

The Profiles and Clinical Outcome of Stapled Hemorrhoidopexy and Open Hemorrhoidectomy Patients: A Five-Year Study in Dr. Soetomo General Hospital, Indonesia

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ABSTRACT

Background: There are various surgical methods for hemorrhoid. Currently, there is no data regarding the profile and clinical outcome of surgery on internal hemorrhoids, especially between open hemorrhoidectomy and stapled hemorrhoidopexy at Dr. Soetomo General Hospital. We aimed to describe the profile and outcome of internal hemorrhoidal patients. **Methods:** We collected samples from all patients with internal hemorrhoid who visited the emergency department and outpatient from January 2018 – to April 2022. The data are secondary data taken from medical records. We collected patients' demographic data (e.g., age and sex), disease severity, comorbidities, therapies, length of stay, and complications. **Results:** We recruited a total of 615 patients, consisted of 47 cases (7.6%) undergoing hospitalization and 568 (92.4%) outpatient treatment. Male patients dominate the distribution by sex, either in inpatient or outpatient settings. The mean age of patients is 46.6 years for outpatients and 44.6 years for inpatients. The majority of internal hemorrhoid grading is grade 2 for outpatient and grade 3 for inpatient. Most of the patients who came with comorbidities had metabolic disorders (48.1%). The stapled hemorrhoidopexy procedure has a fairly low level of pain than open hemorrhoidectomy. In this study, it was found that the average length of stay of patients after stapled hemorrhoidopexy was shorter than open hemorrhoidectomy. **Conclusion:** Internal hemorrhoid patients who underwent the most surgeries at Dr. Soetomo General Hospital Surabaya is a male aged > 50 years with grade 3. Stapled hemorrhoidopexy has fewer pain complications than open hemorrhoidectomy and shorter length of stay.

Keywords: internal hemorrhoid; open hemorrhoidectomy; clinical outcome; stapled hemorrhoidopexy.

INTRODUCTION

Hemorrhoids are dilation and inflammation of the veins in the anus from the hemorrhoidal plexus. Hemorrhoids are divided into two parts, namely external hemorrhoids and internal hemorrhoids based on their location from the mucocutaneous line (dentate line).[1] The acute thrombosis and strangulation of hemorrhoids is both painful and debilitating, and a major cause of morbidity.[2] The treatment of hemorrhoids includes reduction of volume of these tissues and fixation of adjacent tissue. The surgical interventions are divided into techniques that include fixation of the hemorrhoidal cushions without removing the hemorrhoids (hemorrhoidopexy) and techniques that include the removal of tissues and hemorrhoidal arteries (hemorrhoidectomy).[3]

Based on research conducted by Safyudin and Damayanti in 2017, the types of surgical management that are often used at RSUP Dr. Mohammad Hosein Palembang is a stapled hemorrhoidopexy (61.5%).[4] stapled hemorrhoidopexy is preferred because it is less painful in the first 24 hours compared to a hemorrhoidectomy.[5] The most common complication of open hemorrhoidectomy is anal stenosis (1.7-1.9%) which can be treated with sphincterotomy (46%).[3]

Meanwhile, for stapled hemorrhoidopexy, the most common complication is bleeding.[6]

Open hemorrhoidectomy at Dr. Soetomo General Hospital used to Milligan Morgan Technique. It has become a classical technique, largely used around the globe, undoubtedly the most frequently used experts worldwide. In this technique, internal and external component from a few parts of hemorrhoid and skin is excised (at 3, 7 and 11 a clock), with ligation of vascular pedicle and the raw area of dissection to be closed by secondary intention for 4-8 weeks.^{12,13}

While Stapled hemorrhoidopexy was found at 1998 by Antonio Longo by modified low anterior resection instrument. This technique eliminates *redundant* rectal mucosal ring in the upper anal verge and hemorrhoid itself. This process is used to relocate hemorrhoid which prolapse to anal canal and stop the arterial blood flow in the excised segment.^{14,15}

Currently, there is no data regarding the profile and clinical outcome of surgery on internal hemorrhoids, especially between open hemorrhoidectomy and stapled hemorrhoidopexy at Dr. Soetomo General Hospital.

