

CASE REPORT

Aortic Dissection Presenting as Acute Lower Extremity Ischemia: Report of a Case

Wen-Pin Liu,^a Wei-Kung Chen, Kim-Choy Ng

Department of Emergency Medicine, China Medical College Hospital, Taichung, Taiwan

Although not common, acute leg ischemia is an important element in the clinical presentation of a patient with aortic dissection. This report describes a case of aortic dissection in which the main feature at presentation was acute right leg ischemia. The angiography showed right common iliac artery and external iliac artery occlusion. Diagnosis was made by clinical evaluation and angiography. Embolectomy was then attempted immediately but failed. Aortic dissection was highly suspected and confirmed by emergency computed tomography. Fortunately, the patient had good recovery. Aortic dissection is potentially lethal if misdiagnosed or if recognition is delayed. As such, aortic dissection should be considered in the differential diagnosis.

INTRODUCTION

Aortic dissection is the most common and most lethal catastrophe involving the human aorta. Lower extremity ischemia as one of the presenting manifestations of aortic dissection is seen in up to 26 percent of patients [1], but isolated ischemia of the lower extremity due to aortic dissection is rare and is described in only a few reports [2-5]. We present one case of aortic dissection with the main feature of acute leg ischemia.

CASE REPORT

A 42-year-old male with a history of hypertension without regular treatment presented with acute onset of numbness, pain, and weakness in the right leg. His

physical examination at the emergency room revealed an ill-looking appearance with clear consciousness. The vital signs showed blood pressure 148/76 mmHg, pulse rate 92/min over the right arm, respiratory rate 18/min, and temperature 36°C. No jugular venous engorgement was observed. Auscultation of the chest was clear without heart murmur. The abdomen was soft, flat, with normoactive bowel sounds and no palpable mass lesion. The right lower extremity was white, cold, pulseless, with numbness, pain and weakness. The other extremities were within normal limits. The electrocardiogram showed normal sinus rhythm with no acute change. An X-ray film of the chest showed only mild cardiomegaly without obvious widening of the mediastinum. We requested an

^aTo whom all correspondence should be addressed: Wen-Pin Liu, No 2, Yuh-Der Road, Taichung 404, Taiwan, R.O.C.; Tel.: 886-4-22052121, Ext. 1431; Fax: 886-4-22031311; E-mail: liu581115@yahoo.com.tw.

^bAbbreviations: CT, computed tomography; TEE, transesophageal echocardiography; TTE, transthoracic echocardiography

Received: April 23, 2002; Accepted: January 18, 2003

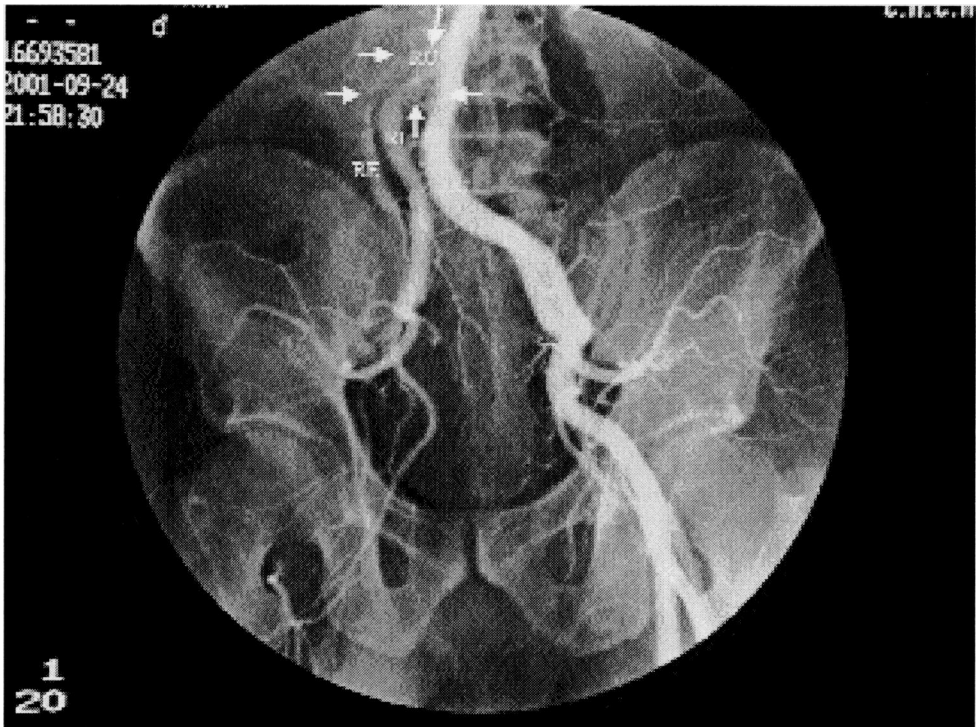


Figure 1. Radiological lucent lesions in the right common iliac artery, right internal iliac artery, right external iliac artery and the left common iliac artery. Left common iliac artery (LC). Right common iliac artery (RC). Right internal iliac artery (RI). Right external iliac artery (RE). Radiological lucent lesions (arrow).

