

Spontaneous and Isolated Dissection of the External Iliac Artery: A Case Report

Shinji Hirai, MD, Yoshiharu Hamanaka, MD, Norimasa Mitsui, MD, Mitsuhiro Isaka, MD, and Taira Kobayashi, MD

Spontaneous and isolated dissection of the limb arteries without involvement of the aorta is extremely rare. We present a 36-year-old male who has 95% tapering stenosis and dissection of the left external iliac artery with abrupt onset with total thrombosis in the false lumen until the level of the inguinal ligament. We also suggest that endovascular stent graft placement is a useful treatment for isolated arterial dissections prior to operation in consideration of the technical ease and safety of guiding intravascular ultrasound like in this case. (Ann Thorac Cardiovasc Surg 2002; 8: 180–2)

Key words: dissection of an external iliac artery, a self-expanding stent

Introduction

Spontaneous and isolated dissection of the limb arteries without involvement of the aorta is extremely rare. Most peripheral dissections occur in the coronary, renal, and mesenteric arteries. We report a case of spontaneous and isolated dissection of a left external iliac artery with abrupt onset managed by endovascular stent placement.

Case Report

The patient was a 36-year-old man who complained of new-onset short-distance claudication of the left leg and dull pain of the left hip joint region. The patient had no history of hypertension, diabetes mellitus, surgical intervention, or trauma, but he had a history of his lower abdomen having been run over by a motorbike at 9 years old. There was no family history of vascular disease. On admission, the left lower extremity was discolored and slightly cold. The examination result was normal except for weak femoral and distal pulses in the left leg. Noninvasive examination with continuous wave Doppler

revealed left leg artery disease. The ankle brachial indexes (ABIs) were 0.78 on the left and 1.02 on the right. Diagnostic digital subtraction angiography (DSA) showed a smooth, well-demarcated 95% tapering stenosis of the left external iliac artery with an appearance suggestive of a dissection (Fig. 1). The arterial wall at the superior lesion of dissection was slightly irregular. The other arterial wall showed no abnormalities. Intravascular ultrasound (IVUS) demonstrated a stenotic dissection of the left iliac artery with total thrombosis in the false lumen until the level of the inguinal ligament (Fig. 2). The treatment was initiated with percutaneous transluminal angioplasty (PTA) with a self-expandable stent (10×91 mm, Easy Wallstent, Boston Scientific, Watertown, MA) placement via a retrograde left femoral artery puncture. The self-expanding stent was placed over a 0.035-in wire through a 8 French sheath with systemic heparinization. Dilatation was established after placement of the self-expandable stent, taking care to avoid rupture or further complications. Angiography after deployment revealed obliteration of the dissection (Fig. 3). IVUS revealed that the self-expanding stent adhered the intima to the media and adventitia, diminishing thrombosis in the false lumen (Fig. 4). He subsequently showed a good palpable left femoral and distal pulse with normal capillary refill. The ABIs recovered from 0.78 to 1.05 on the left. His complaints of claudication disappeared. His clinical course was uneventful and he was discharged seven days after the PTA with a stent. He was maintained on low-

From the Department of Thoracic Surgery, Hiroshima Prefecture Hospital, Hiroshima, Japan

Received October 28, 2001; accepted for publication January 22, 2002.

Address reprint requests to Shinji Hirai, MD: Department of Thoracic Surgery, Hiroshima Prefecture Hospital, 1-5-54 Ujinakanda, Minami-ku, Hiroshima 734-8530, Japan.



Fig. 1. Angiogram shows a smooth, well-demarcated 95% tapering stenosis of the left external iliac artery with an appearance suggestive of a dissection.

