Transcatheter Embolization for Splenic Artery Aneurysm — A Case Report

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ABSTRACT

Splenic artery aneurysms are uncommon vascular lesions. A splenic artery aneurysm larger than 3 cm is even rare. Splenic artery aneurysms are fatal vascular lesions if ruptured. The incidence of rupture is increased in larger aneurysms. Transcatheter arterial embolization is an surgical alternative treatment which has relative lower morbidity and mortality than surgical procedures. We report a case of splenic artery aneurysm revealed by computed tomography (CT) in other institution. He has been transferred to our institution for transcatheter arterial embolization. (***Tzu Chi Med J*** 2007; **19**:36-39)

Key words: splenic artery aneurysm, transcatheter arterial embolization, computed tomography

INTRODUCTION

Aneurysms of visceral arteries are found in less than 1% of the general population [1-4]. Splenic artery aneurysms are the most common visceral artery aneurysms, accounting for 60% to 71% [5-7], with a reported prevalence of 0.8% at arteriography and 0.04%-0.10% at autopsy [8]. Splenic artery aneurysms are uncommon but important vascular lesions [9]. For alternative treatment and rarity, we report a case of transcatheter arterial embolization for splenic artery aneurysm.

CASE REPORT

A 44-year-old male patient had severe scoliokyphosis and was hard to walk due to polio virus infection since his teenage. He was admitted to other institution for abdominal pain 2 month ago. For the purpose of possible acute abdomen, computed tomography(CT) was performed and accidentally revealed a 2 cm in size splenic artery aneurysm. The patient discharged uneventful. Two months later, he was admitted to the same institution for abdominal pain again. CT revealed enlarged size of the splenic artery aneurysm and thus was transferred to our institution.

In our emergency room, the patient was awake but he was unable to talk due to previous tracheostomy. The pulse was 90 beats per minute and the blood pressure was 91/55 mmHg. He had severe scoliokyphosis and prominent atrophy of bilateral lower limbs, and the results of the physical examination were otherwise normal. Following CT revealed a 35 × 46 mm splenic artery aneurysm with huge (93 × 62 mm) peripheral hematoma (Fig. 1). The emergent transcatheter arterial embolization was arranged for progressive hematoma.

Under Seldinger's method via left femoral artery, transfemoral catheterization of the celiac trunk was per-

Received: August 14, 2006, Revised: September 28, 2006, Accepted: November 14, 2006
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formed using a 80 cm, 4 Fr small J catheter (Terumo Optitorque, Tokyo, Japan). Due to tortuous of the splenic artery, a 110 cm, 2.9 Fr microcatheter (Terumo Progreat, Tokyo, Japan) was introduced through the 4 Fr small J catheter into the splenic artery aneurysm. Digital subtraction angiography with selective splenic artery arteriogram revealed a sessile aneurysm, about 42 × 34 mm in size, and arising from the medial terminal segment of the splenic artery (Fig. 2).

Transcatheter arterial embolization was performed with a total of 8 fibered platinum microcoils deployments (Boston Scientific, Cedex, France) through the 2.9 Fr microcatheter. Post-embolization arteriogram revealed total obliteration of the aneurysm with patency of the parent artery (Fig. 3). Following image was not accessible due to a referred patient.

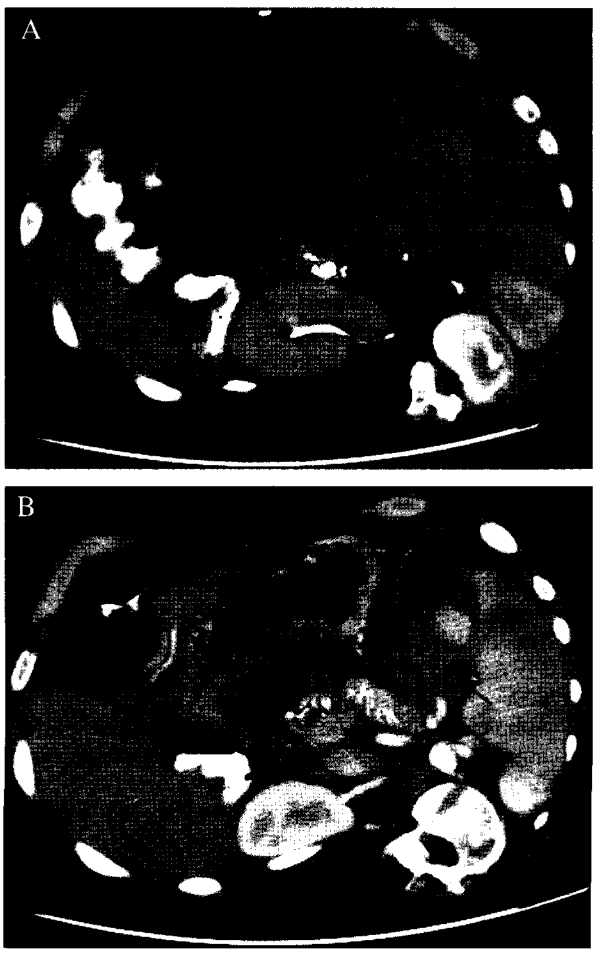

Fig. 1. (A) CT without contrast reveals heterogeneous perisplenic hilar mass (arrow), which is about 93 × 62 mm in size. (B) Contrast CT shows enhancement of a 48 × 38 mm aneurysm with peripheral hematoma (arrows).

