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[症例報告]Aneurysm of the gastroduodenal artery with massive hemorrhage : A case report and a brief literature review

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Aneurysm of the gastroduodenal artery with massive hemorrhage: A case report and a brief literature review

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ABSTRACT

A case of gastroduodenal artery aneurysm with gastrointestinal bleeding in a 38 - year-old male is reported. The patient developed sudden back pain and then massive hematemesis. He became stable after blood transfusion. Endoscopic examination showed a dome-shaped mass with deep central ulceration. Bleeding from the ulcer ceased briefly for two days, and he started again with massive hematemesis, requiring emergency laparotomy. The opened ulcer in the posterior wall of the duodenum 2 cm distal to the pylorus was sutured with absorbable stitches for hemostasis. Postoperative CT and angiography demonstrated an oval aneurysm (3×4 cm) of the gastroduodenal artery 2 cm distal to the bifurcation from the hepatic artery. The patient was referred to the University Hospital for surgery. The aneurysm was clearly exposed and the affected artery above and below the aneurysm was ligated. He was discharged from hospital in good condition and is doing well, currently in his second year after surgery. *Ryukyu Med. J.*, 15(1)27~29, 1995

Key words: ruptured aneurysm, gastrointestinal bleeding, gastroduodenal artery

INTRODUCTION

The increasing rate of incidental discovery of visceral artery aneurysms during diagnostic examinations for other different pathologies with new diagnostic modalities (US, CT, MRI and angiography), suggests that the real incidence of these aneurysms is higher than previously believed^{1,2}. Even so, visceral artery aneurysms are considered rare, but they are clinically important because of the high mortality rate associated with their rupture. Until recently surgery has been the recommended therapy. Transcatheter embolization has now been emerging as a safe and effective alternative to surgery in the management of these lesions. This technique should be adopted for intraparenchymal aneurysms in which surgical procedures can be difficult, especially in critically ill patients^{3,4}.

In this report, we describe a case experience of gastroduodenal aneurysm with surgical management and a brief literature review of suitable treatment in different types of visceral aneurysms, outlining its indications, advantages and complications.

CASE REPORT

A 38 - year-old male developed sudden back pain, and then presented with massive hematemesis. The patient was immediately transported to a local hospital by am-

bulance on August 31, 1992. His past history revealed that he had acute hepatitis at age 18 and had suffered hypertension since 37 years old, but, had never suffered an episode of pancreatitis.

On admission to the local hospital, he appeared critically ill. His blood pressure was 50 mmHg systolic; pulse rate, 130/min. and regular; respiration rate, 30/min. and temperature, 36.0°C. Physical examination yielded no abnormalities except for slight upper abdominal tenderness. Hemoglobin level was 7.5 g/dl, WBC 10.100/ mm^3 , hematocrit 23.0% and platelet 13.5×10^4 . Following transfusion of 5 units of blood, he became stable.

Emergency endoscopic examination showed a deep ulceration with marked marginal swelling on the posterior wall of the duodenum a few centimeters distal to the pylorus (Fig. 1). At that time bleeding from the ulcer had ceased. Two days later, he again developed massive hematemesis. Emergency endoscopic hemostasis with alcohol injection was tried, but failed. He required emergency laparotomy. At laparotomy, a pulsating mass with a central ulceration was found on the posterior wall of the duodenum 2.0 cm distal to the pylorus. The oozing opened ulcer was sutured with absorbable stitches for hemostasis. Bleeding ceased. Abdominal CT revealed a spherical mass with a smooth margin measuring 4×3 cm in size around the pylorus between the duodenal posterior wall and the surface of the pancreas (Fig. 2).

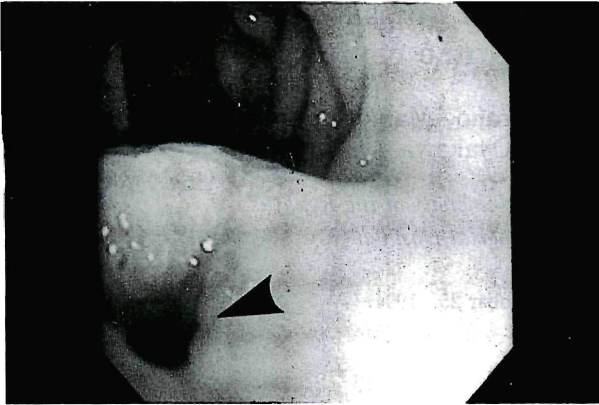


Fig. 1 Endoscopic examination showing a deep ulceration (arrow head) with an elevated margin.

Aneurysm of the region was suspected. Selective angiography demonstrated an oval aneurysm (about 3.0 cm in diameter) of the gastroduodenal artery 2 cm distal to the bifurcation from the common hepatic artery (Fig. 2).

After establishment of a definite diagnosis, he was referred to the University Hospital for surgery.

Elective surgery was performed on September 4. The anterior duodenal wall was opened along the previous inci-

sion. The gastroduodenal aneurysm was identified and then carefully exposed. The gastroduodenal artery above and below the aneurysm was ligated with silk stitches (Fig. 3). Bleeding ceased completely.

