RESEARCH PAPER

Comparison of Various Types of Surgical Management in Patients of Hemorrhoids

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Abstract

Background

Hemorrhoidal disease is the most common disease of the anorectal region. Its symptoms are variable, including bleeding, pain, discharge, and itching, which may be troublesome. Treatment options include conservative medical, conventional hemorrhoidectomy(CH)l, minimally invasive, stapled hemorrhoidopexy (SH), and recently, laser hemorrhoidoplasty (LH).

Aim

The aim of this study is to compare SH,CH and LH in the management of second-degree and third-degree piles in terms of postoperative pain, bleeding, incontinence, stenosis, recurrence, and patient satisfaction.

Patients and methods

Seventy eight patients who underwent management of hemorrhoids using either of LH , SH and CH were assessed . Efficacy and tolerability in terms of postoperative pain, bleeding, incontinence, stenosis, and recurrence were compared.

Results

Lower postoperative pain scores with the need for fewer analgesics were noted after LH, with shorter hospital stay, early return to daily activities, and lower incidence of incontinence, while lower postoperative bleeding incidences and recurrence rates were noted following SH. No incidence of postoperative anal stenosis was found with both the procedures, and the overall satisfaction was almost equal.

Conclusion LH is a simple and safe technique with less postoperative pain, operative time, and hospital stay, but with a higher rate of recurrence, while SH is a more reliable technique with less postoperative bleeding and recurrence, and may be a suitable alternative to conventional hemorrhoidectomy.

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Introduction

Hemorrhoidal disease (HD) is the most common anorectal disease affecting millions of people around the world and representing a major medical and socioeconomic problem, severely affecting patients' quality of life [1,2].

Hemorrhoids or hemorrhoidal columns are submucosal cushions containing venules, arterioles, and smooth muscle fibers; with the internal anal sphincter, they are essential in the maintenance of anal continence by providing soft tissue support and keeping the anal canal closed tightly [2].

Nowadays, there are several therapeutic modalities for the treatment of HD, ranging from conservative measures with changes in eating habits, systemic and local medications that improve symptoms, non-excisional methods such as cryotherapy, sclerotherapy, laser photocoagulation, and rubber band ligation, to

surgical excision techniques for advanced symptomatic patients with grade III or IV hemorrhoids and patients with persistent bleeding when conservative measures fail [3,4].

Bleeding and prolapse are the most common complaints, which usually require surgical intervention. Although there are several surgical techniques for HD, debates about the best choice still remain. Indeed, despite modifications and progress in the HD surgical techniques, postoperative pain and discomfort, mucous discharge, daily activity limitation, and recurrence remain the major drawbacks [1].

However, the conventional hemorrhoidectomy (Milligan–Morgan) is associated with a low rate of recurrence, but postoperative pain and discomfort are still of major concern. Instead, the newly developed techniques lead to less postoperative pain and discomfort, but are associated with higher recurrence rates and newly developed postoperative symptoms such as urge incontinence and tenesmus [5,6].

The postoperative complications that a patient may experience after hemorrhoidectomy are variable: degrees of pain vary according to the technique used, urinary retention, bleeding, incontinence, wound infection, abscess formation, fistula formation, anal fissure, stenosis, and recurrence [7–9]. Therefore, many symptomatic patients often hesitate to receive treatment and are reluctant to undergo surgery.

Stapled hemorrhoidopexy (SH) is performed with a circular stapler device, which circumferentially disconnects the mucosa and submucosa above the dentate line. Many studies have reported less pain, short hospital stay, and early return to work in comparison with conventional hemorrhoidectomy [10], which accounts for the preference among patients toward SH [11].

Laser hemorrhoidoplasty (LH) is a newly developed minimally invasive and painless 1-day surgery technique for the treatment of symptomatic hemorrhoids, influencing the shrinkage of the hemorrhoidal piles. The commonly used laser energy in medicine includes diode, carbon dioxide, argon, and Nd : YAG. The laser beam causes tissue shrinkage and degeneration at different depths according to the laser power and the duration of application of laser light [2,12].

