—Case Reports—

A Case of Spontaneous Rupture of Nonaneurysmal Left Iliac Artery Due to Penetrating Atherosclerotic Ulcer

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Abstract

We report on a patient with spontaneous rupture of a nonaneurysmal left common iliac artery in whom hemorrhagic shock developed. A 64-year-old woman presented with hemodynamic collapse accompanied by sudden abdominal pain. She was transported to the emergency department. Angiography showed a penetrating atherosclerotic ulcer in the left common iliac artery. Emergency surgery was performed with graft replacement (14 × 7 mm woven Dacron graft). Severe calcification was observed in the left common iliac artery, and an ulcer of the iliac artery was confirmed as the source of hemorrhage. The postoperative course was uneventful, and the patient was discharged on postoperative day 14. We conclude that rupture may occur in patients with severe atherosclerotic change, even in the absence of aneurysm.

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Key words: atherosclerotic penetrating ulcer, spontaneous rupture, iliac artery

Introduction

We report on a patient with hemorrhagic shock caused by spontaneous rupture of a nonaneurysmal left common iliac artery. During surgery, we found that the source of the hemorrhage was consistent with the site of a penetrating atherosclerotic ulcer (PAU) observed with angiography.

Case Report

A 64-year-old woman complained of acute left abdominal pain and was admitted to the emergency department. Blood pressure at the time of admission was 67/43 mm Hg, and the cardiac rhythm was sinus tachycardia (112 beats per minute). The respiratory rate was 31 breaths per minute, and the hemoglobin level was 8.6 g/dL. The patient had had hypertension and hyperlipidemia since the age of 40 years. Transient circulatory improvement was observed after resuscitation with 1,000 mL of fluid. After 11 days, during conservative therapy in a general ward, she complained of similar abdominal pain and pain in the left leg; vital signs indicated the development of shock. Blood transfusion was urgently performed because of severe anemia (hemoglobin <6.0 g/dL). An abdominal X-ray film showed calcification of the abdominal aorta and disappearance of the iliopsoas line. Abdominal computed tomography showed marked atherosclerotic changes with severe calcification in

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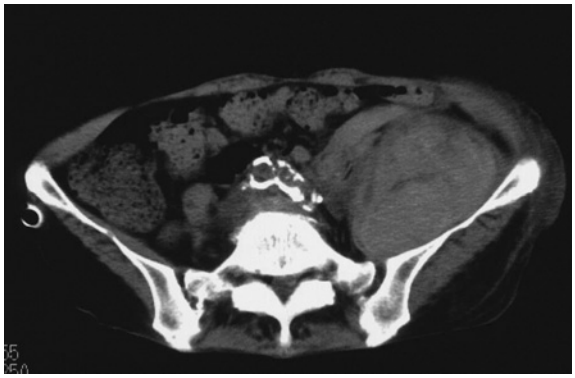

Fig. 1 Abdominal computed tomography
The abdominal aorta and bilateral iliac arteries showed severe circumferential calcification, and hematoma was observed around the left common iliac artery.

