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Case Report

A complete hemostasis of an appendiceal bleeding in a dialysis patient by an endoscopic traction method using endoscopic clips

Koichi Soga*

A B S T R A C T

A 65-year-old Japanese male presented with a substantial amount of bright red and burgundy rectal bleeding. A colonoscopy confirmed the presence of fresh blood and coagulation in the orifice of the appendix. A suitable position was found using an endoscopic hood to visualize the exposed vessel clearly. We placed two hemo-clips on the appendix orifice at opposite sides of the exposed vessel and then stirred them with an endoscopic hood to visualize the exposed vessel clearly. Finally, we placed other two hemo-clips near the exposed vessels and carried out a complete hemostasis with vessel thrombosis.

Keywords: Appendiceal bleeding; Endoscopic clip; Endoscopic hemostasis

Introduction

Extensive bleeding from the appendix, often considered a rare case of lower gastro-intestinal bleeding (LGIB), is not easily recognized by various diagnostic modalities. Currently, most cases of appendiceal bleeding are first approached by colonoscopy. However, it is very difficult to find a definite bleeding point and to perform a complete hemostasis procedure by an endoscopy. We report a case of appendiceal bleeding diagnosed and treated by endoscopic procedures. After a definite diagnosis of appendiceal bleeding was established through an endoscopy, we performed a complete hemostasis using hemo-clips. In this procedure, we supported hemostasis by a traction procedure with hemo-clips and endoscopic hood. We also present a literature review of appendiceal bleeding cases performed by endoscopic procedures.

Case Report

Our case describes a 65-year-old Japanese male who presented with painless but excessive bright red and burgundy rectal bleeding. He had been receiving a combination of hemodialysis (HD) and peritoneal dialysis (PD) for 42 months for diabetic nephropathy, as well as an anti-platelet (acetylsalicylic acid) and an anti-coagulation (warfarin) agent.

On admission the patient had an acute ill-looking appearance without abdominal pain. Resting tachycardia was observed, but his blood pressure was within the normal range. His hemoglobin level and hematocrit were 8.4 g/dL and 26.9%, respectively. His international normalized ratio value was 1.65. An abdominal computer tomography revealed an elevation of the abdominal panniculus due to PD and a study on ascites from the PD tube confirmed them to be bloody. We initially considered the possibility of rectal bleeding being induced by ischemic colitis. Because the patient refused an initial endoscopic examination, we planned to follow the clinical course of examination and treatment in a fasting state. However, the intermittent rectal bleeding ensued and the patient received blood transfusions after each bleeding episode. Upon patient agreement, we performed a colonoscopy six days after the hospital admission. The colonoscopy was performed with an endoscopic hood and water-jet system. The colonoscopy confirmed the presence of fresh blood in the entire colon, but not in the ileum. Furthermore, fresh blood and coagulation in the orifice of the appendix were observed (Fig. 1A). After washing the appendix orifice with water, we confirmed erosion of the appendiceal wall along with an exposed vessel in the appendix (Fig. 1B). The exposed vessel was concealed frequently with peristalsis (Fig. 1C). After we confirmed the position of the exposed vessel assisted by an endoscopic hood, we performed an endoscopic he-

Department of Gastroenterology, Omihachiman Community Medical Center, Omihachiman, Japan
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* Corresponding author. Department of Gastroenterology, Omihachiman Community Medical Center, 1379 Tsuchida-cho, Omihachiman, Shiga 523-0082, Japan.
E-mail address: sogatti@koto.kpu-m.ac.jp (K. Soga).