The aim of this study was to compare the conventional Milligan-Morgan hemorrhoidectomy (MMH), stapling hemorrhoidopexy (SHP), and LHP in patients with primary third-degree hemorrhoids.

Material and Methods

The observation study was conducted from late 2022 to 2024 in the Department of Surgery at Chatrapati Shivaji Subharti Hospital, a tertiary care superspecialist hospital attached to Subharti Medical College. Seventy eight patients with provisonal diagnosis of grade III and grade IV HEMORRHOIDS admitted in the department through surgery outpatient department / Emergency / transferred from other departments formed the study group.

Eligibility Criteria

Inclusion criteria:

1. Patients >15 years of age
2. Patients with confirmed clinical diagnosis and evidence of Haemorrhoids
3. No medical or surgical contraindication to general/spinal anaesthesia/surgery

Exclusion Criteria.

1. Pregnant females.
2. Age below 15 years
3. Hemodynamically unstable patient (Systolic Blood pressure<80mm hg)
4. Previous operation of grade III and IV hemorrhoids within the last 2 years.
5. Previous operation for anal incontinence.
6. Active anal fistula or anal fissure .
7. Incontinence for solid stool.
8. Active immunosuppressive therapy (increased risk of anorectal sepsis)
9. Cirrhosis/ portal hypertension.
10. Uncorrected coagulopathy
11. Patient not fit for general / spinal anaesthesia
12. Patient not giving consent

INVESTIGATIONS

The patients were worked up thoroughly and subjected to ,detailed history and clinical examination. Routine hematological investigation including CBC, RBS, ABO-Rh, PT/INR ,Viral markers i.e HCV , HBsAg, HIV 1 & 2 . Liver function test .Kidney function test

Patient PREPARATION

Preoperative

High fiber diet & stool softeners

Enema/ Peglec

Prophylactic antibiotic

OPERATIVE WORKUP:

Operative Technique: All operations were performed under spinal anesthesia by the same surgical team.

Conventional Open hemorrhoidectomy: A V-shaped incision was made in the base of the hemorrhoid. The pedicle was then ligated with a 2/0 vicryl suture, and the distal part of the hemorrhoid was excised. The wounds were left open, light dressing with topical gentamicin cream and a gauze was left in the anal canal. Patients were discharged within 24 hours in case of no

postoperative complications and the patient urinate without difficulties.

Laser hemorrhoidoplasty: The laser procedure was performed using the (lasotronix laser Poland) and start with proper clinical examination PR in lithotomy position. A dedicated disposable proctoscope (23 mm in diameter) was inserted in the anal canal via small incision. Using a 980 nm diode laser were generated at a power of 7.5 W with duration of 3 s each shot followed by a pause of 0.5 s causing shrinkage of tissues up to the depth of 5 mm. After finishing each hemorrhoid, an ice finger was introduced intra anally for 0.5–1 min to decrease the heat effect patients were discharged from 6-8 hour after surgical operation.

stapler Haemorrhoidopexy procedure

After anal dilatation and insertion of the anal ring and fixing it, we made a purse-string suture 2 cm above the dentate line using prolene 2/0 to include only mucosa and submucosa. Haemorrhoidal circular stapler (HCS) was then inserted and the suture was tightened. Closure of the circular stapler was done and kept closed for 30 s then firing it and gentle withdrawal of the stapler, including the doughnut. Examination of the stapler line for any bleeding and controlling it. Finally, diclofenac suppositories were kept, and gentle anal packing was done. The pack was removed after 12 h**.**

GRADING (DEGREE)

GRADE	SYMPTOMS & SIGNS
First degree	Bleeding, no prolapse
Second degree	Prolapse with spontaneous reduction Bleeding, seepage
Third degree	Prolapse requiring digital reduction Bleeding, seepage
Fourth degree	Prolapsed, cannot be reduced Strangulated

POST OPERATIVE MANAGEMENT

For all patients, antibiotic coverage, analgesia, intravenous iv fluids, and proton pump inhibitors will be given for the first 48 hours. Adequate analgesia, bulk laxatives .Warm sitz bath were adviced.

