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"HEMORRHOIDS: DISEASE PRESENTATION, MANAGEMENT, AND COMPLICATIONS"

Surgery

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ABSTRACT

Aim & Introduction: Symptomatic hemorrhoid disease is one of the most prevalent ailments associated with a significant impact on quality of life. Management options for hemorrhoid disease are diverse, ranging from conservative measures to a variety of office and operating room procedures. This study aims to explore various ways in which hemorrhoid cases present themselves, find out any correlation between factors, and understand the role of selecting the right surgical procedure for better outcomes. **Patients and methods:** 75 patients diagnosed with Hemorrhoids grade II, III, or IV were included in this retrospective observational study. The data points were collected on the patient's age, sex, grades/severity of hemorrhoids, type of treatment, post-procedure complication, and pain score. Statistical analysis including the chi-square test and t-test was conducted to generate insights and identify the correlation between factors. **Results:** Out of 75 patients, 58 were males and 17 were females. The mean age of the sample population was 37 years. The most common symptoms reported were Bleeding (91%) and pain (53%). Patients were treated with laser and stapler procedures where the stapler procedure was only used in Grades III and IV. 100% of cases of grade II were treated with laser procedure. 78.6% of the patients reported no complications after the procedures. **Conclusion:** There was heterogeneity in hemorrhoid presentation due to a variety of symptoms in various combinations. The most common symptoms were Bleeding and pain across all grades. Based on the results, it was concluded that adapting treatment methods based on the severity and symptoms of hemorrhoids may significantly reduce post-procedural complications.

KEYWORDS

Hemorrhoids, Laser, Stapler, Surgery

INTRODUCTION

Millions of people throughout the world suffer from hemorrhoids, generally known as piles. Hemorrhoids, a very common anorectal condition, cause anal cushions, which are prominences of the anal mucosa made of loose connective tissue, smooth muscle, arteries, and venous vessels, to become symptomatically enlarged and/or distally displaced.[1-3] They refer to the swollen and inflamed blood vessels located in the rectum or anus.[4] There are two basic categories of hemorrhoids: internal and external. Unless they prolapse or extend through the anus, internal hemorrhoids that have developed inside the rectum are neither visible nor palpable. Internal hemorrhoids are traditionally graded into four degrees - Grade I (First degree) hemorrhoids bleed with defecation but do not prolapse, Grade II (Second degree) hemorrhoids prolapse with defecation and reduce spontaneously, Grade III (Third degree) hemorrhoids prolapse and require manual reduction and Grade IV (Fourth degree) hemorrhoids prolapse and cannot be reduced.[5] On the other hand, external hemorrhoids, which develop beneath the skin around the anus, can be extremely painful and uncomfortable.

Depending on the kind and degree of the illness, hemorrhoids can cause a variety of symptoms. Rectal bleeding, which can be seen as bright red blood on toilet paper or in the toilet bowl, is one of the most typical symptoms. The anal area frequently experiences discomfort or soreness, along with itchiness and inflammation. In external hemorrhoids, there may be a bump or swelling next to the anus.

These warning signs and symptoms may seriously impair a person's quality of life and overall health. Increased pressure on the veins in the rectal and anal areas is one cause of hemorrhoids, along with other contributing factors. This pressure can be brought on by constipation that lasts a long time, straining during bowel movements, extended sitting or standing, pregnancy, obesity, and a lack of dietary fiber.[6,7] Hemorrhoids are treated to alleviate symptoms, decrease inflammation, and enhance overall health. Hemorrhoids can usually be managed well with conservative methods and lifestyle changes. Increasing dietary fiber intake, staying hydrated, avoiding undue straining during bowel motions, and maintaining excellent anal cleanliness are a few of them.

Various therapeutic options are available when conservative methods are insufficient. Itching and pain can be relieved with topical lotions and ointments containing substances like hydrocortisone.[2] There are a number of treatment options, including both non-surgical and surgical procedures, for more severe or enduring instances of hemorrhoids.

Hemorrhoids can be reduced or removed using non-surgical methods such as rubber band ligation, sclerotherapy, or infrared coagulation. However, in certain situations where non-surgical methods have not been successful or for severe cases, surgical interventions may be considered. Hemorrhoids are completely removed via a surgical operation called a hemorrhoidectomy.[8]

Another surgical alternative is hemorrhoidopexy, commonly referred to as stapled hemorrhoidopexy or PPH (Procedure for Prolapse and Hemorrhoids). To minimize blood flow and avoid prolapse, the hemorrhoidal tissue is repositioned using a specialized stapling tool.[9] Other surgical options include laser surgery alone, laser surgery combined with artery ligation, and laser surgery combined with MIPH (minimally invasive procedure for hemorrhoids).