His condition remained stable, and he was discharged from the hospital 10 days later in good condition. Endoscopic examination one day prior to discharge revealed a healing mucosal laceration with sutured stitches (Fig. 3).

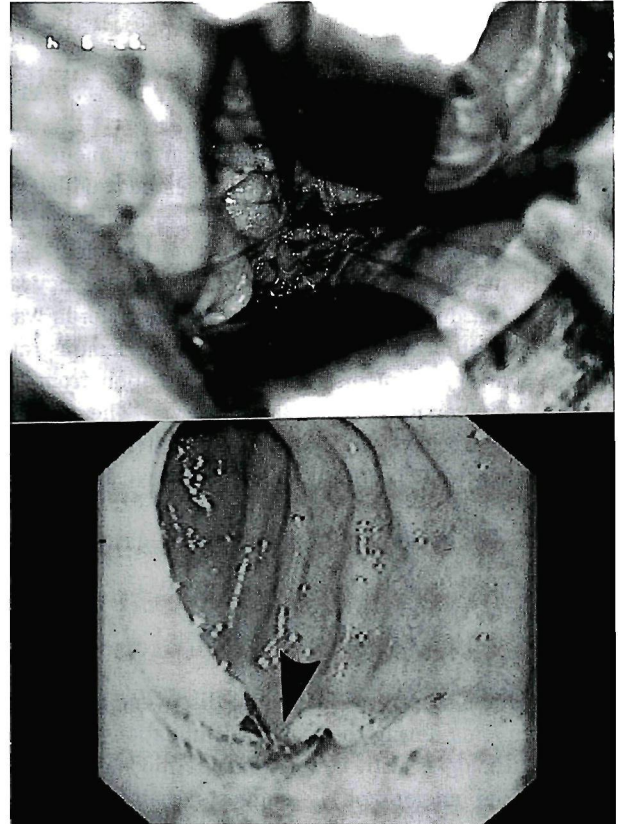


Fig. 3 Laparotomy showing ligation of the artery and suture with absorbable stitches (upper). Endoscopy 9 days after surgery shows a healing ulcer (bottom).

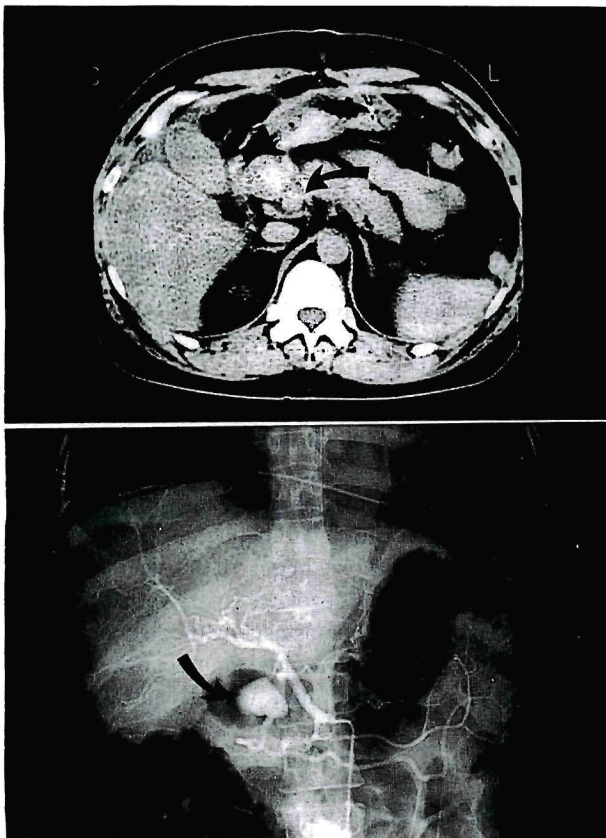


Fig. 2 CT demonstrating a spherical mass (arrow) below the pylorus (upper). Celiac angiography revealing an oval aneurysm 3 cm in diameter of the gastroduodenal artery (bottom).

DISCUSSION

Visceral artery aneurysms, formerly believed to be rare, are being detected with greater frequency since the advent of noninvasive diagnostic imaging modalities, such as ultrasonography (US), CT and magnetic resonance imaging (MRI). Approximately 20% of reported visceral artery aneurysms present as clinical emergencies, with an 8.5% overall mortality rate⁵. Therefore, knowledge of these aneurysms, their natural history, and the best lines of management is important to both general and vascular surgeons.

The aneurysms occur most frequently in the splenic and the common hepatic arteries^{1,2}. The gastroduodenal arteries are affected less frequently, accounting for 5% of visceral artery aneurysms³. Various underlying

pathogenetic causes have been reported in 31 cases of gastroduodenal artery aneurysms in English literature⁶. 16 were in patients with pancreatitis and were reported under such terms as "pseudo/false aneurysm" with erosion of the gastroduodenal artery. 12 were attributed to arteriosclerosis, 2 were related to surgical trauma and 1 was due to erosion of the artery by a duodenal ulcer. In this case, the cause of aneurysm could be arteriosclerosis because of a history of hypertension with no evidence of pancreatitis. Gastroduodenal artery aneurysm may present clinically with abdominal pain, massive bleeding in the upper gastrointestinal tract in a large number of patients, just like in the present case.