Based on that thought, we conducted a descriptive study to learn more about hemorrhoids and hemorrhoid surgery and complications that may occur due to this surgery, especially in the scope of Dr. Soetomo General Hospital Surabaya.

MATERIALS AND METHODS

Study design and participants

This study is an observational retrospective study. We collected samples from all patients with hemorrhoid internal who visited the emergency department and outpatient from January 2018 – to April 2022. We collected patients' demographic data (e.g., age and sex), disease severity, comorbidities, therapies, length of stay, and complications. All patients underwent surgical treatment, either open hemorrhoidectomy (Milligan Morgan technique) or Stapled hemorrhoidopexy. We included patients with internal hemorrhoids who underwent surgical management and adults aged more than 18 years. We excluded patients with no complete medical record data. We used a total sampling method and included all patients who fulfilled the inclusion criteria. The patient's internal hemorrhoids were evaluated based on physical examination, consisting of 4 degrees which were generally based on anal bleeding, protruding masses from the anus, and masses that could be repositioned or not.

Statistical analysis

The statistical analysis was performed using the SPSS statistical software package (version 23.0; IBM Corp., Armonk, NY, USA). Discrete variables were tested using the Chi-square test. Statistical significance was determined when the P value was less than 0.05.

RESULTS

Patient characteristics

During January 2018 – April 2022, there were 615 patients with internal hemorrhoids with 47 cases (7.6%) undergoing hospitalization and 568 (92.4%) outpatient treatment at Dr. Soetomo General Hospital Surabaya. The profiles and outcome of the patients are shown in Figure 1. Male patients dominate the distribution by sex, either in inpatient or outpatient settings. The age of the patient suffering from internal hemorrhoids at the Dr. Soetomo General Hospital Surabaya is quite varied, with the youngest age 18 years and the oldest 90 years, the mean age of patients is 46.6 years for outpatients and 44.6 years for inpatients. The highest number of patients was in the age group above 50 years, both outpatients (46.5%) and inpatients (40.4%). The majority of internal hemorrhoid grading is grade 2 for outpatient and grade 3 for inpatient. Most of the patients who came with comorbidities had metabolic disorders (48.1%) (Table 1).

Internal hemorrhoid patients who are hospitalized undergo two elective surgery options, namely open hemorrhoidectomy and stapled hemorrhoidopexy. Both open hemorrhoidectomy and stapled hemorrhoidopexy were performed mostly in male patients (63.6% with open hemorrhoidectomy and 63.2% with stapled hemorrhoidopexy). For age, the 3rd decade is the age of most patients who underwent both open and hemorrhoidopexy (54.4% and 47.4%). In patients who underwent open hemorrhoidectomy, most were performed on grade 4 internal hemorrhoids (45.5%) while stapled hemorrhoidopexy was performed on grade 3 internal hemorrhoids (68.4%) (Table 2).

In this study, there was 1 case of complications in the form of rectal bleeding after stapled hemorrhoidopexy. After the open hemorrhoidectomy, 4 cases had rectal bleeding complications and 1 case of a perianal abscess (Table 3).

The profile of patients who experienced complications after surgery for hemorrhoids was mostly male (68%), while the highest age was in the 3rd decade (49%) (Table 4). The stapled hemorrhoidopexy procedure has a fairly low level of pain (Scale 1 68.4%) while the open hemorrhoidectomy has the highest pain scale on a scale of 5 (45.5%). In this study, it was found that the average length of stay of patients after stapled hemorrhoidopexy was shorter than open hemorrhoidectomy, while the longest duration of hospitalization for both open hemorrhoidectomy and stapled hemorrhoidopexy was 15 days (Table 5).

