

**Research Article**

**The Use of PILA-Pack: Differences in Length of Stay of Hemorrhoidal Patients**

**Penggunaan PILA-Pack: Perbedaan Lama Rawat Inap bagi Pasien Hemoroid**

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**ABSTRACT**

Hemorrhoids are a common anorectal disease and can affect all ages. This research aims to specify the differences in Length of Stay (LOS) of hemorrhoidal patients who underwent a modified combined method of rubber ligation and sclerotic injection using Paran Injection Ligation for Ambeien pack (PILA pack) compared to a hemorrhoidectomy. This study consisted of 56 respondents who underwent hemorrhoidectomy, and the other 56 respondents experienced a modified combined method of rubber ligation and sclerotic injection using a PILA pack. Data showed the LOS's average of respondents who underwent hemorrhoidectomy was 47.33 hours or 1.97 days. Meanwhile, respondents' average length of stay who underwent a modified combined rubber ligation and sclerotic injection using a PILA pack was 20.44 hours or 0.85 days. Finally, the T-test results showed a p-value of 0.001 ( $p < 0.05$ ), indicating that there was a statistically significant difference in the average LOS between hemorrhoidal patients who underwent hemorrhoidectomy and hemorrhoidal patients who underwent a modified combined method of rubber ligation and sclerotic injection using PILA pack. Based on the result, it can be concluded that the mean LOS for hemorrhoidal patients receiving haemorrhoidectomy vs. hemorrhoidal patients undergoing a modified technique of rubber ligation and sclerotic injection utilizing the Paran Injection Ligation for Ambeien pack was significantly different.

**Keywords:** Hemorrhoids, hemorrhoidectomy, LOS, PILA pack

**ABSTRAK**

Hemoroid adalah penyakit anorektal yang umum serta dapat menyerang semua usia. Penelitian ini bertujuan untuk mengetahui perbedaan *Length of Stay* (LOS) pasien hemoroid yang menjalani metode kombinasi *rubber band ligation* dan injeksi sklerotik menggunakan *Paran Injection Ligation for Ambeien* atau *PILA pack* dibandingkan dengan hemoroidektomi. Penelitian ini terdiri dari 56 responden yang menjalani hemoroidektomi dan 56 responden menjalani kombinasi metode *rubber band ligation* dan injeksi sklerotik menggunakan *PILA pack*. Diperoleh data bahwa rata-rata lama rawat inap responden yang menjalani hemoroidektomi adalah 47,33 jam atau 1,97 hari. Sedangkan rata-rata lama rawat inap responden yang menjalani kombinasi *rubber band ligation* dan injeksi sklerotik dengan *PILA pack* adalah 20,44 jam atau 0,85 hari. Hasil uji T menunjukkan nilai p value sebesar 0,001 ( $p < 0,05$ ), yang berarti terdapat perbedaan yang signifikan secara statistik rata-rata LOS antara pasien hemoroid yang menjalani hemoroidektomi dengan pasien hemoroid yang menjalani kombinasi *rubber band ligation* dan sklerotik injeksi dengan *PILA pack*.

**Kata Kunci:** Hemoroid, hemoroidektomi, LOS, *PILA pack*

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## INTRODUCTION

Hemorrhoids are often referred to as hemorrhoidal disease (HD), are one of the most common anorectal diseases (1). The hemorrhoidal disease affects approximately 4.4–36 per cent of the general population, aged >50 years old (2,3). Hemorrhoids are clumps of tissue made up of muscle and elastic fibers and swollen, bulging blood vessels and supporting tissues that form in the anal canal of an individual. It is a condition in which the anal cushion prolapses, resulting in bleeding and discomfort (4).

There are two types of hemorrhoids, internal hemorrhoids, and external hemorrhoids. The location of hemorrhoids concerning the pectinate line, which divides the upper 2/3 and lower 1/3 of the anus, determines whether they are internal or external. Internal hemorrhoids are coated with the same cells as the remainder of the intestines above the pectinate line. External hemorrhoids are a type of external hemorrhoid that grow beneath the skin's surface and are coated with skin-like cells. Internal hemorrhoids, also known as authentic hemorrhoids, are classified into three types based on how deep the tissue spreads into the anal canal (4,5).