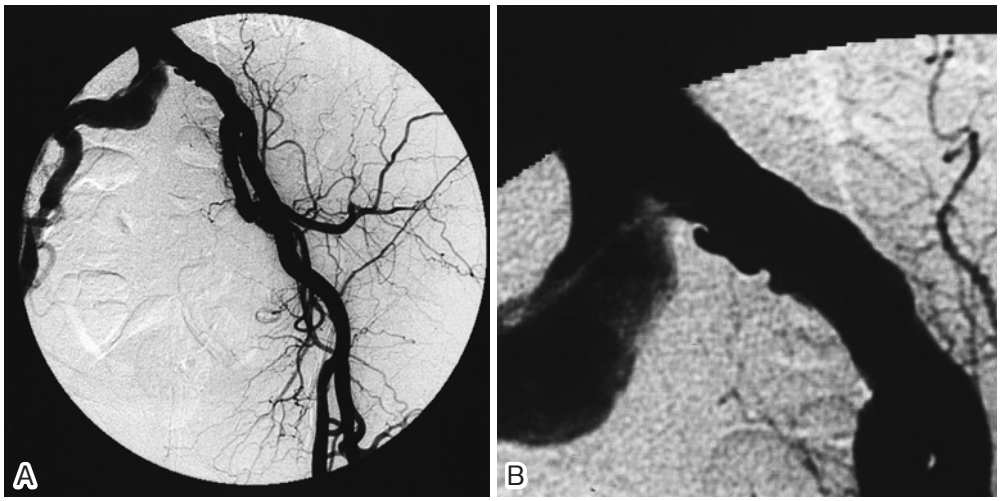

Fig. 2 Angiography
A PAU was observed on the medial side of the left common iliac artery (A) . During the operation, a PAU was identified as the cause of bleeding (B) .

the aortoiliac lesion and hematoma around the left common iliac artery **(Fig. 1)**. Angiography showed no signs of aneurysm in the arteries in the abdominal pelvic lesion but did show a PAU in the left common iliac artery **(Fig. 2)**.

We diagnosed spontaneous rupture of a nonaneurysmal common iliac artery and, therefore, performed surgery. The retroperitoneal space was reached through a median laparotomy. A large hematoma was observed, and fresh clots were present near the left common iliac artery. The hematoma was removed as completely as possible to relieve the nerve palsy of the left lower extremity. We confirmed the source of bleeding, a left iliac artery ulcer.

We replaced the totally calcified aorta with a woven Dacron prosthetic graft (14 × 7 mm) and constructed bilateral iliac and inferior mesenteric arteries. The patient was discharged on postoperative day 14, and the lower extremity pain improved 2 months later. The postoperative course was uneventful, and the patient has remained well for 5 years.

Discussion

Spontaneous rupture of a nonaneurysmal artery, as in this case, is rare[1–4]. The main causes of spontaneous rupture of nonaneurysmal arteries are infection and inflammatory changes.

PAU is an important cause of acute aortic syndrome. The most frequently reported lesion of rupture is the thoracic aorta[3], and there is a related risk of acute aortic dissection[5]. Thalheimer et al have reported a case of spontaneous perforation of the nonaneurysmal infrarenal aorta due to PAU[6]. In peripheral vascular lesions, rupture of the femoral artery has been reported[2]. However, atherosclerotic spontaneous rupture of a nonaneurysmal iliac artery is rare.

The number of patients with acute aortic syndrome or acute aortic dissection will increase as the population ages. The intima of the aorta can be evaluated with 64-slice multidetector computed tomography, and PAU may be diagnosed at an early stage with this method.

In 1986, Stanson et al reported the natural history and clinicopathologic features of PAU of the thoracic aorta[3]. Welch has also reported that PAU is present in 2.3% to 10.6% of patients with aortic abnormality and is occasionally observed in elderly patients with severe hypertension or severe atherosclerosis[4].

In cases of abdominal aortic aneurysm, the maximal aortic diameter is significantly correlated with the risk for rupture. However, in 17% of ruptured abdominal aortic aneurysms, the aortic diameter is less than 4 cm[7].

Recently, stent grafts have been used in several countries as a noninvasive treatment[8]. However, during the 1990s, at the time this patient presented, stent grafts were not commonly used in emergency care, and their effectiveness for nerve palsy caused by a compressive hematoma was unclear.

At the time, we selected conventional open surgery for repeated hemorrhagic shock. If a patient has severe atherosclerotic changes, conventional open surgery may increase the risk of rupture despite the absence of aneurysmal findings.

In conclusion, we have reported on a patient with spontaneous rupture of a nonaneurysmal common iliac artery in whom hemorrhagic shock developed. This unusual case had a favorable outcome following open surgery. If a patient has a nonaneurysmal iliac artery with severe calcification, we should consider the risk of spontaneous rupture and observe the patient carefully.

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