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World J Gastroenterol 2006 January 7; 12(1): 134-136
World Journal of Gastroenterology ISSN 1007-9327

RAPID COMMUNICATION

Interventional therapy for acute hemorrhage in gastrointestinal tract

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Received: 2005-05-12 Accepted: 2005-06-06

Abstract

AIM: To evaluate the diagnostic angiography and therapy for acute massive hemorrhage in gastrointestinal tract.

METHODS: Twenty-five cases of acute hemorrhage in gastrointestinal tract admitted between April 2002 and September 2004 were reviewed and analyzed by angiography and embolotherapy.

RESULTS: Fifteen patients were men and ten patients were women. The Seldinger technique and method of coaxial duct were used to get access to the bleeding region. PVA particles, gelfoam, and coils were used for embolism. All bleeding sites could be confirmed and were successfully embolized. Hemostasis was achieved in all the patients without bleeding again. The cure rate was 100%.

CONCLUSION: Interventional therapy can not only ascertain the bleeding site, but also stop the bleeding .The method is simple and the effect is certain.

Key words: Intervention; Acute gastrointestinal bleeding; Angiography; Embolization

Wang HH, Bai B, Wang KB, Xu W, Ye YS, Zhang WF. Interventional therapy for acute hemorrhage in gastrointestinal tract. *World J Gastroenterol* 2006; 12(1): 134-136

http://www.wjgnet.com/1007-9327/12/134.asp

INTRODUCTION

Great achievements have been made in interventional therapy in China since 1980s. The method of diagnosis and therapy for hemorrhage in gastrointestinal tract have made great progress[1]. Transcutaneous catheter embolization is widely used in the treatment of acute massive hemorrhage in gastrointestinal tract. Selective angiography can confirm the bleeding site in gastrointestinal tract. We carried out selective or superselective embolotherapy to achieve quick hemostasis. Selective angiography is the most effective measure to detect hemorrhage[2].

MATERIALS AND METHODS

Patients

Twenty-five patients with hemorrhage in the gastrointestinal tract admitted between April 2002 and September 2004 were treated with interventional therapy. Fifteen patients were men and ten patients were women. There were 10 cases of gastric hemorrhage, 1 case of duodenal hemorrhage, 9 cases of small intestinal hemorrhage, 3 cases of colonic hemorrhage, and 2 cases of liver disruption. The major clinical manifestation was substantive bloody stools. Some cases had hematemesis. Hemorrhagic shock occurred in five cases. All patients received treatment but hemorrhage could not be controlled. The diastolic blood pressure was lower than 40 mmHg in four patients.

Equipment and materials

Angiostar Plus-type DSA machine was purchased from Siemens Company. Catheter 4F and RADISITE ® SP catheter 3 F were purchased from Cook Company. The contrast medium ultravist® 370 was obtained from Schering Company. PVA particles and coils were bought from Cook Company. All patients received celiac arteriography as well as superior and inferior mesenteric arteriography to identify the bleeding artery.

Methods

The patients underwent celiac arteriography as well as superior and inferior mesenteric arteriography. Eight patients received superselective catheterization to get access to the corresponding site of feeding artery and then embolotherapy was carried out with the corresponding materials.

RESULTS

A total of 25 patients underwent angiography for

Figure 1 A 25-year-old patient with acute life-threatening gastrointestinal bleeding. **A:** Extravasation was made from a ramification of gastrointestinal artery. **B:** Superselective angiography of the bleeding artery as an aneurysm sign of a ramification belonging to gastrointestinal artery. **C:** Control angiography after embolization with 500-710 μm PVA particles and coils demonstrating complete hemostasis.

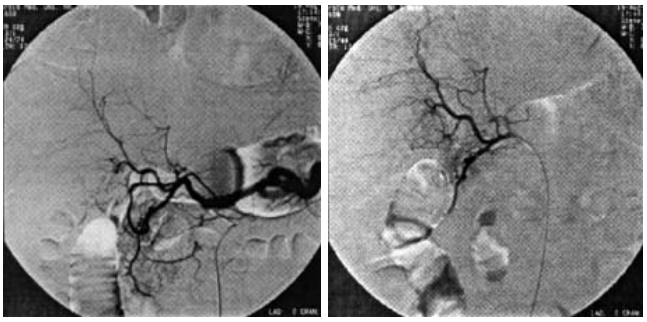

Figure 2 A 51-year-old patient with acute gastrointestinal bleeding. **A:** Contrast medium extravasation from a ramification of gastrointestinal artery. **B:** Complete hemostasis after embolization with 500-710 μm PVA particles and coils.

acute gastrointestinal bleeding. There were 15 men (60%) and 10 women (40%) (mean age 54 years, range 34-74 years). Among the 25 patients, 3 were accompanied with hematemesis, 3 had shock, 15 had bleeding from mesenteric superior artery confirmed by angiography, 2 had hemorrhage from intestinum rectum, 6 had gastric hemorrhage, and 2 had liver arteriorrhexis. Eighteen cases underwent embolism with PVA particles or PVA particles plus gelfoam and seven cases underwent coil embolism. Angiographic embolization was successful in 25 patients with gastrointestinal bleeding, and the success rate was 100%. There were no intestinal parva necrosis and other severe complications in this group (Figure 1 and 2).