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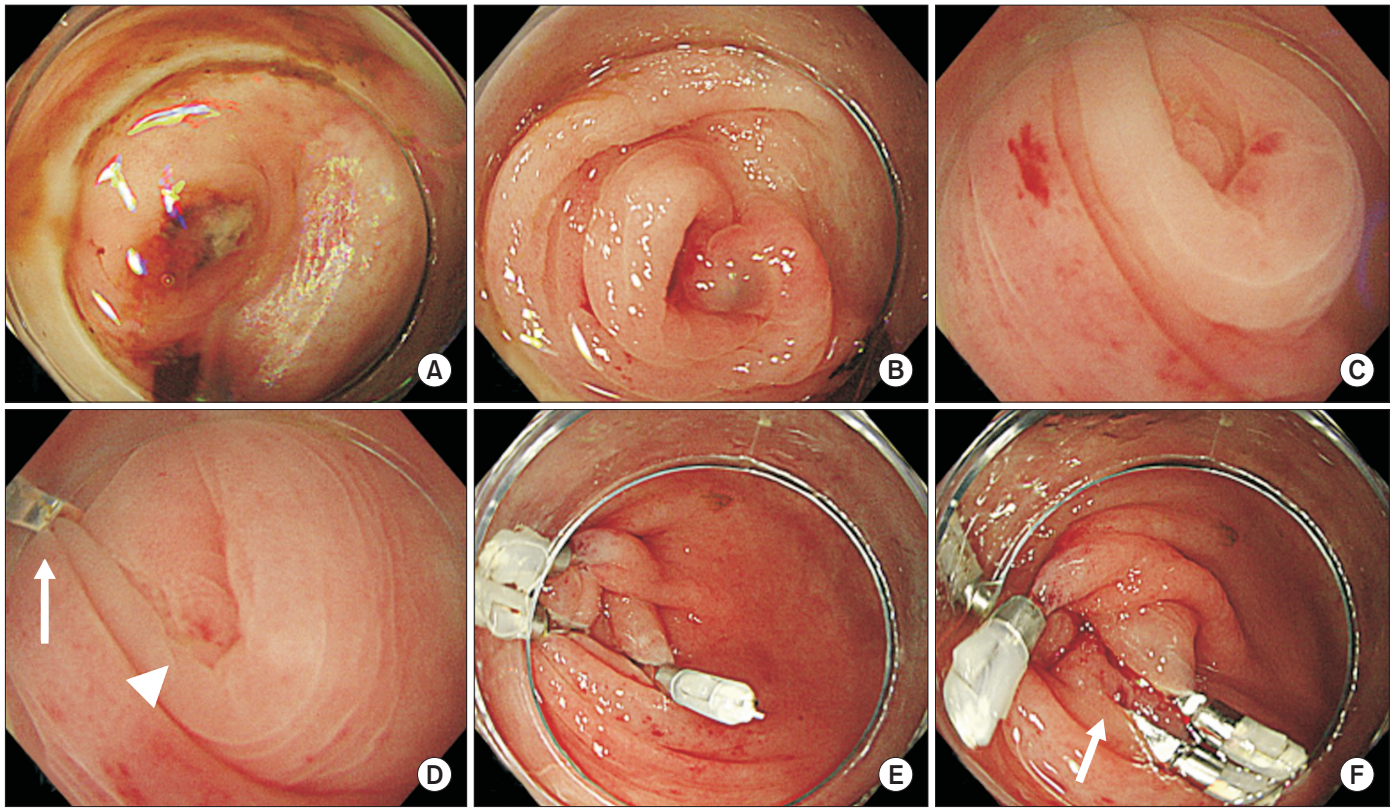

Fig. 1. The endoscopic procedures for an appendiceal bleed. (A) A colonoscopy confirms the presence of fresh blood and coagulation in the orifice of the appendix. (B) Erosion of the appendiceal wall and the presence of an exposed vessel in the appendix are confirmed. (C) The exposed vessel is concealed due to peristalsis. (D) We place two hemo-clips on opposite sides (indicated by the arrow) of the appendix orifice and at opposite sides of the exposed vessel (indicated by the arrowhead). (E) We stir two hemo-clips using an endoscopic hood to visualize the exposed vessel clearly. (F) We place two hemo-clips near the exposed vessels and perform a complete hemostasis with vessel thrombosis (indicated by the arrow).