angiography. This was interpreted as showing thrombus within the right common iliac artery and external iliac artery. The significance of a lucent lesion in the left common iliac artery was not appreciated (Figure 1). The diagnosis was made and embolectomy was attempted immediately. During embolectomy, the Fogarty catheter could not be advanced more than 15 cm proximal to the incision over the right superficial femoral artery. No clot was retrieved and the procedure was abandoned. Dissection of aorta was highly suspected and emergency chest and abdominal computed tomography (CT)^b were performed. The CT showed aortic dissection from distal arch extension to the abdominal aorta (Figure 2). The diagnosis of aortic dissection associated with right common iliac artery and external iliac artery occlusion was confirmed. Dissection of aorta was treated by control-

ling blood pressure and the patient had good recovery.

DISCUSSION

Acute limb ischemia is a true emergency requiring immediate therapy to salvage the limb. This case presented clinically with right lower extremity ischemia, but no chest, back, or abdominal discomfort. Clinical symptoms and angiography indicated lower extremity ischemia. Emergency embolectomy was then performed. During the procedure aortic dissection was suspected and documented by chest and abdominal CT. This incidence occurred about 5 to 15 percent of patients with isolated ischemia of the lower extremities due to aortic dissection [5, 6].

Review of the angiography showed that radiological lucent lesions were seen in the right common iliac artery, right

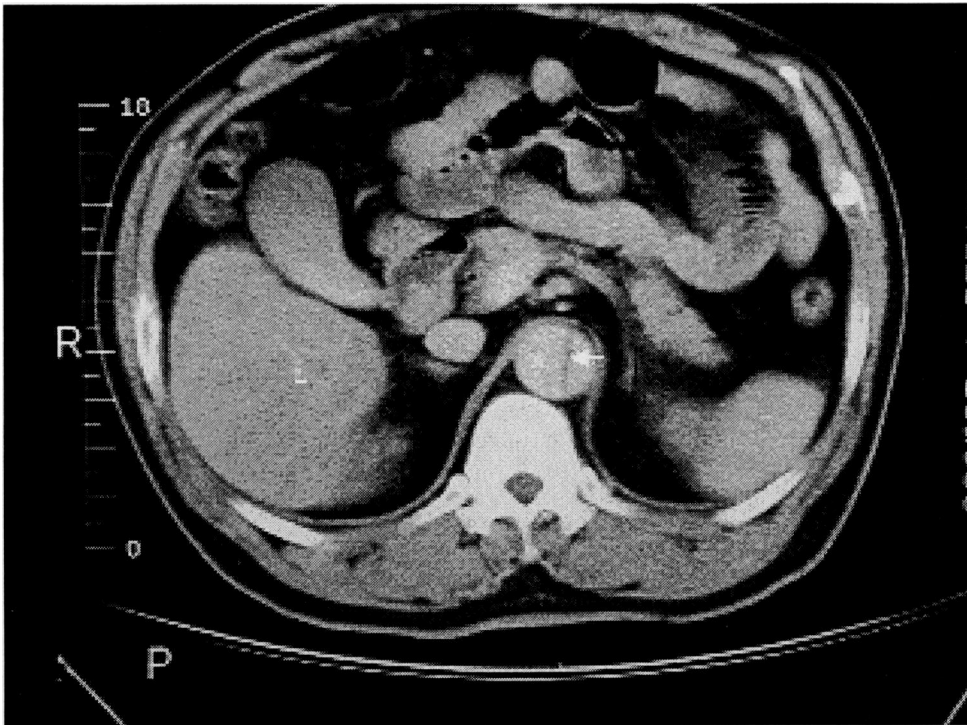


Figure 2. Double lumen appearance of the abdominal aorta and a linear lucent lesion (arrow). Abdominal aorta (A). Liver (L).

external iliac artery, right internal iliac artery and the left common iliac artery. Right common iliac artery, right external iliac artery, right internal iliac artery and the left common iliac artery occlusion were suspected. Occlusion of branches of the main vessels may be a clue of aortic dissection. When the findings in the iliac vessels explain the clinical situation, the rest of the films may not be examined carefully, as was the case for our patient. Unless aortic dissection is considered in the differential diagnosis the subtle radiological clue presented in the angiography may be missed.