These procedures use laser radiation to eliminate or cure hemorrhoids, which frequently leads to less discomfort and a quicker recovery.[10] Hemorrhoids that are left untreated can result in pain, discomfort, and consequences such as tissue protrusion, strangling, and clotting. To

avoid these issues, it is essential to seek medical care as soon as possible. For symptom alleviation and a better quality of life, early detection and appropriate care are essential. It is advised to see a healthcare expert for individualized therapy based on severity and personal health.[11]

The aim of this study is to add to the general information available about hemorrhoid case presentation, management, and post-procedure complication and to study any correlation between various factors of the disease.

METHODOLOGY

This Retrospective observational study was conducted at different centers across India. Data from patients who presented in the clinic from January 2022 to May 2022 was taken for analysis. A total of 75 patients who qualified for the inclusion and exclusion criteria were chosen for the study.

Inclusion Criteria

- Patients diagnosed with hemorrhoids grade II, III, or IV
- Patients who underwent surgical procedures for the treatment of hemorrhoids

Exclusion Criteria

- Patients with No hemorrhoids or Grade I hemorrhoids were excluded from the study
- Patients treated with non-surgical methods for hemorrhoids
- Unlikely to be available for follow-up visits over a period of 9 months were excluded
- Recently undergone any surgical procedures for the treatment of their hemorrhoids and the disease has recurred
- Patients having comorbidities such as diabetes, hypertension, etc.

After taking their consent, the data points collated for the analysis were Age, Sex, Clinical presentation, Grade of hemorrhoids, Type of treatment, and Time taken during the procedure. The patients, who were feasible to do follow up with, were followed up at 1, 3, 6, and 9 months after the treatment. Some of the patients were lost at the time of follow-up. For the rest of them, at the follow-up visit, The data points were collected for post-procedure complications and pain scores. Pain was scored using Numerical Pain Rating Scale (NPRS) with a scale of 0 to 10 where 0 means no pain and 10 represents severe intolerable pain.

A statistical analysis was conducted after collating all the data points. The number and percentage of cases were used for nominal and ordinal data. Percentages were calculated out of total cases (75) only. For Age, Mean ± standard deviation was calculated along with the number and percentages of people in the age ranges. A chi-square test and T-test were performed using Microsoft Excel 2019 to understand the correlation between the severity of hemorrhoids vs age and sex. $p<0.05$ signifies a significant correlation between the two factors.

RESULTS

A total of 75 patients were included in the study. As per Table 1, Most of the patients (54 out of 75) were between 20 and 40 years of age. The rest of the patients (21 out of 75) were older than 40 years of age. The mean age ± standard deviation of the sample population was 37 ± 11. A total of 58 out of 75 patients were male (77%) and 17 were female (23%). The percentages mentioned in Table 1 were all calculated out of 75.

Table 1. Demographics of patients on the basis of age and gender

Age	Male n (%)	Female n (%)	Total n (%)
<20	0	0	0
21-30	24 (32%)	3 (4%)	27 (36%)
31-40	22 (29%)	5 (6%)	27 (36%)
41-50	6 (8%)	6 (8%)	12 (16%)
51-60	3 (4%)	2 (3%)	5 (7%)
>61	3 (4%)	1 (1%)	4 (5%)
Total	58 (77%)	17 (23%)	75

As depicted in Fig. 1, Cases of Grade III hemorrhoids were the most common, affecting 34 individuals (45.3%). Grade II hemorrhoids were present in 33 patients (44%), while Grade IV hemorrhoids were present in 8 patients (10.7%). No cases of Grade I hemorrhoids were included in the study.

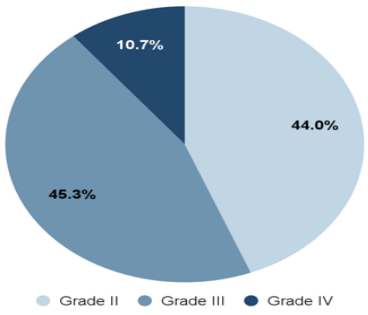

Fig. 1. Frequency distribution of grades of hemorrhoids

To study the correlation between the severity grade of hemorrhoids and the age or sex of the patient, Grade II (Least severe in our study) and Grade IV (Most severe) patient were picked and the Chi-square test and t-test were performed to calculate the p-value for the datasets. $p < 0.05$ signifies a significant correlation between the two data sets. As mentioned in Table 2, The p-value for the comparison of mean age between patients with Grade II and Grade IV hemorrhoids was 0.063 which signifies that there was no significant correlation between the age of the patient and severity of hemorrhoids. For the correlation between the severity of hemorrhoids and the sex of the patient, the p-value was 0.145. Hence, no significant correlation can be established here as well.

