These branches descend across the sides of the rectum, providing supply for its superior two-thirds. [1].

The superior rectal artery arises from the inferior mesenteric artery as its continuation and crosses over the left common iliac vessels and below the pelvic brim. [1].

At the level of the third sacral vertebra in the midline, it enters the mesorectum and divides into two terminal branches. In approximately 10% of cases, the superior rectal artery ends in a trifurcation, providing three terminal branches. [1].

The pulsations of superior rectal artery can give a subtle clue to the nature of the haemorrhoids that patient is predisposed to develop and also in assessing the natural course of the disease.

Hence this study aims at establishing a direct relation between the palpability of superior rectal artery and the natural course of hemorrhoidal disease and also predicting the nature of intervention required.



Objectives of the Study

1. To assess the palpability of Superior Rectal Artery in patients with hemorrhoids.
2. To correlate the superior rectal artery palpability with the progression of grade of hemorrhoids.

Materials and Methods

Place of Study: K.V.G Medical College and Hospital, Sullia.

Setting: In-patient and Out-patient

Study Design: Prospective study

Period of Study: 8 months (March 2024 – September 2024)

Study Population: All patients who visited the Dept. of General Surgery OPD with a provisional diagnosis of Hemorrhoids and similar patient on IP basis at KVG Medical College and Hospital, Sullia.

Inclusion Criteria

- All patients with C/O mass per rectum / bleeding per rectum with a confirmed diagnosis of all grades of Internal Hemorrhoids
- Age > 18 Years

Exclusion Criteria

- Those who are not willing for the study.
- Lost to Follow-up cases.
- External Hemorrhoids.
- Secondary Hemorrhoids.

Sampling Method: Universal Sampling Method

Sample Size: The prevalence of symptomatic haemorrhoids worldwide is 4.4%[2]. Hence "p" is considered as 4.4% and the sample size is calculated by using formula:

$$n = \frac{z^2 p (1-p)}{d^2}$$

p =4.4%

Z= for 95% confidence is 1.96

d = 5%

$$n = \frac{1.96^2 \times 0.044 (1-0.044)}{5^2}$$

= 65

The minimum sample estimated to be = 65

- Sample size considered in the present study = 125
- Sample size considered for analysis = 105

Methodology

The present study was conducted on both out-patient and in-patient basis in K.V.G. Medical College and Hospital, Sullia, D.K

The study was carried out for a period of 8 Months.

The patients included in the study were 18 years and above who visited the OPD of General Surgery and was diagnosed with "Internal Hemorrhoids" and were further managed on OPD or IP basis at K.V.G.M.C.H.

Written informed consent was obtained from all the patients who were willing to be a part of study.

The patients, after obtaining consent were grouped into 2 groups based on the palpability of superior rectal artery

and further sub-grouped into 4 groups based on the degree of internal hemorrhoids.

The corresponding subgroups based on the degree of hemorrhoids were compared and results were drawn.

Sub-groups with Grade 1 and 2 Internal Hemorrhoids were managed conservatively with regular follow-up while Grade 3 and 4 patients were surgically managed.

The master chart containing all details were further analyzed and conclusion were drawn.

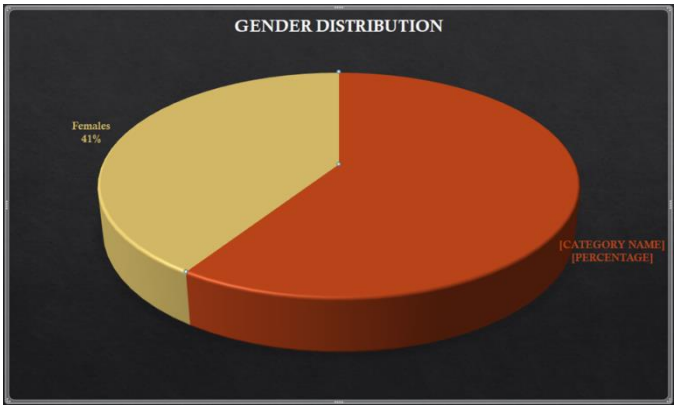
Patients with grade 3 and 4 hemorrhoids at initial visit were excluded from the final analysis due to active management.