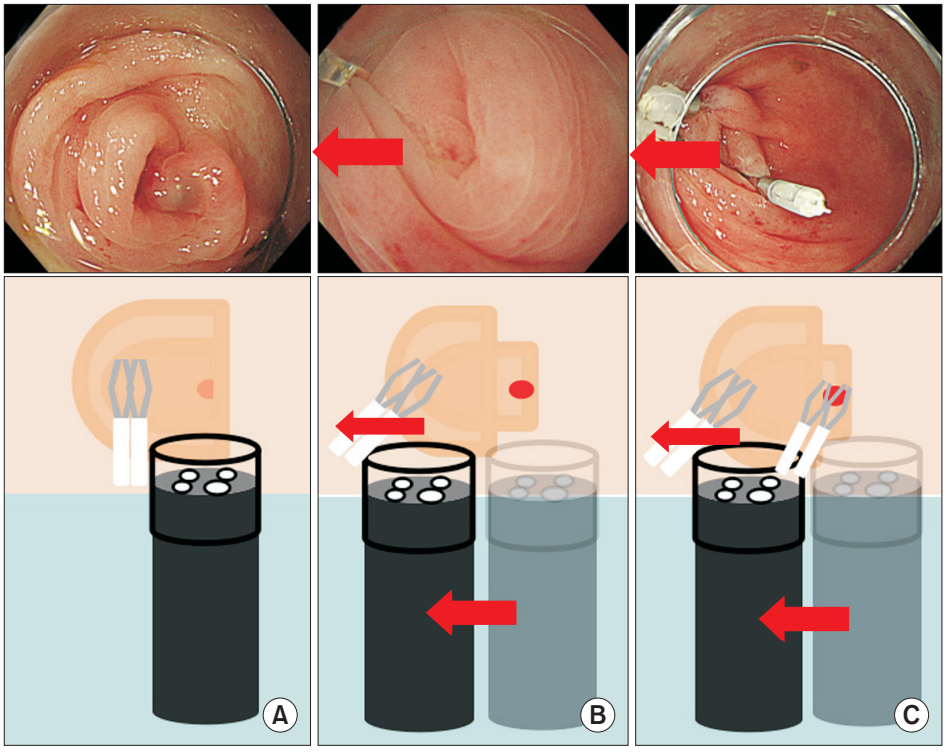

Fig. 2. A schematic view of this case. (A) Erosion and the exposed vessel in the appendix were confirmed. Two hemo-clips are placed on the appendix orifice at opposite sides of the exposed vessel. (B) We stir two hemo-clips with an endoscopic hood to visualize the exposed vessel clearly. (C) We place the other two hemo-clips near the exposed vessels and we performed a complete hemostasis.

Table 1 Summary of the Reported and Our Case of Various Endoscopic Procedure for Appendiceal Bleeding

Reference	Age (yr)	Sex	Treatment	Recognition bleeding	Endoscopic or histopathologic findings
Park et al[4]	44	Male	Endoscopic clipping	Y	?
Park et al[4]	34	Female	Endoscopic clipping	Y	?
Chung and Kim[5]	70	Male	Endoscopic clipping	Y	?
Konno et al[6]	71	Male	Barium enema by endoscopy	Y	Ulcer (operation)
Yakubov et al[7]	89	Male	Epinephrine injections and endoscopic clipping	Y	Ulcer (operation)
Song et al[8]	54	Male	Appendiceal stent insertion and detachable snare wrapping	Y	?
Rodrigues et al[9]	57	Male	Endoscopic injection and hemostastic spray	Y	?
Our case	65	Male	Endoscopic clipping	Y	Erosion and exposed vessel (endoscopy)

Y, yes; ?, not described.

mostasis procedure. At first, we placed two hemo-clips on the appendix orifice at opposite sides of the exposed vessel (Fig. 1D) and then stirred them with an endoscopic hood in order to visualize the exposed vessel clearly (Fig. 1E). Finally, we placed other two hemo-clips near the exposed vessels and carried out a complete hemostasis procedure with vessel thrombosis (Fig. 1F). A schematic view of this case is presented as Fig. 2. After this procedure, the patient was discharged from our hospital without any complications.