Once the diagnosis is suspected, visceral angiography provides a prompt and accurate anatomic diagnosis, outlines the vascular anatomy for possible surgical intervention and, in suitable cases, enables treatment by transcatheter embolization. Among the noninvasive diagnostic modalities, CT and MRI are the most specific. Although endoscopy will establish the usual causes of bleeding, it is not useful in diagnosing a bleeding aneurysm in a case such as ours^{3,4}. Angiography provided an accurate diagnosis in our case.

The choice of treatment depends on anatomic location of aneurysms and general condition of the patients. At the initial operation on this patient, his bleeding was misinterpreted as bleeding from duodenal ulcer. After establishment of a definite diagnosis, ligation of the affected artery was carried out successfully. Most authors agree that conservative management produces poor results. Until recently surgery has been the recommended treatment. At present, transcatheter embolization has now been utilized as the treatment of choice for management of intraparenchymal aneurysms, such as intrahepatic aneurysms, in which surgical exposure can be difficult, especially for high-risk patients^{7,8}. For our patient, as mentioned above, the lesion was misdiagnosed and endoscopic hemostasis failed, thus we chose surgical intervention. Our patient might have been an excellent candidate for transcatheter embolization.

Transcatheter embolization of the visceral arteries is complicated by the development of abscess and septicemia, if a large portion of an organ is infarcted as a result of embolization. Especially, superior mesenteric artery aneurysms must be very carefully embolized since misplaced emboli can result in dangerous consequences of small or large bowel infarction. If the collateral circulation is not rich or present in the affected region, surgery remains the preferable approach. Our patient was a good candidate for surgery because of the rich collateral circulation in the affected artery. The technique of transcatheter embolization of visceral artery aneurysms appears to offer several advantages over the more conventional surgical approach for this problem. It is associated with much lower risk, especially in patients who are poor surgical candidates. Nevertheless,

complications associated with the technique of transcatheter occlusion of vessels include inadvertent occlusion of the wrong vessel with subsequent infarction of normal structures, abscess formations, dislodgement and migration of the occluding device, and hematoma or false aneurysms at the catheter entry site^{9,10}.

From our case experience and data from literature^{3,4}, transcatheter embolization should be adopted especially in critically ill patients or as an alternative to surgery in the management of small or intraparenchymal aneurysms. For all other patients the treatment of choice remains early surgical (ligation, aneurysmectomy or reconstruction) intervention.

REFERENCES

- 1) Nemir, P. Jr.: Surgical aspects of vascular disorders involving the gut, in *Gastroenterology* (Bockus, H. L., ed), 3rd edn., vol. 3., pp 359 - 372, W.B. Saunders Co., Philadelphia, 1976.
- 2) Stanley, J. C., Thompson, N. W., and Fry, W. J.: Splanchnic artery aneurysms. *Arch. Surg.* 101: 689 - 697, 1970.
- 3) Salam, T. A., Lumsden, A. B., Martin, L. G., and Smith, R. B.: Nonoperative management of visceral aneurysms and pseudoaneurysms. *Am. J. Surg.* 164: 215 - 220, 1992.
- 4) Miani, S., Arpesani, A., Giorgetti, P. L., Rampoldi, V., Giordanengo, F., and Ruberti, U.: Splanchnic artery aneurysms. *J. Cardiovasc. Surg.* 34: 221 - 228, 1993.
- 5) Stanley, J. C.: Abdominal visceral aneurysms, in *vascular emergencies* (Haimovici, H., ed), pp378, Appleton-Century-Crofts, New York, 1981.
- 6) Thakker, R. V., Gajjar, B., Wilkins, R. A., and Jevi, A.: Embolization of gastroduodenal artery aneurysm caused by chronic pancreatitis. *Gut* 24: 1094 - 1098, 1983.
- 7) Jonsson, K., Bjernstad, A., and Eriksson, B.: Treatment of a hepatic artery aneurysm by coil occlusion of the hepatic artery. *A. J. R.* 134: 1245 - 1247, 1980.
- 8) Pasuli, P., and Desmarais, R. L.: Gastroduodenal artery aneurysm: treatment by transcatheter embolization. *Can. Med. Assoc. J.* 129: 581 - 583, 1983.
- 9) Anthansoulis, C. A.: Therapeutic applications of angiography. *N. Engl. J. Med.* 302: 1117 - 1125, 1980.
- 10) Martin, E. C., Casserella, W. J., and Schultz, R. W.: Angiographic management of arterial hemorrhage in the upper gastrointestinal tract, in *Interventional radiology* (Wilkins, R. A., and Viamonte, M. J., ed), pp81 - 99, Blackwell, Oxford, 1982.