Result

In the present study majority of the patients were in the age group of 41-50 years old (29.48%) followed by 51-60 years (17.94%). Table 1. The majority of the patients were male (71.79%)

Age (Years)	Frequency	Percentage (%)
20-30	10	12.82 %
31-40	12	15.38%
41-50	23	29.48 %
51-60	14	17.94 %
61-70	10	12.82 %
71-80	9	11.53 %
Total	78	100.0 %

Symptoms

Most common symptoms were bleeding per rectum (67.5%). Other symptoms were pain during defecation (53.5%), pruritus ani (37.2%), discharge (26.0%) and prolapsed hemorrhoid (25.1%)

Complaints	Frequency	%
· Bleeding per rectum	53	67.5%
· Pain during defecation	42	53.5%
· Pruritus ani	29	37.2%
· Discharge	20	26.0%
· Prolapsed hemorehoids	19	25.1%

Table-5: Patients History

It was observed that majority of the patients had dietary habit of mixed diet (67.2%) , chronic constipation was present in fifty patients (64%) while high physical activity was present in thirty three patients (41.1%)

		Frequency	%
Dietary habits	Low fiber diet	57	73.9%
	Mixed diet	45	67.2%
	Poor hydration	26	34%
Bowel habits	Chronic constipation or diarrhea	50	64%
	Straining during defecation	45	58.8%
Amount of physical activity	Low physical activity	27	34.9%
	High physical activity	33	41.1%

LOCAL EXAMINATION

On local examination , hemorrhoidal prolapse was observed in 32bpatients (41.02%) followed by anal tags in 15 patients (12.82%)

Inspection	Frequency	Percentage (%)
Anal tag	15	12.82%
Sentinel Pile	5	6.41%
Pilonidal Sinus	2	2.56%
Palpation		
Abscess	5	6.41%
Hemorrhoidal Prolapse	32	41.02%

DIGITAL Rectal EXAMINATION :

Within Lumen	Frequency	Percentage (%)
Faeces	18	23.07%
In the lumen		
Hemorrhoid	78	100%
Outside Lumen	NAD	

PROCTOSCOPY

On proctoscopy , grade III lesions(64.10%) were most commonly observed in our study patients

Grade	Frequency	Percentage (%)
Grade III	50	64.10%
Grade IV	28	35.89%
Position		
3 – 7 -11 o clock	68	41.02%
7- 11 o clock	3	24.35%
3 – 11 o clock	7	34.61%

Management

In our study , thirty four patients (43.58%) underwent laser hemorrhoidoplasty , twenty patients (25.64%) underwent surgical hemorrhoidectomy and stapler heorrhoidopexy was done in twenty four patients (30.76%)

	Frequency	Percentage (%)
Laser hemorrhoidoplasty	34	43.58%
surgical hemorrhoidectomy	20	25.64%
Stapler haemorrhoidopexy	24	30.76%

Distribution of Grading of hemorrhoids based on management

	Laser hemorrhoidoplasty N =34		surgical Hemorrhoidectomy N=20		Stapler Haemorrhoidopexy N=24	
Complaints	Frequency	%	Frequency	%	Frequency	%
Grade 3	23	29.48%	8	10.25%	19	24.35%
Grade 4	11	32.35%	12	15.38%	5	6.41%

Operation duration

It was observed that laser hemorrhoidoplasty had significantly lesser operative time as compared to surgical hemorrhoidectomy & Stapler haemorrhoidopexy

Operative time	In mins	P value
Laser hemorrhoidoplasty	25.6±4.1	($\chi 2$ = 80.776, p = <0.001)
Surgical hemorrhoidectomy	35.8±9.3	
Stapler haemorrhoidopexy	30.35±6	

INTRA-OPERATIVE BLEEDING

It was observed that Laser hemorrhoidoplasty (88.23%) had significantly higher distribution of patients with mild intraoperative bleeding as compared to surgical hemorrhoidectomy (0%) & Stapler haemorrhoidopexy (75%).Moderate bleeding was observed in 6 patients (25%) of stapler group , 4 patients (11.76%) in laser Group and 20 (100%) in open group.