DISCUSSION

In this study, we aim to describe the profile and outcome of internal hemorrhoidal patients treated at Dr. Soetomo General Hospital Surabaya period January 2018 – April 2022. Male patients dominate the distribution by sex, either in inpatient or outpatient settings. Based on a study conducted by Santos in 2012 and Kibret in 2021, it was stated that the prevalence of hemorrhoids in women was higher than in men because it was related to women who had given birth at least once.[3], [7] This is different from the prevalence based on gender in Dr. Soetomo General Hospital Surabaya, possibly due to patients preferring to seek treatment themselves and change their own lifestyle based on health information that is easily accessible here compared to having to come to the hospital, especially patients with minimal complaints.

The age of the patient suffering from internal hemorrhoids at the Dr. Soetomo General Hospital Surabaya is quite varied, with the youngest age 18 years and the oldest 90 years, the mean age of patients is 46.6 years for outpatients and 44.6 years for inpatients. This is in accordance with a study conducted by Rezkita in 2020 where hemorrhoids were found in 50% of the population aged over 50 years.[8]

Internal hemorrhoid patients who are hospitalized undergo two elective surgery options, namely open hemorrhoidectomy and stapled hemorrhoidopexy. There are also internal hemorrhoidal patients who undergo non-operative therapy by administering suppositories containing astringent, topical anesthetic and anti-inflammatory drugs, where most of these patients are consulted patients from other departments who have to be hospitalized because of their main disease. Both open hemorrhoidectomy and stapled hemorrhoidopexy were mostly performed in male patients (63.6% with open hemorrhoidectomy and 63.2% with stapled hemorrhoidopexy). For age, the 3rd decade is the age of most patients undergoing both open and stapled hemorrhoidopexy (54.4% and 47.4%). Most patients who underwent open hemorrhoidectomy were performed on grade 4 internal hemorrhoids (45.5%) while stapled hemorrhoidopexy was performed on grade 3 internal hemorrhoids (68.4%). Open hemorrhoidectomy and stapled hemorrhoidopexy are efficient surgical techniques for grade 3 and 4 internal hemorrhoids which are associated with a good outcome with more than 95% cure rate.[9]

The choice of therapeutic modality for internal hemorrhoids is increasingly becoming a clinician's consideration to determine the right choice of therapy and suitable for the patient being treated. Optimal clinical outcome is one of the parameters that become the target of clinicians in general. In patients with internal hemorrhoids with various currently available treatment modalities; length of hospitalization, minimal complications and pain, and low recurrence rates are considerations for clinicians in determining the choice of therapeutic modality.[3]

There is no specific pain scale indicator for postoperative evaluation of hemorrhoids, therefore the visual analog scale was chosen to determine the postoperative pain scale in this study because apart from being easy to understand by patients, it is also quite familiar among clinicians.[10]

In this study, the clinical outcome of patients who experienced complications was very rare, where only 1 case had complications in the form of rectal bleeding after the stapled hemorrhoidopexy procedure which could be handled properly with primary repair (figure of eight) at the source of bleeding, and this complication occurred after action in hospitals outside Dr. Soetomo General Hospital Surabaya. Patients after open hemorrhoidectomy who experienced complications in the form of rectal bleeding were 4 cases and all of them were performed outside Dr. Soetomo General Hospital Surabaya. These patients can be treated well with rectal tampons. Based on a study conducted by Santos in 2012, it was explained that the two most common complications of hemorrhoid surgery are anal stenosis and rectal bleeding.[3] There is no complication of anal stenosis in this study, this is because most of the procedures performed at Dr. Soetomo General Hospital Surabaya is performed by a digestive surgeon, while the procedures performed by residents and trainees are also closely monitored and receive prior training and guidance by a digestive surgeon. There was only 1 case of perianal abscess complication, this complication was also carried out after hemorrhoid surgery at a hospital outside Dr. Soetomo General Hospital Surabaya. The management of these complications was in the form of a drainage incision followed by a diversion colostomy. Cases of postoperative sepsis are very rare, statistically below 1%.[3]

The profile of patients who experienced complications after surgery for hemorrhoids was mostly male (68%), while the highest age was in the third decade (49%). Complications that occur after open hemorrhoidectomy are more than stapled hemorrhoidopexy. Factors that affect this include, operations that cause complications are carried out outside Dr. Soetomo General Hospital Surabaya which is a type A referral hospital in East Java; Stapled hemorrhoidopexy is mostly performed by experienced and trained digestive surgeons so that complications rarely arise. For the recurrence rate for both open hemorrhoidectomy and stapled hemorrhoidopexy, no data were obtained.