DISCUSSION

Acute massive hemorrhage in gastrointestinal tract is one of the most acute abdomen[3]. The mortality of emergency surgery is about 10%[4]. It is difficult to identify the bleeding site and cause of hemorrhage. The treatment of hemorrhage in gastrointestinal tract includes non-operative treatment, exploratory laparotomy and interventional embolotherapy[5,6].

Though endoscopy has been used universally, it still has some limitations in diagnosis[7,8]. Antishock and hemostasis can decrease hemorrhage but cannot achieve permanent hemostasis.

Intervention embolotherapy for gastrointestinal hemorrhage is a convenient and efficient microinvasive therapy[9]. When acute hemorrhage in gastrointestinal tract occurs, hemorrhage is often massive[10,11]. According to the leakage location of the contrast medium, we performed superselective catheterization for feeding artery embolism, which achieved hemostasis immediately, suggesting that it is a practical and effective method for old and weak patients and those who cannot tolerate operation. Embolotherapy for lower digestive tract hemorrhage is a choice of treatment[12]. We proved that it could prevent intestinal tract ischemia.

Examination of DSA has the most important clinical value and can prevent other tissue overlapping and dynamically observe the status of artery ramification, capillaries and refluxing veins, particularly for intestinal parva as well as ascending, transverse, and descending colon. The major cause of hemorrhage is tumor and vascular malformation. Our study proved DSA could show tumor blood vessel malformation and precise image for further embolotherapy and exairesis.

Gelfoam is safer and PVA particles may be better for vascular malformation because they can achieve permanent embolism. With regard to the magnitude of PVA particles and coils, we prefer to use larger particles instead of the smaller ones.

When gastrointestinal tract hemorrhage occurs, the body constitution of patients is possibly weak and the patients usually have hemorrhagic shock[13]. Angiography can find out the source of hemorrhage and is an important treatment modality[14,15].

In conclusion, angiography with embolization can successfully control acute massive gastrointestinal bleeding. Embolotherapy can stop acute bleeding and prolong the life of patients.

REFERENCES

1 **Ledermann HP**, Schoch E, Jost R, Decurtins M, Zollikofer CL. Superselective coil embolization in acute gastrointestinal

hemorrhage: personal experience in 10 patients and review of the literature. *J Vasc Interv Radiol* 1998; **9**: 753-760
2 **Ledermann HP**, Schoch E, Jost R, Zollikofer CL. Embolization of the vasa recta in acute lower gastrointestinal hemorrhage: A report of five cases. *Cardiovasc Intervent Radiol* 1999; **22**: 315-320
3 **Xu ZB**, Zhou XY, Peng ZY, Xu SL, Ruan LX. Evaluation of selective hepatic angiography and embolization in patients with massive hemobilia. *Hepatobiliary Pancreat Dis Int* 2005; **4**: 254-258
4 **Lefkovitz Z**, Cappell MS, Kaplan M, Mitty H, Gerard P. Radiology in the diagnosis and therapy of gastrointestinal bleeding. *Gastroenterol Clin North Am* 2000; **29**: 489-512
5 **Walsh RM**, Anain P, Geisinger M, Vogt D, Mayes J, Grundfest-Broniatowski S, Henderson JM. Role of angiography and embolization for massive gastroduodenal hemorrhage. *J Gastrointest Surg* 1999; **3**: 61-5; discussion 66
6 **Han YM**, Lee JM, Jin KY, Lee SY, Kim CS. Embolization of superior mesenteric artery branches in dogs. Ischemic bowel changes depend on location of vessel occlusion and embolic materials. *Invest Radiol* 1999; **34**: 629-635
7 **Moreno C**, Arvanitakis M, Devière J, Van Gossum A. Capsule endoscopy examination of patients with obscure gastrointestinal bleeding: evaluation of clinical impact. *Acta Gastroenterol Belg* 2005; **68**: 10-14
8 **Narula HS**, Kotru A, Nejim A. Hepatic artery aneurysm: an unusual cause for gastrointestinal haemorrhage. *Emerg Med J* 2005; **22**: 302
9 **Arasaradnam RP**, Donnelly MT. Acute endoscopic intervention in non-variceal upper gastrointestinal bleeding. *Postgrad Med J* 2005; **81**: 92-98
10 **Strate LL**, Syngal S. Predictors of utilization of early colonoscopy vs. radiography for severe lower intestinal bleeding. *Gastrointest Endosc* 2005; **61**: 46-52
11 **Nikolopoulou VN**, Thomopoulos KC, Katsakoulis EC, Vasilopoulos AG, Margaritis VG, Vagianos CE. The effect of octreotide as an adjunct treatment in active nonvariceal upper gastrointestinal bleeding. *J Clin Gastroenterol* 2004; **38**: 243-247
12 **Kuo WT**, Lee DE, Saad WE, Patel N, Sahler LG, Waldman DL. Superselective microcoil embolization for the treatment of lower gastrointestinal hemorrhage. *J Vasc Interv Radiol* 2003; **14**: 1503-1509
13 **Akhtar AJ**. Lower gastrointestinal bleeding in elderly patients. *J Am Med Dir Assoc* 2003; **4**: 320-322
14 **Huang IF**, Wu TC, Wang KS, Hwang B, Hsieh KS. Upper gastrointestinal endoscopy in children with upper gastrointestinal bleeding. *J Chin Med Assoc* 2003; **66**: 271-275
15 **Lundell L**. Upper gastrointestinal hemorrhage--surgical aspects. *Dig Dis* 2003; **21**: 16-18

S- Editor Wang XL **L- Editor** Elsevier HK **E- Editor** Wang J