DISCUSSION

Splenic artery aneurysms are being diagnosed more commonly than in the past, mainly because of increased availability of computed tomography and angiography [5,6,10]. Treatment of splenic artery aneurysm is rec-

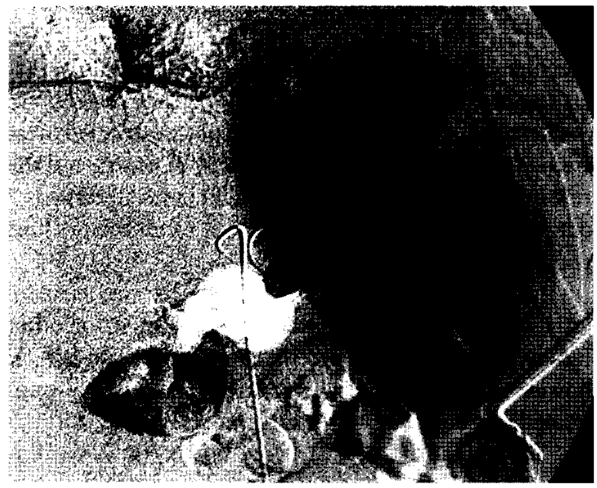

Fig. 2. Splenic arteriogram shows ill-defined extravasation (arrow) in the medial terminal segment of the splenic artery.

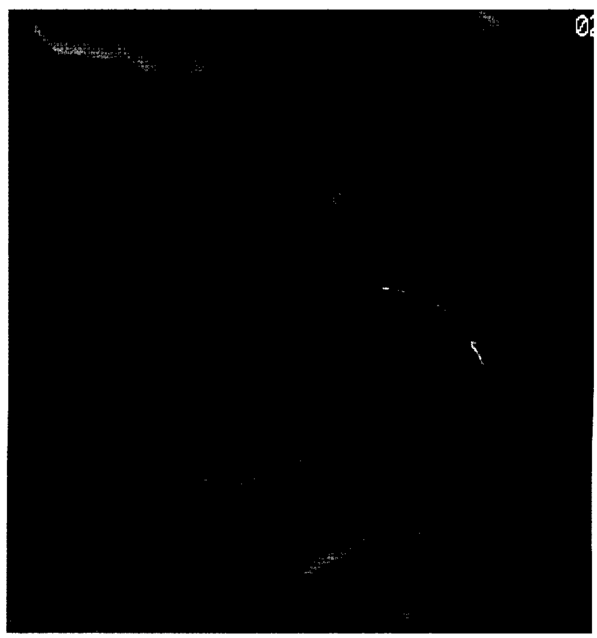

Fig. 3. Post embolization splenic artery arteriogram shows embolization of a branch of splenic-artery without extravasation. The parent artery is patent.

ommended in patients with aneurysms greater than 2 cm [11].

Splenic artery aneurysms are found most often in multiparous women attributed to intimal hyperplasia. The prevalence of splenic artery aneurysm is increased in patients with portal hypertension and is estimated at 7%-20% [12]. Splenic artery pseudoaneurysm may be seen in patients with pancreatitis [13]. Other uncommon causes of splenic artery aneurysm include fibromuscular dysplasia, infection, and congenital anomaly [14].

Most aneurysms are small (2 cm in diameter), saccular, and located at a bifurcation in a middle or distal segment of the splenic artery [5,6,15]. The rupture incidence of splenic aneurysms is reported relatively less frequently, occurring in 2% to 10% of cases, but the risk increases when the aneurysmal diameter exceeds 3 cm, when the size increases within a relatively short period, or when the patient is pregnant [3,4,16].

Most splenic artery aneurysms are detected incidentally during diagnostic imaging performed for other indications. Rupture of splenic artery aneurysm is rare; however, the ruptured splenic artery aneurysm left untreated is associated with a high mortality rate [8].

Treatment of splenic artery aneurysm is recommended in women of childbearing age, patients undergoing liver transplantation, patients with symptomatic or expanding aneurysms, and patients with aneurysms greater than 2 cm [8,11]. Historically, treatment has consisted of an open surgical procedure such as bipolar surgical ligation of the splenic artery, ligation of the aneurysm, or aneurysmectomy to excise the aneurysm, with or without splenectomy. Recent advances have used laparoscopic techniques. In addition, endovascular methods are coming to the forefront. Splenic artery aneurysms away from the hilum can be excluded with a stent graft. Embolization of the entire splenic artery, if selective catheterization of the aneurysm cannot be performed, is an alternative option [8,11].

Surgery for splenic artery aneurysms is associated with a mortality rate of approximately 1%, but the mortality rate is increased in patients with pancreatitis, in whom it is 16% for those with aneurysms in the pancreatic head and 50% for those with pancreatic body aneurysms. Splenic artery aneurysms also may be treated with percutaneous interventional techniques such as transcatheter arterial embolization, placement of a covered stent to exclude the aneurysm, or percutaneous injection of coils or thrombin.

Transcatheter arterial embolization is associated with significantly lower morbidity and mortality rate than surgical procedures [17,18]. Embolization of intrasplenic lesions may be performed with microcatheter-based techniques, and success rates of 80%-90% have been reported for percutaneous transcatheter embolization [8]. Stent-graft placement across the aneurysmal neck to exclude the aneurysm, a treatment that provides the benefit of preserving blood flow through the splenic artery has been reported [19,20].

The occurrence of complications after endovascular treatment is uncommon. Possible complications include postembolization syndrome, transient elevation of pancreatic enzymes, splenic infarction, infection, abscess, and, rarely, rupture of a pseudoaneurysm [8]. Follow-up imaging with CT or Doppler ultrasonography is recommended for assessment of the adequacy of treatment. Thus in our case, treatment efficacy is limited unless following imaging is obtained.

CONCLUSION

Transcatheter arterial embolization is an optimal treatment for splenic artery aneurysm and ventional surgical procedures.

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