Table 2. Correlation between severity of hemorrhoids with respect to age and sex

Variable	Grade II	Grade IV	p value
Mean age (years)	33.54±7.55	46.12±16	0.063
Sex			
Male	25	8	0.145
Female	7	0	

Clinically, The most common symptom reported was bleeding, presented by 68 individuals (~91%). The second most common symptom, pain, was present in 40 cases (~53%). Constipation was found only in 3 patients (~4%). All patients in the dataset exhibited at least one symptom. The division of symptoms for each grade of hemorrhoids is shown in Table 3.

Table 3. Analysis of symptoms based on the grades

Grades	Pain n (%)	Itching n (%)	Constipation n (%)	Bleeding n (%)	SCOPR n (%)	Discomfort while sitting n (%)	Lump n (%)
Grade II	20 (61%)	6 (18%)	2 (6%)	29 (88%)	3 (9%)	7 (21%)	8 (24%)
Grade III	15 (44%)	1 (3%)	1 (3%)	31 (91%)	11 (32%)	6 (18%)	3 (9%)
Grade IV	5 (63%)	0	0	8 (100%)	3 (38%)	0	2 (25%)
Total	40 (53%)	7 (9%)	3 (4%)	68 (91%)	17 (23%)	13 (17%)	13 (17%)

The distribution of symptoms varied across different grades of hemorrhoids except two of the most common symptoms. Table 3 shows that bleeding and pain were not only the two most common symptoms overall but also in each grade, they were on top. After that, there were variations in symptoms. While in Grade II, Lump (24%) and itching (18%) were seen in a significant proportion of people, In grade III, SCOPR 'Something coming out per rectum' (32%) and discomfort (18%) were seen. Among grade IV patients, Itching and constipation were not present which shows that these symptoms were mostly present in early hemorrhoid cases.

As depicted in Fig. 2, Out of the total 75 patients, 62 (82.7%) underwent laser procedures for their hemorrhoids, and a total of 13 patients (17.3%) received the Stapler procedure. All 33 patients (100%) of grade II underwent laser procedure. Out of 34 Grade III patients, 27 (~79%) underwent laser and 7 patients (~21%) underwent stapler procedure. Among 8 Grade IV patients, only 2 (25%) underwent laser procedure and the rest 6 (75%) received stapler

procedure. These results showed a greater use of the laser procedure in less severe cases and a greater use of the stapler procedure in more severe cases. The average duration for both procedures was about 40 minutes.

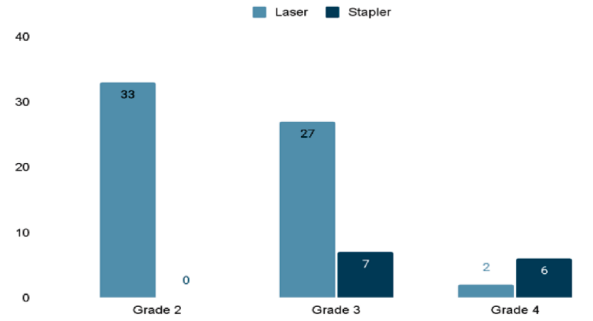

Fig. 2. Frequency distribution of disease grades and the type of surgery

As shown in Fig. 3, After the procedure, out of a total of 75 patients, 59 (78.6%) did not experience any complications. The most common complication was bleeding, which affected 8 patients (10.7%), followed by urinary retention, which affected 5 patients (6.7%). Infection accounted for 4% (n=3) of the complications, while fistula, stenosis, and abscess each affected only ~1% (n=1) of the cases.

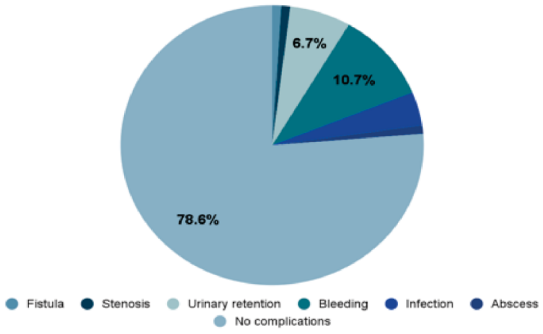

Fig. 3. Frequency distribution of post-procedure complications

At the 1-month follow-up, 59 patients out of 75 were retained. For those patients, the average pain score was found to be 4. At 3 months, follow-up data were collected for 38 patients only, rest were lost to follow-up. Out of those 38 patients, the average pain score was ~2, and 23 patients (61%) were fully recovered. At 6 months, data for only 15 patients were collected, out of which, 14 were fully recovered and all 15 had no pain. The 1 patient, not recovered at 6 months was also reported to be fully recovered at 9 months follow-up.

