CASE REPORT

Colonoscopic Clipping as a Treatment for Appendiceal Bleeding

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Bleeding from the appendix has been reported very rarely in patients with lower-gastrointestinal-tract bleeding. In general, after a colonoscopic diagnosis of appendiceal bleeding, laparoscopic or surgical appendectomy would be recommended. Two patients with continuous bleeding from the appendix were treated with partial occlusion of the appendiceal orifice by colonoscopic clipping. In neither case was there evidence of further active bleeding over the following 12 months. This is the first report of such a treatment in the English literature. (*Gut Liver* 2010;4:411-414)

Key Words: Appendix; Hemorrhage; Colonoscopy; Clip

INTRODUCTION

Among patients with lower GI tract bleeding, there are extremely rare cases of bleeding from the appendix.^{1,2} The causes of appendiceal bleeding include angiodysplasia, acute appendicitis, diverticulum, endometriosis, intussusceptions, carcinoid tumors, lymphoma, and Crohn's disease.³⁻¹⁶ In such cases it has been suggested that the bleeding results from inflammation leading to an exposure of the submucosal vessels.¹⁴ After a colonoscopic diagnosis of appendiceal bleeding, the usual therapeutic procedure is laparoscopic or surgical appendectomy.¹³ Here we present two case studies of the use of colonoscopic clipping to treat appendiceal bleeding.

CASE REPORT

1. Case 1

A 44 year-old man was admitted to the hospital with a

1-day history of fresh bloody hematochezia. The patient had no past medical history. On physical examination, his blood pressure was found to be 110/80 mmHg, and his pulse was 95 beats per minute. Laboratory tests found a low hemoglobin level of 11.7 g/dL, but all other values were within normal ranges. He had previously received an esophagogastroduodenoscopy and an abdomen-pelvis computed tomography (CT) in another hospital. As no evidence of bleeding focus or pathologic finding was observed, he seemed able to receive examination via colonoscopy. However, he failed due to poor bowel preparation and the active bleeding. With bowel preparation followed by direct saline irrigation through the working channel of the colonoscope, an emergency colonoscopy revealed continuous bleeding from the appendiceal orifice (Fig. 1). Because we could not find any active bleeding from the terminal ileum or a mass or an inflammatory lesion near the area of the bleeding, we thought that the angiodysplastic lesion would be in the appendix. We carefully attempted a partial occlusion of appendiceal orifice with colonoscopic clipping (EZ clip; Olympus, Tokyo, Japan) (Fig. 2). There was no further active bleeding, and the patient was discharged on the 3rd day after the colonoscopic clipping. There was no evidence of bleeding for the following 12 months.

2. Case 2

A 34-year-old woman was admitted to the hospital with a 2-day history of continuous melena. The patient had a history of essential hypertension for the past year. On physical examination, her blood pressure was found to be 120/80 mm Hg, and her pulse was 60 beats per minute. Laboratory tests found a hemoglobin level of 13.6 g/dL, a leukocyte count of 11,420/uL, and all other values within

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Fig. 1. Colonoscopic finding. Fresh blood can be seen oozing from the appendiceal orifice.

Fig. 2. No bleeding was evident after partial occlusion of the appendiceal orifice by endoscopic clipping.

normal ranges. We had performed an esophagogastroduodenoscopy and an abdomen-pelvis CT immediately, but observed no evidence of bleeding focus or pathologic finding. After bowel preparation, a colonoscopy revealed continuous bleeding from the appendiceal orifice (Fig. 3). We could not find any active bleeding from the terminal ileum, nor was any mass or inflammatory lesion found near the bleeding area. We carefully attempted a partial occlusion of the appendiceal orifice with colonoscopic clipping (Fig. 4). There was no further active bleeding, and the patient was discharged on the 4th day after the colonoscopic clipping. There was no evidence of bleeding

for the following 12 months.

DISCUSSION

In general, an appendectomy would be recommended as the most effective therapy for appendiceal bleeding.¹³ For patients with angiodysplasia, percutaneous transcatheter arterial embolization has been recognized as an useful therapy, but there can be such complications as rebleeding, ischemic change of normal bowel mucosa, and perforation.^{12,13}

Colonoscopic clipping as a treatment for appendiceal

Fig. 3. Colonoscopic finding. Continuous bleeding from the appendiceal orifice was noted.

Fig. 4. No bleeding was evident after partial occlusion of the appendiceal orifice by endoscopic clipping.

bleeding has not been reported until now. In these two cases, we conducted a colonoscopic clipping with the consent of the patients' and their families, fully explaining the possibility that a surgical appendectomy or a percutaneous transcatheter arterial embolization might still be necessary if either bleeding or appendicitis is developed. In both cases the colonoscopic clippings successfully managed the symptoms. If we had conducted other therapeutic endoscopic modalities (e.g., epinephrine injection, fibrin glue injection, heat coagulation, argon plasma coagulation, etc.), it could have brought on complications (e.g., appendicitis, bowel microperforation, etc.). So, to prevent these complications, our strategy was to create a partial occlusion with the colonoscopic clipping and to allow that to slowly induce a spontaneous degeneration of the angiodysplastic lesion. In previous reports concerning the colonoscopic management of diverticular bleeding, the clipping method has been found to be effective for hemostasis by nearly closing the diverticular orifice when it is performed either directly on the bleeding point (when

visible) or on the vessel area supplying the bleeding point.^{15,16} A further advantage is that the metal clips serve as radiographically visible targets for angiographic treatment (super-selection) even if the endoscopic attempts fail or bleeding recurs.

These two cases demonstrate that colonoscopic treatment for appendiceal bleeding can be simple, safe, and effective. However, such an intervention cannot be widely recommended based on just two cases. Further study is needed to evaluate procedure-related complications and to confirm the procedure's safety and efficacy.

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