

# MASSIVE LIFE-THREATENING LOWER GASTROINTESTINAL HEMORRHAGE FOLLOWING HEMORRHOIDAL RUBBER BAND LIGATION

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Hemorrhoids are common, and a significant proportion of patients who have hemorrhoids experience symptoms such as bleeding, pain and itching. Endoscopic hemorrhoidal ligation is a safe and effective technique indicated for the treatment of grade 1 to 3 hemorrhoids, with a high success and low complication rate. Complications, when they occur, are minor and may include painful thrombosed prolapsed hemorrhoids, slippage of bands, minor rectal bleeding and chronic longitudinal ulcer. Rare, potentially life-threatening complications are massive hemorrhage and pelvic sepsis. A case of massive, life-threatening lower gastrointestinal hemorrhage following endoscopic hemorrhoidal rubber-band ligation is presented. Our patient ingested aspirin intermittently following the procedure. In a study documenting complications after hemorrhoidal band ligation, two of three individuals requiring transfusion for massive hemorrhage were taking aspirin on a regular basis. The risk of massive hemorrhage after hemorrhoidal rubber band ligation is probably increased by ingestion of nonsteroidal anti-inflammatory drugs. It may be wise to withhold such drugs soon after the procedure, if feasible. (*J Natl Med Assoc.* 2002;94:1089-1092.)

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**Key words:** hemorrhoid ♦ banding ♦ bleeding ♦ ligation

## INTRODUCTION

Hemorrhoids result from abnormal dilatation of the veins of the internal hemorrhoidal venous plexus. This plexus is a network of the tributaries of the superior and middle hemor-

rhoidal veins. More than 75% of persons in the United States have hemorrhoids at some time during their lives.<sup>1</sup> Symptoms due to hemorrhoids affect up to 25% of the adult population in the US.<sup>1</sup>

One of the modalities of treating hemorrhoids is rubber band ligation introduced by Blaisdell in 1951.<sup>2</sup> The technique was refined by Barron in 1963.<sup>3</sup> Steigman and Goff, in the mid-1980s postulated that elastic band ligation could be used to treat esophageal and gastric varices if a device could be attached to the tip of a flexible gastroscope for deployment of bands.<sup>4</sup> Endoscopic rubber band ligation of esophageal varices is now in widespread use.

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The same device and technique is used for eradication of internal hemorrhoids.

Severe complications such as bleeding and pelvic sepsis are rare following endoscopic hemorrhoidal ligation, and the technique is relatively safe.<sup>5,6</sup>

Here, a case of massive, life-threatening lower gastrointestinal arterial hemorrhage following endoscopic hemorrhoidal rubber band ligation, which necessitated transfusion of 20 units of packed red blood cells during the patient's hospital course is presented.

### CASE REPORT

A 52-year-old African-American male presented with a two-hour history of the passage of bright red blood and clots per rectum every 10 to 15-minutes and worsening dizziness. He had not experienced any hematemesis or melena prior to the onset of his symptoms. He had a long history of symptomatic intermittently bleeding hemorrhoids for 20 years, and had undergone full colonoscopy with endoscopic hemorrhoidal rubber band ligation 17 days earlier at another area hospital. Three bands were deployed as indicated by the colonoscopy report.

He had experienced significant bright red bleeding per rectum three days earlier, and had received medical attention in the emergency room of another area hospital. He had left the hospital precipitously when the bleeding stopped spontaneously, and following resuscitation with intravenous fluids. He had taken three tablets of buffered aspirin on the day of the procedure after its conclusion 17 days earlier, and prior to the onset of the first bleeding episode three days prior to admission to our hospital.

On physical examination, vital signs were BP, 105/66; P, 98; RR, 20; T, 97.3, and mucous membranes were pale. The abdomen was soft, there was no tenderness or mass noted, and the bowel sounds were normoactive. There were no stigmata of chronic liver disease. A rectal examination revealed no perianal lesions or rectal mass, no obvious hemorrhoids, but

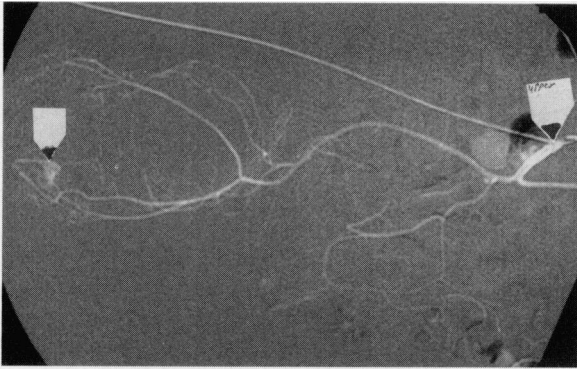


**Figure 1.** Close up view of the superior hemorrhoidal artery.

bright red blood per rectum. Massive bleeding made visualization impossible when rigid proctosigmoidoscopic examination was performed up to a point 20-cm from the anal verge. The initial Hb/Hct was 8.0/22.8; MCV: 94; platelets: 227; WBC: 10; PT: 15.2; INR: 1.59; PTT: 26; Na: 140; K: 3.9; Cl: 109; CO<sub>2</sub>: 23; Bun: 11; Cr: 0.9; Glu: 111; Ca: 8.4; T prot: 5.7; alb: 2.8; T bili: 0.8; Alk Phos: 51; AST: 32; ALT: 17. The patient continued to pass clots and bright red blood per rectum. After receiving 13 units of packed red blood cells within less than 15 hours, his Hb/Hct was 8.0/23.0. The patient was transfused 10 units of fresh frozen plasma

A lower gastrointestinal bleeding scan revealed no evidence of active gastrointestinal hemorrhage. The patient subsequently underwent selective superior and inferior mesenteric angiography, which revealed active bleeding from the inferior aspect of the superior hemorrhoidal artery on the left, corresponding to a site very low in the rectum (Figures 1 and 2). No embolotherapy was performed because the site was easily accessible to surgical intervention.

