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Phumzile Khuzwayo
Professor, School of Clinical
Medicine, University of
Pretoria, Pretoria, South
Africa

Dr. Siphwe Phiri
Department of Surgery,
University of Free State,
Bloemfontein, South Africa

Corresponding Author:
Phumzile Khuzwayo
Professor, School of Clinical
Medicine, University of
Pretoria, Pretoria, South
Africa

Advances in endoscopic variceal ligation for the treatment of rectal varices

Phumzile Khuzwayo and Dr. Siphwe Phiri

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Abstract

Rectal varices are a rare but severe complication of portal hypertension, often leading to life-threatening bleeding. Endoscopic variceal ligation (EVL) has emerged as a safe and effective treatment option for managing rectal varices. This study reviews the advancements in EVL techniques and evaluates their efficacy, safety, and clinical outcomes in the treatment of rectal varices. Significant improvements in procedural protocols have been observed, contributing to better patient prognosis and reduced recurrence rates.

Keywords: Rectal varices, reduced recurrence rates, contributing, endoscopic variceal ligation

Introduction

Rectal varices are an underreported yet significant manifestation of portal hypertension, commonly resulting from cirrhosis or other liver diseases. Unlike esophageal varices, which are more frequent, rectal varices pose a distinct challenge due to their anatomical location and often asymptomatic nature until a catastrophic bleeding event occurs. The incidence of rectal varices in patients with portal hypertension has been reported to be between 30-40%, but their clinical relevance comes to the forefront primarily when significant bleeding occurs. Traditionally, management strategies for variceal bleeding have included pharmacological treatments, surgical shunt procedures, and endoscopic interventions, such as Sclerotherapy. However, these approaches are often limited by their invasiveness, high recurrence rates, and patient-specific contraindications. Endoscopic variceal ligation (EVL), initially developed for esophageal varices, has emerged as an effective, minimally invasive alternative for managing rectal varices. By directly ligating the varices, EVL promotes hemostasis, minimizes bleeding risk, and prevents recurrence through variceal obliteration.

Recent advancements in EVL techniques, including the use of high-definition imaging and improved ligation bands, have contributed to better clinical outcomes, reduced complication rates, and a decreased need for secondary procedures. Yet, studies comparing EVL outcomes for rectal varices are limited, and the long-term efficacy of this approach is still under investigation. This study aims to provide a comprehensive evaluation of EVL's effectiveness in managing rectal varices and compares the findings with previous literature on variceal treatment methods.

Objective of the study

The objective of the study is to evaluate the effectiveness and safety of endoscopic variceal ligation (EVL) in treating rectal varices and to assess its long-term outcomes, including recurrence and complications.

Methodology

This retrospective study evaluated 78 patients diagnosed with rectal varices who underwent EVL between 2015 and 2020 at a tertiary care center. Patient records were reviewed to determine the success of the EVL procedure, focusing on immediate bleeding control, recurrence rates, rebleeding episodes, and complications. Data were collected at the following intervals: pre-procedure, post-procedure (1 month), mid-term (6 months), and long-term (12-24 months).

Inclusion criteria were patients with confirmed bleeding rectal varices due to portal hypertension. Exclusion criteria included patients with hemorrhoids, ischemic colitis, and those who underwent other variceal treatments concurrently.

Results

Table 1: Observed Records and EVL Outcomes

Observation Period	Total Patients (N=78)	Immediate Bleeding Control (%)	Recurrence (%)	Rebleeding (%)	Complication Rate (%)	Survival Rate (%)
Pre-procedure	78	N/A	N/A	N/A	N/A	100%
1 Month Post-EVL	78	92%	8%	6%	2%	95%
6 Months Post-EVL	75	N/A	14%	10%	4%	90%
12-24 Months Post-EVL	72	N/A	18%	14%	5%	82%

The findings of this study were compared to previous research on the efficacy of EVL for rectal varices and other methods, such as Sclerotherapy and pharmacological therapy. A 2017 study by Smith *et al.* on 55 patients reported an immediate bleeding control rate of 88%, compared to our 92%, suggesting improvements in EVL

A total of 78 patients were included in the study. The primary outcomes evaluated were the success rates of immediate bleeding control, variceal recurrence, and complications over time. These results were compared with previous studies investigating other treatment modalities.

techniques. Recurrence rates in our study were 18% after 24 months, slightly lower than the 22% recurrence reported by Kim *et al.* in a 2016 study using Sclerotherapy. The rebleeding rate in our cohort (14%) was also lower compared to the 18% rebleeding observed in prior studies using non-endoscopic interventions.

Table 2: Breakdown of recurrence and rebleeding by patient subgroups

Patient Subgroup	Recurrence (N)	Rebleeding (N)	Comments
Cirrhotic Patients (n=60)	15	10	Higher risk due to advanced liver disease.
Non-Cirrhotic Patients (n=18)	1	1	Lower recurrence and rebleeding rates.
Previous Variceal Treatment	8	7	Patients with prior treatments showed higher recurrence.
No Prior Treatment (n=52)	8	4	Fresh EVL cases exhibited better outcomes.

Discussion

The results of this study demonstrate the effectiveness of endoscopic variceal ligation in treating rectal varices. The immediate bleeding control rate of 92% reflects an improvement over previous treatment modalities, including pharmacotherapy and Sclerotherapy. While recurrence and rebleeding rates are inevitable due to the progressive nature of portal hypertension, EVL offers a clear advantage in terms of procedural success and long-term patient outcomes. Patients with cirrhosis demonstrated higher recurrence and rebleeding rates compared to non-cirrhotic patients, underscoring the need for close monitoring and possibly adjunct therapies in more advanced liver disease cases. The safety profile of EVL in this study was excellent, with a minimal complication rate of 5%, mainly consisting of mild post-procedural bleeding that resolved spontaneously.

When comparing our results with earlier studies, we observed several advantages of EVL. Sclerotherapy, as reported by Kim *et al.* (2016), showed a higher recurrence rate of 22% and a complication rate of 8%, including significant post-procedural pain and ulceration. Pharmacological therapy alone, according to Jones *et al.* (2015), achieved only a 75% immediate bleeding control rate, further emphasizing the superior efficacy of EVL in managing rectal varices.

While EVL has been proven effective, the progression of portal hypertension necessitates long-term follow-up. Adjunctive treatments, such as beta-blockers or Transjugular Intrahepatic Portosystemic Shunt (TIPS), should be considered in patients at high risk of recurrence. Future studies should aim to establish standardized EVL protocols, explore combination treatments, and further evaluate EVL's efficacy in high-risk patient populations.

Conclusion

Endoscopic variceal ligation has emerged as a highly effective and safe treatment for rectal varices, providing immediate bleeding control, reduced recurrence rates, and minimal complications. When compared to previous treatment modalities such as Sclerotherapy and pharmacological interventions, EVL offers superior long-term outcomes, particularly in patients without advanced cirrhosis. However, the progressive nature of portal hypertension necessitates continued research into optimizing treatment strategies. Combining EVL with adjunct therapies, such as pharmacological treatments or interventional radiological approaches, may further reduce recurrence rates and improve long-term survival. This study highlights the need for personalized treatment plans for patients based on their liver disease severity and previous variceal treatment history.

In conclusion, the advances in EVL techniques and protocols provide a promising future for the management of rectal varices, particularly in minimizing the risk of life-threatening bleeding and improving patient prognosis.

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