Statistical Analysis: The data was entered in Microsoft Office Excel 2021 and IBM SPSS version 29 was used for analysis. The data is presented in the form of tables and figure. The data is represented as bar diagram, pie chart, frequencies, percentages, mean and standard deviation.

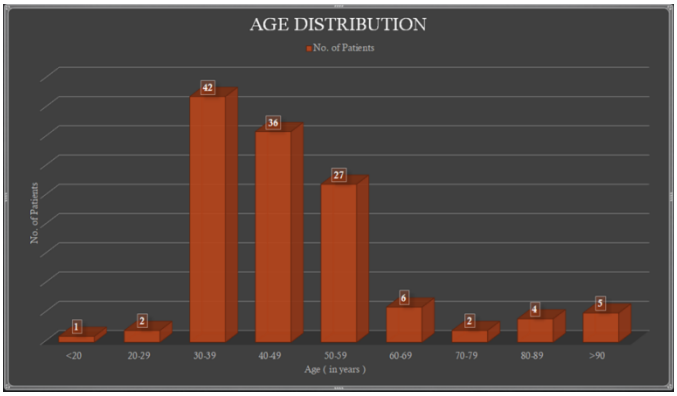
Table 1:

No. of patients	Grade of Hemorrhoids at Initial Visit	Is Superior Rectal Artery palpable?	No. of Patients	No. of Patients	Grade of Hemorrhoids at 6 Months
				04	Grade 1
		Yes	20	10	Grade 2
				6	Grade 3
56	Grade 1				
		No	36	29	Grade 1
				07	Grade 2
		Yes	25	08	Grade 2
				17	Grade 3
49	Grade 2				
		No	24	20	Grade 2
				04	Grade 3
12	Grade 3	Yes	12		
08	Grade 4	Yes	08		

Graph 1:



Graph 2:



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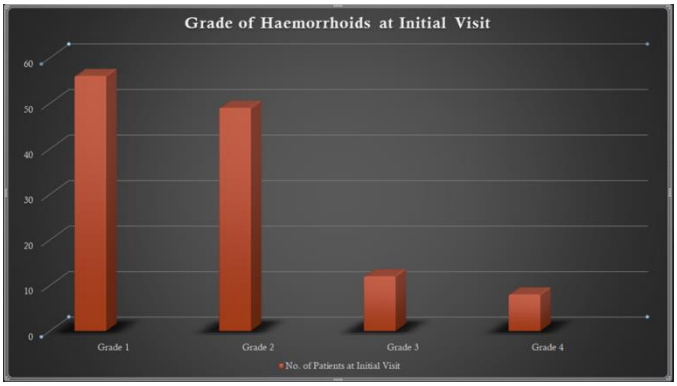

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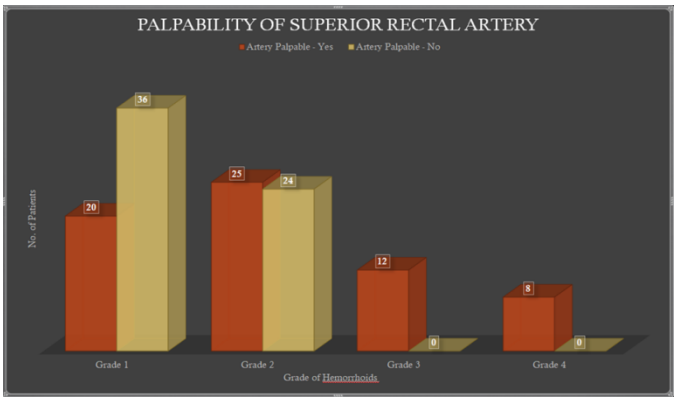

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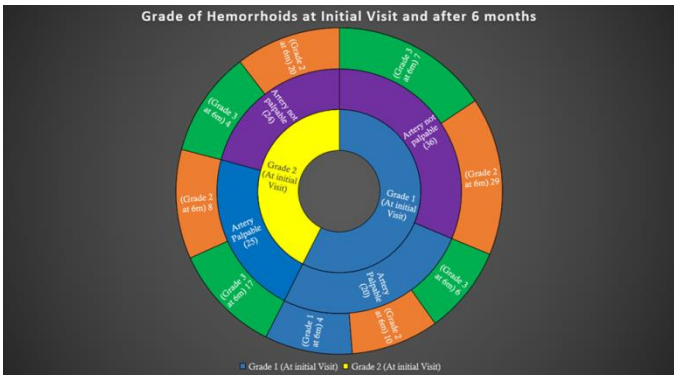