Following angiography, the patient underwent rigid proctosigmoidoscopy with examination under general anesthesia. There was a 5 x 2 cm ulceration on the left, extending from the anal canal into the rectum. There were two actively bleeding sites. One site was oozing on the anal wall. A 3-0 vicryl suture was used to



**Figure 2.** View of the inferior mesenteric artery and the superior hemorrhoidal artery as a whole unit.

suture ligate the site. Another site on the rectal wall with pumping arterial bleeding was suture-ligated with a 2-0 vicryl suture. The patient had a post-operative course without complications or further bleeding. He was discharged three days after admission. His Hb/Hct at time of discharge was 10/31, after having been transfused 20 units of packed red blood cells.

## DISCUSSION

Endoscopic hemorrhoidal rubber-band ligation is considered a useful and safe technique with a very low rate of complications,<sup>5,6</sup> and is recommended as the initial mode of therapy for grades 1 to 3 hemorrhoids.<sup>7</sup> This patient had experienced intermittent bleeding per rectum for 20 years, but the grade of the hemorrhoids prior to intervention is unknown. Since we did not perform the procedure, it is difficult to know if there were any procedure-related issues such as difficulties or faulty technique that may have led to this severe complication.

Bat et al.,<sup>5</sup> documented a prospective study of 512 patients who underwent hemorrhoidal rubber band ligation over a seven-year period and followed up any complications. Successful results were achieved in 82% of the patients. A total of 37 patients (7.2%) had complications. Complications were minor in 24 patients (4.7%) and included painful thrombosed prolapsed hemorrhoids in 11, slippage of bands in five, minor rectal bleeding in three, and chronic longitudinal ulcers in two. Three pa-

tients experienced priapism lasting several hours, difficulty in urination, and tender induration above the dentate line.

Severe complications that required hospitalization were observed in 13 patients (2.5%). Six of these patients had delayed massive bleeding, and seven had severe complicated thrombosis of the hemorrhoid. Five of the six patients who had massive bleeding, had the onset of symptoms 10 days or more after the procedure. Three of the six patients with massive bleeding required transfusions. Two of the three patients who were transfused were taking aspirin regularly.

Russel et al.<sup>6</sup> documented four deaths following hemorrhoidal band ligation from bacterial septicemia or toxemia.

The patient in this case report had a massive lower gastrointestinal hemorrhage, which required transfusion of 20 units of packed red blood cells 17 days after endoscopic hemorrhoidal ligation. This had been preceded by a smaller bleeding episode three days earlier, which resolved spontaneously. A time interval of 10 days or more after hemorrhoidal ligation is when sloughing of the ligated hemorrhoid seems to occur. This was the time period for five of the six patients who had massive bleeding in the study by Bat et al.<sup>5</sup> A similar delay was seen in our patient. The magnitude of transfusion requirements for the three patients who required transfusion, and the diagnostic details of massive hemorrhage in the six patients are not reported in the study by Bat et al.<sup>5</sup>

Hemorrhoidal rubber band ligation is a treatment modality for grade 1 to 3 hemorrhoids. Information regarding the grade of the hemorrhoids our patient had was not available. We may assume that the grade of the hemorrhoids, and his symptoms for several years, made him a candidate for the procedure.

The use of aspirin by this patient may have been coincidental or have had a relationship to his presentation. He had taken three tablets of buffered aspirin later in the day after hemorrhoidal rubber band ligation and prior to experiencing the first episode of bleeding. Two of

the three patients who had required transfusion in the study by Bat et al.<sup>5</sup> were taking aspirin regularly. Aspirin and other nonsteroidal anti-inflammatory drugs (NSAIDs) inhibit platelet production of thromboxane A<sub>2</sub>, an important mediator of platelet secretion and aggregation. Aspirin and NSAIDs are inhibitors of cyclooxygenase which converts arachidonic acid to a labile endoperoxide intermediate that is critical for thromboxane A<sub>2</sub> formation. Aspirin is the most potent agent, since it irreversibly acetylates the platelet enzyme so that a single dose impairs hemostasis for five to seven days. The other NSAIDs are competitive and reversible inhibitors with more transient effects. When thromboxane A<sub>2</sub> synthesis is blocked, a mild hemostatic defect occurs. Patients generally have minimal symptoms such as easy bruising and bleeding usually confined to the skin. Occasional patients will have prolonged oozing after surgery, particularly with procedures involving mucous membranes such as periodontal, oral or reconstructive plastic surgery.<sup>8</sup>

The slight elevation of the prothrombin time may have as well played a role in the severity of the bleeding. This patient may have had mild hepatic dysfunction from alcoholic liver disease with his history of significant alcohol ingestion, which may well explain the prolonged prothrombin time.

## CONCLUSION

Hemorrhoidal band ligation is a safe and effective modality for managing hemorrhoids. This case report highlights a rare, potentially life-threatening complication. It may be wise to avoid aspirin and other NSAIDs soon after hemorrhoidal rubber band ligation.

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