Intra operative bleeding	Procedure			
	Stapler (%)	Laser (%)	Open (%)	Total (%)
Mild	18 (75%)	30 (88.23%)	0 (0%)	48 (61.53%)
Moderate	6(25%)	4 (11.76%)	20(100%)	18 (23.07%)
Severe	0 (0.0%)	0 (0.0%)	0 (0%)	0(0%)
Total	24 (100.0%)	34 (100.0%)	20 (100.0%)	78 (100.0%)
P value -($\chi 2$ = 175.460, p = <0.001)				

VAS

It was observed that in all the three groups VAS score was progressively reduced from 0^{th} day till 6 month .

Intergroup comparison revealed that laser hemorrhoidoplasty had significantly lesser VAS score as compared to stapler hemorrhoidopexy and surgical

hemorrhoidectomy at 0 th day (2.7±1.16 vs 3.5±1.32 vs 5.64±1.25) respectively .(p=0.0023)

	Laser hemorrhoidoplasty	Stapler haemorrhoidopexy	Surgical hemorrhoidectomy	F test	P value
0 th day	2.7±1.16	3.5±1.32	5.64±1.25	26.16	0.0023
3rd day	0.92±1.0	2±0.83	4.16±1.11	48.96	0.0031
7thday	0.56±0.05	1.54±0.76	3.25±1.08	96.45	0.002
1 month	0.21±0.02	1.12±0.34	2.68±0.99	54.6	0.034
3 month	0±0	0.12±0.34	1.16±0.8	40.24	0.01
6 month	0±0	0.05±0.01	0.26±0.04	45.36	0.56

Duration of Hospital Stay

We observed that all the three procedures had comparable duration of hospital stay .(p=0.668)

Duration Of Hospital Stay (Days)	Procedure			P value
	Stapler(Mean (SD)	Laser (Mean (SD)	Open (Mean (SD)	
Mean	1.90 (0.81)	1.10(0.87)	2.18 (0.73)	0.668
Median	1 (1-2)	1 (1-2)	2 (1-2)	

Post operative bleeding

It was observed that patients underwent Laser hemorrhoidoplasty were associated with significantly lesser post operative bleeding (12%) as compared to stapler hemorrhoidopexy and open hemorrhoidectomy during follow up intervals .(p<0.05)

Postoperative symptoms		Laser hemorrhoidoplasty	Stapler haemorrhoidopexy	urgical emorrhoidectomy	p value
Bleeding	0 th day	3(12%)	15(60%)	7(29.1%)	<0.001
	3rd day	0(0%)	7(28%)	6(25%)	0.003
	7thday	0(0%)	2(8%)	4(16.6%)	0.06
	1 month	0(0%)	1(4%)	0(0%)	0.425
	3 month	0(0%)	0(0%)	0(0%)	1.00
	6 month	0(0%)	0(0%)	0(0%)	1.00

Post operative urinary retention

It was observed that incidence of post operative urinary retention was observed in 17 patients (21.79%) . Amongst 17 patients , majority were belonged to surgical hemorrhoidectomy procedure (75%)

Urinary Retention	Procedure			
	Stapler (%)	Laser (%)	Surgical (%)	Total (%)
Present	1(4.17%)	1 (2.94%)	15 (75%)	17 (21.79%)
Absent	23 (95.83%)	33 (97.05%)	5 (25%)	61 (78.20%)
Total	24 (100.0%)	34 (100.0%)	20 (100.0%)	78(100%)
P value = 0.002				

Anal Stenosis

It was observed that none of the patients had complaint of anal stenosis

AnaL Stenosis	Procedure			
	Stapler (%)	Laser (%)	Surgical (%)	Total (%)
Absent	24 (100.0%)	34 (100.0%)	20 (100.0%)	78 (100.0%)

Anal Incontinence

It was observed that none of the patients had complaint of anal stenosis

Anal Incontinence	Procedure			
	Stapler (%)	Laser (%)	Surgical (%)	Total (%)
Absent	24 (100.0%)	34 (100.0%)	20 (100.0%)	78 (100.0%)

Recurrence

The overall recurrence rate of 3.84% at 6 months follow up was found amongst 3 patients .