Discussion

We report the first case of a complete endoscopic hemostasis of appendiceal bleeding in a dialysis patient. We performed a complete hemostasis using endoscopic hemo-clips to assist traction with an additional two hemo-clips and an endoscopic hood. Appendiceal bleedings are a rare occurrence and often intractable because of the anatomical character of the appendix making it difficult to detect and perform interventions using endoscopic methods.

The usefulness of colonoscopy for detecting and treating LGIB was presented in retrospective studies comparing it to angiography and scintigraphy.[1,2] These studies showed that the diagnosis and therapeutic intervention rate were high in the colonoscopy group but that the cost was low. Colonoscopy is a well-established and safe tool for the treatment of LGIB.

Previously, surgical treatment played an important role in the management of appendiceal bleeding. An appendectomy has been performed in most patients with localized appendiceal lesions. Despite its colonoscopic benefits, it is often challenging to locate the definite bleeding site of an appendiceal bleeding if the colonoscopy is performed in a situation of a large amount of acute bleeding. Furthermore, it is also difficult to locate the bleeding site if it bleeds intermittently or slowly, or even if it stops temporarily. Moreover, the anatomical character of the appendix makes it difficult to detect and perform interventions with an endoscopy. We reviewed 30 reported cases of appendiceal hemorrhage that were examined using a colonoscopy and bleeding from the appendiceal orifice could be identified in 24 cases (80.0%). Although appendiceal bleeding was detected, it is important to realize that it is challenging to detect a definite bleeding point and predict the bleeding etiology. The detection rate of an exposed vessel in the appendix (exposed vessel) is 2 cases[3] (and our case) (6.7%).

We performed a complete appendiceal hemostasis using an endoscopic procedure. We have summarized eight cases of previous endoscopic procedures for treating appendiceal bleeding in Table 1.[4–9] Within the eight cases, five cases underwent an endoscopic procedure using clips and other cases underwent a barium enema, an intra-appendiceal stent and an intra-mucosal hemostatic agent injection, respectively. All authors[4–9] described that occlusive post-procedural appendicitis could occur after the endoscopic procedure. To overcome this, they performed partial occlusion of appendiceal orifice with endoscopic clipping;[4] ligated by locating one wing of the clip toward the inside of the appendix opening and the other wing toward the outside instead of ligating the opening appendix completely;[5] intubated a plastic stent into the appendiceal orifice, then wrapped the stent with a detachable snare;[8] and the application of hemostatic spray,[9] respectively. Although six cases had undergone hemostasis by the endoscopic procedure, two case performed an appendectomy after the endoscopic procedure. Konno et al[6] showed that after barium was sprayed into the orifice of the appendix using a spraying tube, an appendectomy was performed to prevent any further refractory hemorrhaging. Yakubov et al[7] reported that after epinephrine injections and placement of hemo-clips to close the appendiceal orifice, an appendectomy and cecectomy were performed to exclude a possible appendiceal tumor. Although these authors performed various modalities for endoscopic procedure, they could not point out the etiology of appendiceal bleeding.

We also emphasized the usefulness of endoscopic hoods and the clip-traction procedure. In order to perform a complete endoscopic hemostasis, we had to make an effort to confirm the etiology of appendiceal bleeding. In this case, we visualized the exposed vessel with erosion using a clip traction method. Hemo-clips and contraction with hemo-clips made this hemostasis procedure uncomplicated. This method is a useful tool in the treatment approach to appendiceal bleeding as well as to help determine the etiology of an unknown appendiceal disease.

In conclusion, we presented a case in which we performed an endoscopic procedure for the complete hemostasis of an appendiceal bleed using an endo-clip traction method. The colonoscopy proved to be an essential tool for its accuracy, convenience, and therapeutic potentiality. The effectiveness of an endoscopic procedure by the traction method using endoscopic clips overcomes the difficulty of diagnosis and challenges in the intervention of appendiceal bleeding.

Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

ORCID

Koichi Soga, https://orcid.org/0000-0003-2916-2268

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