Aortic dissection is a catastrophic illness with protean manifestation. The prognosis of untreated aortic dissection is dismal, with 25 percent mortality within 24 hours, 50 percent within 1 week, 75 percent within 1 month, and 90 percent within 1 year [7]. There are various tools to help physicians diagnose this disease. Aortography remains the most definitive tool for con-

firming the diagnosis of aortic dissection [8]. Transthoracic echocardiography (TTE) is limited in its ability to examine the descending thoracic aorta. The sensitivity and specificity of TTE for diagnosis of aortic dissection ranges from 77 to 80 percent, and 93 to 96 percent, respectively [9, 10]. Erbel et al. [11] evaluated the usefulness of transesophageal echocardiography (TEE) in assessment of aortic dissection. The sensitivity and specificity of TEE were 99 percent and 98 percent, respectively. CT may also be utilized in the diagnosis of aortic dissection [12]. The full extent of the dissection is likely to be underestimated since even by scanning at multiple levels it is unlikely that extension into the iliac vessels will be demonstrated. If there are any suspicions of aortic dissection, these methods should be considered and may be useful.

In conclusion, aortic dissection presented by lower extremity ischemia is not common but maybe cured with prompt

recognition and treatment. Given the high morbidity and mortality after delayed recognition or misdiagnosis, aortic dissection should be considered in the differential diagnosis of a patient presenting with nontraumatic acute ischemia of a lower extremity, even when there is no history of chest pain.

REFERENCES

1. Young, J.R., Kramer, J., and Humphries, A.W. The ischemic leg: a clue to dissecting aneurysm. *Cardiovasc. Clin.* 7:201-205, 1975.
2. Amer, N.C., Schaeffer, H.C., Domingo, R.T., Sawyer, P.N., and Wesolowski, S.A. Aortic dissection presenting as iliac artery occlusion: an aid to early diagnosis. *N. Engl. J. Med.* 266:1040-1042, 1962.
3. Shah, P.M. and Clauss, R.H. Dissecting hematoma presents as acute lower limb ischemia: Diagnostic patient profile and management. *J. Cardiovasc. Surg.* 24:649-653, 1983.
4. Hirst, A.E., Johns, V.J., and Kime, S.W. Dissecting aneurysm of the aorta: A review of 505 cases. *Medicine* 37:217-219, 1958.
5. DeBaakey, M.E., McCollum, C.H., Crawford, E.S., Morris, G.C., Noon, G.P., and Lawne, G. Dissection and dissecting aneurysms of the aorta: twenty-year follow-up of five hundred twenty seven patients treated surgically. *Surgery* 92:1118-1134, 1982.
6. Luigi, P. and David, S. ILEAD-Ischemia of the lower extremities due to aortic dissection: the isolated presentation. *Clin. Cardiol.* 22:353-356, 1999.
7. Desanctis, R.W., Doroghazi, R.M., Austen, W.G., and Buckley, M.J. Aortic dissection. *N. Engl. J. Med.* 317:1060-1067, 1987.
8. Slater, E.E. and DeSanctis, R.W. The clinical recognition of dissecting aortic aneurysm. *Am. J. Med.* 60:625-633, 1976.
9. Kasper, W., Meinertz, T., Kersting, F., Lang, K., and Just, H. Diagnosis of dissecting aortic aneurysm with suprasternal echocardiography. *Am. J. Cardiol.* 42:291-294, 1987.
10. Victor, M.F., Mintz, G.S., Kotler, M.N., Wilson, A.R., and Segal, B.L. Two-dimensional echocardiographic diagnosis of aortic dissection. *Am. J. Cardiol.* 48:1155-1159, 1981.
11. Erbel, R., Engberding, R., Daniel, W., Roelandt, J., Visser, C., and Rennollet, H. The European Cooperative Study Group for Echocardiography. Echocardiography in the diagnosis of aortic dissection. *Lancet* 1:457-461, 1989.
12. Danza, F.M., Fusco, A., and Falappa, P. Role of CT in the evaluation of dissecting aortic aneurysms. *Radiology* 152:828-832, 1984.