Amongst these 3 patients , 2 were from stapler group and 1 patient from laser hemorrhoidoplasty .

Postoperative	Follow up	Laser hemorrhoidoplasty	Stapler haemorrhoidopexy	urgical hemorrhoidectomy
Recurrence	0 th day	0(0%)	0(0%)	0(0%)
	3rd day	0(0%)	0(0%)	0(0%)
	7th day	0(0%)	0(0%)	0(0%)
	1 month	0(0%)	0(0%)	0(0%)
	3 month	0(0%)	0(0%)	0(0%)
	6 month	1(2.94%)	2(8.33%)	0(0%)

Discussion

Hemorrhoids or piles is one of the most common disorders seen among the young adults. Proportionately ,hemorrhoidectomies are considered one of the most frequently performed procedures worldwide. Advances in techniques and technology have emerged new techniques and methods in the management of piles with different grades and presentations.

While no 100% satisfaction is present after any anal procedure especially in the early postoperative course .Choice of technique which is the best choice for each grade according to clinical examination and careful history even after colonoscopy if needed is a very important step in the management.

Hence the present study was planned to compare the outcomes of standard open hemorrhoidectomy with stapler and laser hemorrhoidoplasty .

Symptoms

Most common symptoms were bleeding per rectum (67.5%). Other symptoms were pain during defecation (53.5%), pruritus ani (37.2%), discharge (26.0%) and prolapsed hemorrhoid (25.1%)

Similarly , The most common symptom in the study by G. G. Ravindranath, B. G. Rahul (2018) was bleeding through the rectum followed by passage of mass. Soiling of clothes, pain during defecation and pruritis were other manifestations, which was similar to the results observed by Ali et al in his study.

Patients History

In the present study , it was observed that majority of the patients had dietary habit of mixed diet (67.2%) , chronic constipation was present in fifty patients (64%) while high physical activity was present in thirty three patients (41.1%)

Similarly in the In the study by G. G. Ravindranath, B. G. Rahul (2018)[13] Most of the patients had a mixed diet, with only few of them being pure vegetarians. Khan et al[14], also reported that out of 311 patients in his study, only 66 were on vegetarian diet. Inadequate fibre intake was found to be one of the risk factors of hemorrhoids as was high intake of spicy food.

Increasing the dietary fibre was reported to improve the incidence of hemorrhoids. This is probably as fibre reduced constipation, which is one of the risk factors of hemorrhoids.

In the present study, author also found constipation to be one of the risk factors which was in accordance to other studies similar to the findings of G. G. Ravindranath, B. G. Rahul (2018) .Straining during defecation was also found to be one of the risk factors which eventually resulted in complications such as bleeding through rectum, mass emerging through rectum as well as prolapse, which was also observed inpresent study. [13]

Sedentary life style was also one of the risk factors of piles, which was corroborated by Khan et al in his study and he also mentioned lifting weights to be a risk factor.

PROCTOSCOPY

In the present study , on proctoscopy , grade III lesions(64.10%) were most commonly observed in our study patients

In the study by Kaushal et al 2020[15] , On examination, majority of them, 41 patients (82%) had grade III internal hemorrhoids while 9 patients (18%) had grade II internal hemorrhoids. 10 patients (20%) had some degree of external hemorrhoids and 7 (14%) had skin tag. Examination during surgery revealed active bleeding in 10 patients (20%) and mucosal prolapse in 22 (44%).