Hemorrhoid's etiology and pathophysiology are still debatable, but it is multifactorial. The disruption of stromal scaffolding, enlargement of the vascular component, increased anal pressure, and rectal redundancy is important events in the disease's progression and complications. Furthermore, local inflammation could also be a factor (6). The first-line conservative therapy for hemorrhoids is Fiber supplements. Increased water consumption, warm water (sitz) baths, and stool softeners are all recommended as part of a high-fiber diet (25 to 35 grams per day) (5). Hemorrhoids can be treated with a variety of drugs. Only a few examples include astringents (witch hazel), protectants (zinc oxide), decongestants (phenylephrine), corticosteroids, and topical anesthetics. Bioflavonoids (such as hydro mine, diosmin, hesperidin, and rutosides) are frequently used to treat hemorrhoids (7).

Moreover, some of the operations performed to treat hemorrhoids include hemorrhoidectomy, banding (rubber band ligation), infrared photocoagulation, and stapler hemorrhoidectomy (5). In advanced stages of hemorrhoids, hemorrhoidectomy is the most beneficial and gold standard treatment method. For patients who are at risk of complications, traditional hemorrhoidectomy is still used. These procedures necessitate a few-day stay in the hospital and bed rest at home. Otherwise, they can result in postoperative complications such as bleeding and recurrent hemorrhoids. As a result, several less invasive treatments have been developed, some of which can be done as an

outpatient procedure. Sclerotherapy, photocoagulation, rubber banding, and cryotherapy are just a few of these procedures (3).

PILA Pack is a tool used in the combined method of modified rubber band ligation and sclerotic injection. The use of PILA Pack was run well during the recovery of one patient in a study case report stating, "After the action, complaint pain and bleeding from the anus is absent.", (p. 7) (8). The LOS is a crucial indication of medical service use to assess hospital management efficiency, patient care quality, and functional evaluation, among other aspects (9). Reducing inpatient days lowers the risk of infection and drug adverse effects, improves treatment quality, and boosts hospital profits through improved bed management (9). The quality of hospital services is determined by several factors, including LOS or Length of treatment days (10).

Based on the background above, this study aims to determine the differences in LOS of hemorrhoidal patients who underwent a combination method of rubber band ligation and sclerotic injection using the PILA pack compared to a hemorrhoidectomy.

## METHOD

This research was conducted in a Health Center, Yogyakarta, Indonesia. Quantitative observational analytic with a cross-sectional design was used in this research. The study included all hemorrhoidal patients who met the inclusion and exclusion criteria and were recorded in the medical records of a type D hospital in Yogyakarta in 2019–2020. Patients diagnosed with hemorrhoids met the inclusion criteria who underwent hemorrhoidectomy or the modified method of rubber ligation and sclerotic injection using the PILA pack at a one of type D hospitals in Yogyakarta and had complete and documented medical records. Moreover, the inclusion criteria also included those who were 18 years of age.

Meanwhile, the exclusion criteria in this study were grade 1 and 4 hemorrhoids. LOS of hemorrhoidal patients who underwent hemorrhoidectomy or the modified method of rubber ligation and sclerotic injection using PILA pack as the independent variable obtained from the old records. The patients' hospitalization was calculated from the first day to the last day the patients were treated. The type of action was hemorrhoidectomy or the modified method of rubber ligation and sclerotic injection using PILA pack as the dependent variable. Independent T-Test performed data analysis.

The last is all procedures in this research were declared to be ethically appropriate with ethics no.069/EC-EXEM-KEPK FKIK UMY/VII/2021 according to seven WHO standards such as social values, scientific values, equitable

**Table 1. Summary of differences in length of stay of hemorrhoidal patients**

Categories	Gender		Age			Grade		Treatment	
	Male	Female	20-40 years	>40-60 years	>60 years	2	3	Hemorrhoidectomy	Combination of rubber band ligation and sclerotic injection with PILA pack
Frequency	67	45	53	45	14	16	96	56	56
Percentage	59.8	40.2	47.3	40.2	12.5	14.3	85.7	50	50

assessment and benefits, risks, persuasion or exploitation, confidentially and privacy, and informed content referring to the 2016 CIOMs guidelines.

## RESULT

The researcher had 112 respondents; 67 males (59.8%) and 45 females (40.2%). Total respondents were people who were diagnosed with hemorrhoid by history taking and physical examination.

One of the most prevalent diseases among young individuals is hemorrhoids. More than half of all males and females are anticipated to have developed piles by the age of 50.

This study consisted of 56 respondents who underwent hemorrhoidectomy, and 56 respondents experienced a combination method of rubber band ligation and sclerotic injection using a PILA pack, as shown in the first table. The table below shows that the distribution of the age groups of respondents is shown in the table, where it is dominated by the age group of 20-40 years with 53 respondents (47.3%), followed by the age group > 40-60 years by 45 respondents (40.2%). Meanwhile, the minor age group is those who are >60 years that only includes 14 respondents with a 12.5% percentage.