DISCUSSION

The objectives of this study were to explore the various cases of hemorrhoids, study how the disease presents itself and identify any correlation between factors. This observational study aims to add to the general information available on hemorrhoids.

While analyzing patient distribution across age groups, it was found that hemorrhoid patients were distributed across all ages above 20. The mean age of the sample was 37 and while most of the cases were found between 20 and 40 years of age. Using the chi-square test, no significant association of hemorrhoid occurrence with age was found. Emeka Ray-Offor et al. in their research paper reported quite comparable findings.[12]

Out of a total of 75 patients; 58 patients (77%) were males, and 17 patients (23%) were females in this study. This data showed a higher preponderance of hemorrhoids in male patients. There was no correlation found between the sex of the patient and hemorrhoid grade severity as the p-value was greater than 0.05. Emeka Ray-Offor et al. also reported a greater number of male patients with hemorrhoids in their study, with 76 male patients and 45 female patients. This result is consistent with the study's findings and shows a similar tendency toward hemorrhoids' greater occurrence among males.[12] In contrast, Santos et al. found that there were more female patients with hemorrhoids than male patients. 1,267 male patients (44.6%) and 1,573 female patients (55.4%) were included in their study.[14] These contrasting results can be due to differences in the number of participants taken for the studies. Hence, concluding that hemorrhoid cases are more common in one type of sex than another would be misleading.

The most common symptom reported by the 75 patients was bleeding, with 68 patients (~91%) experiencing it. All cases were symptomatic in this study. Emeka Ray-Offor et al. found that Bleeding per rectum was the most common presentation 86 (71%); however, around one-fifth of the study population had no symptoms at presentation 25 (20.7%).[12] The hemorrhoid cases, apart from clinical presentation, can also be diagnosed by doing proctoscopy and hence there can be cases that are asymptomatic. Most of these asymptomatic cases are found when the disease is in grade I. The presence of multiple symptoms and a variety of combinations across individuals showed the heterogeneity in the presentation of hemorrhoid cases.

In the present study, out of 75 patients, ~79% did not experience any post-procedure complications. The most common complications were bleeding (~11%) and urinary retention (~7%). Other complications, such as fistula, stenosis, and abscess, each affected ~1% of the patients individually. Similar findings were reported in the Lelpo et al. study where they found that only 11.9% of patients experienced early complications, while only 16.7% experienced late complications. Among the early complications, severe pain and bleeding were the most commonly reported, while severe pain was the primary late complication.[13] In the Lelpo et al. study, Grade III and Grade IV hemorrhoid cases were treated using a stapler procedure similar to this study where most of the Grade III and Grade IV patients were treated using a stapler procedure only. Both studies reported fewer post-procedure complications which can be accounted for the fact that they used similar procedure for severe cases of hemorrhoids. It can be said that choosing the right treatment option based on the severity and symptoms of hemorrhoids helps to decrease post-procedure complications and boost the recovery process.

This study generated a few important insights. At the same time, some limitations were there such as a low number of participants and cases lost to follow-up. Further research may be required to explore areas such as Hemorrhoid recurrence after the procedure, and the effects of adaptation of treatment options based on hemorrhoid severity to make a definitive conclusion.

CONCLUSION

The most common symptoms of hemorrhoids are bleeding and pain across all the severity grades. The correlation of hemorrhoid severity with respect to the patient demographics was found to be statistically insignificant which shows that hemorrhoid cases have no pattern of occurrence with respect to the age and sex of an individual.

There was heterogeneity in the clinical presentation of hemorrhoids due to the presence of different sets of symptoms. From the findings of this study, it can be concluded that adapting treatment options based on the severity of hemorrhoids may significantly reduce post-procedure complications and help in faster recovery, however further studies need to be conducted in this area to arrive at a definitive conclusion.

Statements and Declarations

Human Rights

The procedures followed in the study were in accordance with ethical standard committee and the Helsinki Declaration of 1975, as revised in 2000 (5).

Informed Consent

Informed consent was obtained from the participants included in the study.

Conflict of Interest

The authors report no conflict of interest.

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