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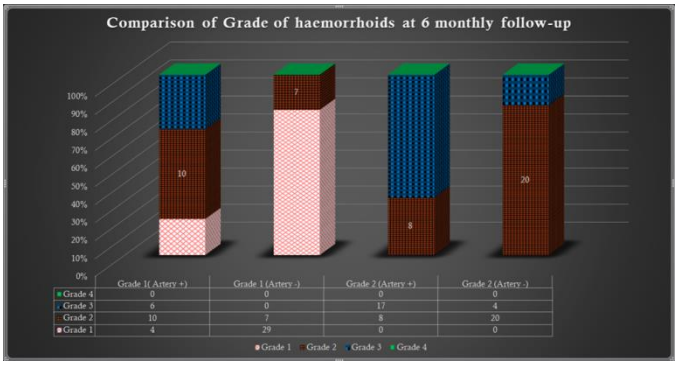

Statistical Analysis

Table 2:

Objective	P Value	Significance
Progression of grades of hemorrhoids over 6 months is linked to the initial grade of hemorrhoids	P = 0.045	Significant
Palpability of superior rectal artery pulsations is more in higher grades of hemorrhoids	P = 0.035	Significant
Palpability of superior rectal artery is directly related to the faster progression of hemorrhoidal disease	P = 0.011	Significant

Results

The success of palpability of superior rectal artery was high with higher grade of hemorrhoids and was statistically significant (p=0.011). Hence, the association of superior rectal artery pulsations with higher grade of hemorrhoids can be established.

The palpability of superior rectal artery in patients was directly linked to the increasing grade of hemorrhoids at 6 monthly follow up and was statistically significant (p=0.045). Hence, it can be established that the palpability of superior rectal artery can be a direct predictor of progression of hemorrhoids.

Discussion

Table 3:

GRADE	DEFINITION
I	Normal appearance externally, bleeding but not prolapsing
II	Anal cushions prolapse on straining but reduces spontaneously
III	Anal cushions prolapse on straining or exertion and require manual reduction
IV	Permanent prolapse, irreducible

Regulation of diet and avoidance of prolonged straining at the time of defecation comprise the initial treatment of mild symptoms of bleeding and protrusion.

Increasing the fibre content of the diet to at least 25 to 35 g daily with raw vegetables, fruits, whole-grain cereals, and hydrophilic bulk forming agents can reduce and often alleviate all symptoms.

Symptomatic relief is provided by a daily dose of 12 g of psyllium powder in a glass of water by producing adequate bowel fibre and function for most patients complaining of constipation and haemorrhoids.

If bleeding and protrusion persist, however, the haemorrhoids should be treated surgically.

Elastic ligation of the friable redundant hemorrhoidal tissue is quite satisfactory for first-, second-, and third-degree haemorrhoids. The haemorrhoid is visualized with the aid of an anoscope and grasped with forceps

Table 4:

TREATMENT MODALITIES	L.O.E
Increasing fiber intake is an effective first-line, non-surgical treatment for hemorrhoids.	A
Most patients who undergo excision of thrombosed hemorrhoids within two to three days of symptom onset achieve symptom relief.	B
Rubber band ligation is considered the preferred choice in the office-based treatment of grades I to III hemorrhoids because of effectiveness compared with other office-based procedures.	A
Excisional (conventional) hemorrhoidectomy is effective for the treatment of grade III or IV, recurrent, or highly symptomatic hemorrhoids.	A
The use of Ligasure during conventional hemorrhoidectomy leads to decreased pain in the immediate postoperative period.	A
Compared with conventional hemorrhoidectomy, stapled hemorrhoidopexy results in more frequent recurrence of symptoms and prolapse.	A
Hemorrhoidal artery ligation is an emerging therapy with early outcomes similar to conventional hemorrhoidectomy for grade II or III hemorrhoids.	C

Conclusion

The palpability of superior rectal artery hence can be considered as an important factor in predicting the outcome of progression of hemorrhoidal disease and also helps in taking appropriate steps.

Further studies in this direction can enhance knowledge in literature and can also bring up effective and efficient solution in treating haemorrhoids.

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