The first table shows that the data on the number of respondents diagnosed with grade 2 of hemorrhoids has lower frequencies than respondents with grade 3 of hemorrhoids because patients whose diagnosed with grade 2 of hemorrhoid only include 16 respondents with 14.3% percentage, meanwhile 96 respondents (85.7%) were diagnosed with grade 3 of hemorrhoids.

This study showed that respondents' average length of stay after a hemorrhoidectomy was 47.33 hour, approximately 1.97 days. Meanwhile, the average LOS of respondents who underwent a modified method of rubber ligation and sclerotic injection using the PILA pack was 20.44 hours or 0.85 days. This data showed that patients that received rubber ligation and sclerotic injection using the PILA pack treatment recovery was faster than patients who received hemorrhoidectomy treatment. The results of the T-test revealed a p-value of 0.001 (p<0.05), indicating that there is a statistically significant difference in the average LOS between hemorrhoidal patients who had hemorrhoidectomy and hemorrhoidal patients who did not have hemorrhoidectomy who underwent a modified method of rubber ligation and sclerotic injection using PILA pack).

The bed occupancy rate, the average length of stay, bed turnover rate, bed turnover interval, and death rate should all be recorded and measured in the hospital (11,12). LOS shows how many days a patient is treated for an episode of inpatient care in health care facilities such as hospitals, clinics, and *Puskesmas*. In this case, LOS units usually use days. Moreover, a calculation aspect includes calculating the difference between the time out of the hospital and the time to enter the hospital. LOS of hemorrhoidal patients can be calculated based on medical records. Based on medical record data, the average LOS of hemorrhoidal patients is shown in table 2 below.

**Table 2. The length of stay**

Treatment	MeanStd.	Deviation	T-test
Hemorrhoidectomy	47.33	7.29	
Combination of rubber band ligation and sclerotic injection with PILA pack	20.44	1.94	0.001

## DISCUSSION

Hemorrhoids are more common in people between the age of 45 and 65 (13,14). Hemorrhoids are linked to circumstances that raise the pressure in the hemorrhoidal venous plexus, such as straining during bowel motions due to constipation (5). A literature survey revealed limited information about the epidemiology of hemorrhoids in Africa. However, interventional studies from Nigeria revealed a peak prevalence in the late third and early fourth centuries, with a male predominance (15). According to a national survey in a caucasian community, hemorrhoids are most common in the average age of 45 and 65 years and affect 5% of the population regardless of gender dominance (16).

The findings of this investigation align with Ravindranath GG and Rahul BG's study (2018) with the title "Prevalence and risk factors of hemorrhoids: a study in a semi-urban center," where, in this study, 66.67% of respondents were males, and 33.33% of the respondents were females. However, no significant difference between the two genders was discovered in other studies (17,18).

Furthermore, internal hemorrhoids are classified into four grades by the American Society of Colon and Rectal Surgeons (ASCRS) in their 2018 guidelines for hemorrhoid management. The four grades include Grade 1: Hemorrhoidal vessels are prominent, but there is no prolapse; grade 2: Hemorrhoids prolapsed after Valsalva maneuver reduces spontaneously; grade 3: Hemorrhoids that have prolapsed due to the Valsalva maneuver; manual reduction is required; and grade 4 Chronically prolapsed hemorrhoids that are resistant to manual reduction (19).

Nonexcision and excision methods are the two types of surgical hemorrhoids treatment options. Nonexcision procedures include rubber band ligation, injectable sclerotherapy, infrared coagulation, cryotherapy, radiofrequency ablation, and laser therapy. Besides, Milligan-Morgan (open) or Ferguson (closed) surgical excision procedures are available (20).

One of the most significant hospital indications that must be examined regularly is the LOS. It is a widely used metric for hospital care planning and administration, controlling the quality, and demanding hospital services. Besides, LOS also becomes the efficiency indicator of hospital performance. Patients who remain to stay longer or shorter than is necessary will impact the cost and quality of care given. A longer LOS in the first case might still result in limited resource utilization, lower levels of service provision to a larger population, increased pressure for more investment in new treatment centers, lower efficiency and higher depreciation of hospital facilities, and, more specifically, exposure to hospital infection and re-admission complications, as well as a decline in the number of resources accessible to patients with severe

diseases. On the other hand, shorter-than-necessary stays will degrade service quality and lead to undesirable consequences (14).

Based on the result, it can be concluded that the mean LOS for hemorrhoidal patients receiving haemorrhoidectomy vs. hemorrhoidal patients undergoing a modified technique of rubber ligation and sclerotic injection

utilizing the Paran Injection Ligation for Ambeien pack was significantly different.

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