Operation duration

In our study ,it was observed that laser hemorrhoidoplasty(LH) had significantly lesser operative time (25.6±4.1 mins) as compared to Open hemorrhoidectomy(OH) (35.8±9.3 mins) & Stapler haemorrhoidopexy (SH) (30.35±6 mins).

Operative duration	Laser	Stapler	Open
Mostafa M .A. Aziz Ali et al (2023)[16]	-	43.60min	47.20 min
Sabry, Ahmed M et al 2023[17]	23.04±3.42 min	33.72±4.48 min	
Amr M.M. Elhefny et al 2021 [18]	25.1±2.96 min	37 ±4.46 min	
Ahmed M Hassan et al 2021[19]	15.90 ± 3.5 min		26.80 ± 5.8 min

Kaushal et al ,2020 [15]	24.6 min	28.6 min	
Maloku H et al (2014)[2]	15.94 ± 3.5 mins		26.76 ± 5.8 min
Present Study	25.6±4.1 mins	30.35±6 mins	35.8±9 .3 mins

.INTRA-OPERATIVE BLEEDING

In the present study , it was observed that Laser hemorrhoidoplasty (88.23%) had significantly higher distribution of patients with mild intraoperative bleeding as compared to stapler Open hemorrhoidectomy (0%) & Stapler haemorrhoidopexy (75%).Moderate bleeding was observed in 6 patients (25%) of stapler group , 4 patients (11.76%) in laser Group and 20 (100%) in open group.

In the study by Sabry, Ahmed M et al 2023 [17],operative blood loss in LH was 5.61±1.06 ml compared with 11.67±11.92 ml in stapler group ($P <$ 0.001).

Alla A. Alsisy (2018)[20] reported intraoperative blood loss was higher in open group than in laser group (36.50 ± 7.21 vs. 15.50 ± 4.80 ml, P < 0.001)

Naderan M (2017)[12] reported intraoperative blood loss was higher in open group than in laser group (22.8 ± 8.3 vs. 12.8 ± 4.5 ml, P < 0.001)

Mostafa M.A. Aziz Ali et al (2023)[16] reported mean volume of intraoperative blood loss in open hemorhoidectomy group was 59.80ml with range from 40 to 75ml. The mean volume of intraoperative blood loss in Stapler group was 38.20ml with range from 20 to 50ml (p<0.05)

VAS

It was observed that in all the three groups VAS score was progressively reduced from 0^{th} day till 6 month Intergroup comparison revealed that laser hemorrhoidoplasty had significantly lesser VAS score as compared to stapler hemorrhoidopexy and open hemorrhoidectomy at 0 th day (2.7±1.16 vs 3.5±1.32 vs 5.64±1.25) respectively .(p=0.0023)

Ram et al. [21] carried out a study on 58 patients with second-degree and third-degree hemorrhoids who underwent LH. Postoperative pain was noted to be VAS 0 in 80.6% of the patients at the first defecation, VAS 0 in 82.3% of the patients at 1 week, and VAS 0 in 95.2% of the patients at 1 month. Both previous studies are in agreement with our results of less postoperative pain associated with LH when compared with SH.

Maloku et al. [2] showed that VAS scores were significantly lower in the LH group than in the OH group at POD 30 (0.2± 0.1 vs. 0.8± 0.2, respectively; P< 0.001) and POD 60 (similar values as POD 30).

Hassan and El-Shemy [19] also reported significantly lower VAS scores in the LH group than in the OH group up to POD 30.

Duration of Hospital Stay

In our study , the mean hospital stay in Stapler group was 1**.90 (0.81) days , in laser group it was 1.11 (0.87) days and in open group , it was 2.18 (0.73).**We observed that all the three procedures had comparable duration of hospital stay .(p=0.668)

In the study by Ahmed M Hassan, & Gamal Galal Shemy[19] ,the average time of hospitalization ranged from 4 to 12 hours in LH group , and ranged from 12 to 18 hours, with a mean of 13.8 (± 2.82) hours in OH group.

