

## Post-esophageal banding ulcers and proton-pump inhibitors: Friend or foe?

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### Abstract

Gastroesophageal varices are a common complication from portal hypertension. Endoscopic variceal banding is currently recommended by guidelines as both therapeutic, in case of hemorrhage, and prophylactic measure. In this brief case report, we try to highlight the importance of proton-pump inhibitors to prevent post-banding ulcer bleeding.

**Key words:** Gastroesophageal varices. Esophageal banding. Proton-pump inhibitor. Post-banding ulcer bleeding.

### Úlceras de bandas esofágicas posteriores a ligadura endoscópica e inhibidores de la bomba de protones: ¿amigo o enemigo?

### Resumen

Las várices gastroesofágicas (VGEs) son una complicación común de la hipertensión portal. La aplicación de bandas en várices por ligadura endoscópica se recomienda actualmente en las guías terapéuticas, en caso de hemorragia, y como medida profiláctica. En este breve informe de caso, tratamos de resaltar la importancia de los inhibidores de la bomba de protones (IBPs) para prevenir el sangrado de úlcera post-ligadura.

**Palabras claves:** Várices gastroesofágicas. Ligadura de Varices. Inhibidores de la Bomba de Protones. Sangrado de Úlcera Post-ligadura Endoscópica.

### Introduction

Gastroesophageal varices (GEVs) are a common complication from portal hypertension. Endoscopic variceal banding is currently recommended by guidelines as both therapeutic, in case of hemorrhage, and prophylactic measure. In this brief case report, we highlight the importance of proton-pump inhibitors (PPIs) to prevent post-banding ulcer bleeding (PBUB).

### Case report

A 70-year-old male with a new diagnosis of decompensated alcoholic cirrhosis was referred for esophagogastroduodenoscopy for esophageal variceal screening. Three columns of medium-sized varices were banded  $\times 4$  (1A) and he continued on twice a day pantoprazole previously prescribed for chronic heartburn. One week after, he developed one episode of

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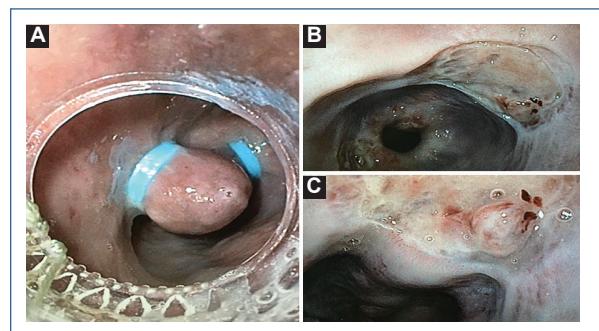
hematemesis. The patient was not on any anticoagulants. On admission, blood pressure was 95/54 mmHg and heart rate was 104 beats/min. Physical examination revealed prominent collaterals vessels and moderate ascites. Hemoglobin was 8.2 g/dL and platelet count was 169,000 K/mm<sup>3</sup>. INR was 1.4 and albumin was 2.9 g/dL. His model for end-stage liver disease (MELD)-Na was 14. He underwent volume resuscitation and was given pantoprazole, octreotide, and ceftriaxone. Urgent endoscopy showed 3, non-bleeding, post-variceal banding ulcers (1B) with one having an underlying healing varix (1C). No additional endoscopic interventions were performed. He continued a PPI and he was also started on liquid sucralfate. His condition stabilized with no further bleeding and he was discharged 2 days later.

## Discussion

GEVs are present in approximately half of patients with cirrhosis, depending on the clinical stage. In patients with compensated cirrhosis, GEVs are present in 30-40%, whereas they can be present in up to 85% of patients with decompensated disease. Endoscopic variceal ligation (EVL) (banding) is a local therapy that consists of placing rubber bands around esophageal varices in repeated sessions until they become obliterated and it is currently recommended by guidelines as both therapeutic, in case of hemorrhage, and prophylactic measure. However, because it is a local therapy that has no effect on portal hypertension (PH), recurrence of varices is the rule, and the patients require indefinite endoscopic monitoring<sup>1</sup>.

Approximately 3 days-1 week after the application of the rubber bands, the ligated varix sloughs off leaving a shallow ulcer that typically heals in 2-3 weeks<sup>2</sup>. However, in some rare cases, these ulcers can bleed – the reported incidence of PBUB varies from 2.6% to 7.3%<sup>3</sup>. Associated risk factors with PBUB include Child-Pugh Class C status, acute variceal hemorrhage, high platelet ratio index, and low prothrombin index<sup>3</sup>.

A few studies have pointed out that gastric acid secretion has an important role in delaying post-banding ulcers from healing, so a course of PPI after endoscopic variceal banding could be indicated for PBUB prophylaxis. Lo et al. performed a systematic review outlining that a short course of 10 days of PPIs may be reasonable if ulcer healing is a concern although high-dose PPI and/or prolonged use in the absence of endoscopic procedure should be discouraged<sup>4</sup>. Shaheen et al. found 50% reduction in the size of post-banding ulcers at follow-up endoscopies 10-14 days after initial banding



**Figure 1.** **A:** Medium-sized esophageal varices status post endoscopic rubber band ligation. **B:** Non-bleeding post-esophageal banding ulcers. **C:** Post-banding esophageal ulcer with a prominent underlying, non-bleeding, healing varix.

with 40 mg of pantoprazole daily, however, decrease in bleeding episodes and morbidity were not assessed in this study<sup>2</sup>. Kang et al. aimed to analyze the factors associated with bleeding after prophylactic EVL and to assess the effect of PPI therapy. A total of 505 patients were included in this retrospective cohort study that demonstrated that not initiating PPI therapy was the only positive predictive factor for a bleeding complication in patients who received EVL without gastric varix therapy<sup>5</sup>.

Sucralfate has also been shown by Sakr et al. to be effective in decreasing the rate of occurrence (74% vs. 38%, p = 0.005) and the size of post-esophageal variceal banding ulcers<sup>6</sup>.

At present, there is no standard guideline measure for PBUB prevention and the role of PPI for hemorrhage prophylaxis remains not entirely clear. However, we do believe that given its low cost and wide availability, PPIs could be an excellent tool for prevention in post-esophageal banding ulcer bleeding. Further investigation will be required to delineate the targeted population for this approach.

## Specific authors' contributions

GR Paniz and SA Sánchez-Luna collected data and wrote the manuscript and revised the manuscript for intellectual content. SA Sánchez-Luna is the article guarantor. SA Sánchez-Luna revised the manuscript for intellectual content and the endoscopy imaging. All authors involved in this report approved the final version.

## Conflicts of interest

None to report.

## Funding

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## Ethical disclosures

**Protection of human and animal subjects.** The authors declare that no experiments were performed on humans or animals for this study.

**Confidentiality of data.** The authors declare that they have followed the protocols of their work center on the publication of patient data.

**Right to privacy and informed consent.** The authors have obtained the written informed consent of the patients or subjects mentioned in the article. The corresponding author is in possession of this document.

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