In this study, postoperative pain evaluation was also carried out using a visual analog scale tool. The choice of this tool is because there is no standard evaluation tool for cases of hemorrhoids and this tool is quite familiar and easy to understand by patients.[10] According to Saha et al, in a study conducted in 2017, it was found that hemorrhoidectomy with a stapler had a shorter hospital stay compared to conventional hemorrhoidectomy (the ratio of one-day surgery was 89.2% with conventional techniques compared to 82% with the stapled hemorrhoidopexy technique) and the average the average postoperative patient with stapled hemorrhoidopexy takes 8 days to return to normal work activities compared to conventional techniques which take 16 days.[11]

In this study, it was found that the average length of stay of patients after stapled hemorrhoidopexy was shorter than that of open hemorrhoidectomy, while the longest duration of hospitalization for both open hemorrhoidectomy and stapled hemorrhoidopexy was 15 days. The average length of hospitalization for the two procedures is also the same as in some literature which states that the advantage of stapled hemorrhoidopexy is the shorter duration of hospitalizations.

There are several limitations in this study, like limited samples and short duration for follow up. Further studies with larger samples and longer duration are needed to see long-term clinical outcomes in patients.

CONCLUSION

Internal hemorrhoid patients who underwent the most surgeries at Dr. Soetomo General Hospital Surabaya is a male aged > 50 years with grade 3. The clinical outcome of internal hemorrhoid patients undergoing open hemorrhoidectomy or stapled hemorrhoidopexy is quite good because the complication rate is very low. Stapled hemorrhoidopexy has fewer pain complications than open hemorrhoidectomy and shorter length of stay.

CONFLICTS OF INTEREST

No competing interests declared.

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FIGURE 1: Age characteristics (A); grading (B); comorbidities (C); grading undergoing surgery (D); complications based on the type of surgery (E); pain scale after hemorrhoid surgery (F) of research subjects.

TABLE 1: Characteristics of research subjects in outpatient and inpatient.

| Category | Total | |
|--------------------------|-------------|------------|
| | Outpatient | Inpatient |
| Sex | | |
| Male | 309 (54.4%) | 26 (55.3%) |
| Female | 259 (45.6%) | 21 (44.7%) |
| Age | | |
| <20 | 22 (3.9%) | 1 (2.1%) |
| 20-30 | 72 (12.7%) | 5 (10.6%) |
| 30-40 | 95 (16.7%) | 16 (34.0%) |
| 40-50 | 115 (20.2%) | 6 (12.8%) |
| >50 | 264 (46.5%) | 19 (40.4%) |
| Haemorrhoid grade | | |
| Grade 1 | 226 (39.8%) | 0 (0%) |
| Grade 2 | 326 (57.4%) | 17 (36.2%) |
| Grade 3 | 16 (2.8%) | 21 (44.7%) |
| Grade 4 | 0 (0%) | 9 (19.1%) |
| Comorbidities | | |
| Malignancy | 9 (29.0%) | 6 (22.2%) |
| Benign Tumour | 3 (9.7%) | 0 (0%) |
| Immunocompromised | 2 (6.5%) | 1 (3.7%) |
| Metabolic syndrome | 3 (9.7%) | 13 (48.1%) |
| Heart disease | 2 (6.5%) | 1 (3.7%) |
| Lung disease | 2 (6.5%) | 1 (3.7%) |
| Renal disease | 2 (6.5%) | 0 (0%) |
| Irritable bowel disease | 2 (6.5%) | 0 (0%) |
| Cerebral vascular attack | 1 (3.2%) | 3 (11.1%) |
| Others | 5 (16.1%) | 2 (7.4%) |