In the study by Sabry, Ahmed M et al 2023[17] ,the mean hospital stay in our study was 19.4 +-4.6 h in LH group verses 23.8+-3.8 h in SH with a significant difference and less postoperative hospital stay in LH group.

Q. Z. Ruan ,2021[22] in a systematic review reported ,total length of hospital stay of SH patients was significantly shorter than OH group in 14/20 studies and non significant in 6 studies over the last 20 years of literature assessed .

Post operative bleeding

It was observed that patients underwent Laser hemorrhoidoplasty were associated with significantly lesser post operative bleeding (12%) as compared to stapler hemorrhoidopexy and open hemorrhoidectomy during follow up intervals .(p<0.05)

Postoperative bleeding was observed more after LH in comparison with SH in our study. In our study, seven (23.3%) patients experienced postoperative bleeding, two of them required hospital readmission, and only two (6.6%) patients experienced postoperative bleeding after SH, with no need for readmission, P value of 0.023. Other studies highlighted that no patients required surgical hemostasis after LH, suggesting the hemostatic and coagulative effectiveness of the laser technique. On comparing our results with the previous studies[17,18], we found that there is an increased incidence of postoperative bleeding after LH in comparison with SH, and due to the coagulative power of the laser technique, there was no need for postoperative blood transfusion in our patients

Anal Stenosis

It was observed that none of the patients had complaint

of anal stenosis

Elhefny et al [18]bfound no cases with anal stenosis in both groups. four (13.3%) patients urinary retention after SH, but only one (3.3%) patient had urinary retention after LH, with no significant difference.

Johannsson et al. [23] reported that incontinence after hemorrhoidectomy is typically related to anal sphincteric injury, but it can also occur with intact sphincters, as the hemorrhoidal cushions provide 15% of the patient's resting anal tone, and their removal may affect anal continence. Scarring after hemorrhoidectomy may additionally cause decreased sensitivity and reduced capacity for anorectal discrimination.

Also, Ram et al. [21] carried out LH on 58 patients with second-degree and third-degree hemorrhoids. The mean duration of the operation was 20.8 min, postoperative abscess formation was 5%, and urine retention was 20.1%. Long-term complications were fissure (2.6%), anal stenosis (1%), incontinence (0.4%), and fistula (0.5%).

Recurrence

The overall recurrence rate of 6.41% at 6 months follow up was found amongst 5 patients.

Amongst these 5 patients, 2 were from stapler and open hemorrhoidectomy procedure while 1 patient was under laser group. A systematic review by Longchamp et al. [24] highlights that the recurrence rate of hemorrhoids after Laser hemorrhoidoplasty ranges from 0% to 11.3% after 1 year for this cohort which is in the range of current study .The most important factor is the recurrence of hemorrhoids and the relapse of symptoms. After 1 year of follow-up, there was one (3.3%) case of recurrence after SH and seven (23.3%) cases of recurrence after LH, with a significant difference.

Recurrence was observed in the study of Crea et al. [1], After a 2-year regular use of the laser procedure in 97 patients with symptomatic second-degree to thirddegree hemorrhoids, minimal or moderate internal mucosal prolapse occurred in four (5.5%) patients, all within the first 5 postoperative months.

Conclusion

Acknowledging the findings of the current study , it can be concluded that , Laser Hemorrhoidoplasty is a simple and safe technique with less postoperative pain, operative time, hospital stay,postoperative complcations and rates of recurrence.Stapler hemorrhoidopexy is a more reliable technique with less postoperative bleeding but early recurrence was observed in 1 case at 3 month ., hence it could suitable alternative to conventional hemorrhoidectomy. Surgical Hemorrhoidectomy is still routinely performed procedure for hemorrhoids with known outcome .However with the advent of technologically advance alternative like Laser and stapler , they could be a good choice for symptomatic patients with bleeding hemorrhoids with associated major comorbidities in whom general surgery is a burden.

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