TABLE 2: Characteristics of research subjects undergoing treatment.

| Characteristics | Open Haemorrhoidectomy | Stapled Hemorrhoidopexy | Non-Operative Management |
|----------------------------|------------------------|-------------------------|--------------------------|
| Sex | | | |
| Male | 7 (63,6%) | 12 (63,2%) | 7 (41,2%) |
| Female | 4 (36,4%) | 7 (36,8%) | 10 (58,8%) |
| Age | | | |
| <20 | 0 (0%) | 0 (0%) | 1 (5,9%) |
| 20-30 | 3 (27,3%) | 0 (0%) | 2 (11,8%) |
| 30-40 | 6 (54,4%) | 9 (47,4%) | 1 (5,9%) |
| 40-50 | 1 (9,1%) | 1 (5,3%) | 4 (23,5%) |
| >50 | 1 (9,1%) | 9 (47,4%) | 9 (52,9%) |
| Haemorrhoid's grade | | | |
| Grade 1 | 0 (0%) | 0 (0%) | 0 (0%) |
| Grade 2 | 2 (18,2%) | 3 (15,8%) | 12 (70,6%) |
| Grade 3 | 4 (36,4%) | 13 (68,4%) | 4 (23,5%) |
| Grade 4 | 5 (45,5%) | 3 (15,8%) | 1 (5,9%) |

TABLE 3: Characteristics of open hemorrhoidectomy and stapled hemorrhoidopexy.

| Characteristics | Treatment | |
|---------------------------------|------------------------|-------------------------|
| | Open Haemorrhoidectomy | Stapled Hemorrhoidopexy |
| Operator | | |
| Digestive Surgeon | 3 (27,3%) | 14 (73,7%) |
| Trainee | 1 (9,1%) | 1 (5,3%) |
| Resident | 3 (27,3%) | 3 (15,8%) |
| Other hospital | 4 (36,4%) | 1 (5,3%) |
| Complications | | |
| No complication | 6 (54,5%) | 18 (94,7%) |
| Abscess perianal | 1 (9,1%) | 0 (0%) |
| Rectal Bleeding | 4 (36,4%) | 1 (5,3%) |
| Stenosis ani | 0 (0%) | 0 (0%) |
| Hypotonia Ani | 0 (0%) | 0 (0%) |
| Fistula perianal | 0 (0%) | 0 (0%) |
| Fissure Ani | 0 (0%) | 0 (0%) |
| Complication management | | |
| Incision drainage and colostomy | 1 (33,3%) | 0 (0%) |
| Rectal Tampons | 4 (66,7%) | 0 (0%) |
| Repair primer bleeding | 0 (0%) | 1(100%) |
| Fistulotomy lay open | 0 (0%) | 0 (0%) |
| Sphincterotomy/flap | 0 (0%) | 0 (0%) |

TABLE 4: Characteristics of research subjects who experience postoperative complications.

| Category | Complications | | | | | |
|------------|------------------|-----------------|--------------|---------------|------------------|-------------|
| | Abscess Perianal | Rectal Bleeding | Stenosis ani | Hypotonia Ani | Fistula perianal | Fissure Ani |
| Sex | | | | | | |
| Male | 1 (17%) | 3 (51%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| Female | 0 (0%) | 2 (32%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| Age | | | | | | |
| <20 | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| 20-30 | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| 30-40 | 1 (17%) | 2 (32%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| 40-50 | 0 (0%) | 2 (32%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| >50 | 0 (0%) | 1 (17%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |

TABLE 5: Description of the duration of hospitalization after surgery for hemorrhoids.

| Length of Stay (Days) | Inpatient | |
|-----------------------|------------------------|-------------------------|
| | Open Haemorrhoidectomy | Stapled Hemorrhoidopexy |
| Means | 7,36 | 5,63 |
| Maximum | 15 | 15 |
| Minimum | 3 | 4 |
| Median | 5 | 5 |
| SD | 3,77 | 3,04 |