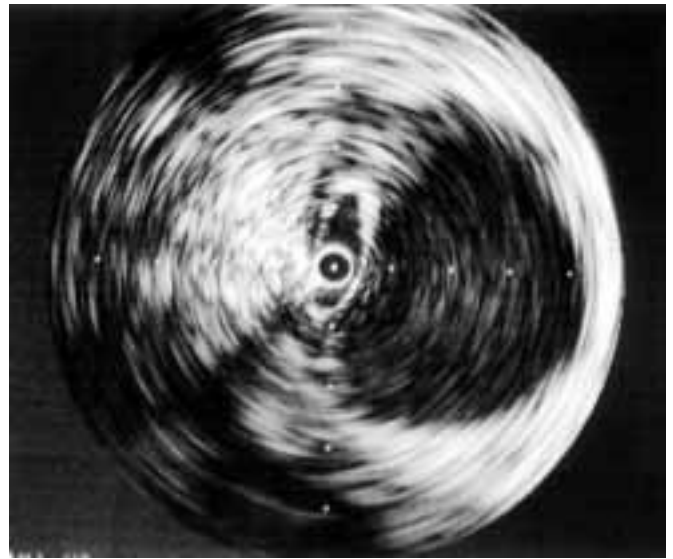


Fig. 2. Intravascular ultrasound (IVUS) shows a stenotic dissection of the left iliac artery with total thrombosis in the false lumen until the level of the inguinal ligament.

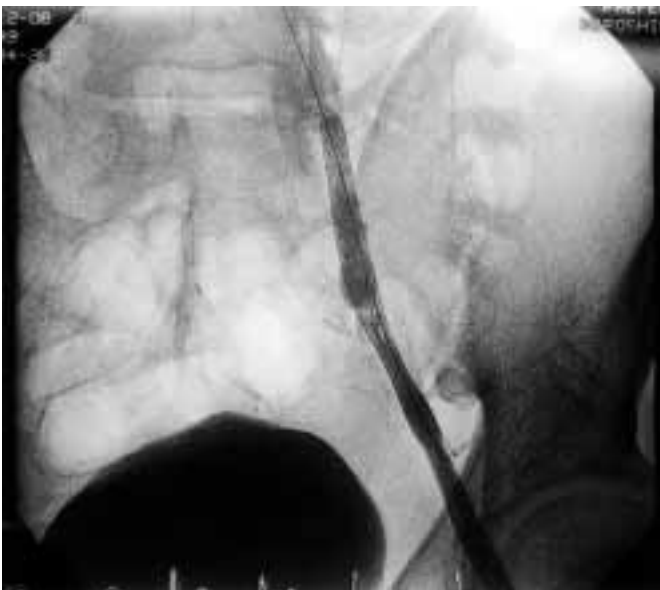


Fig. 3. Angiogram after a self-expanding stent deployment shows obliteration of the dissection.

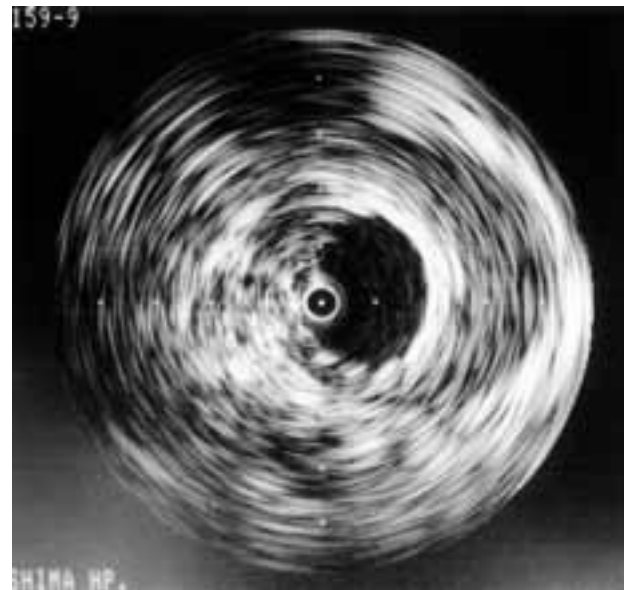


Fig. 4. IVUS shows that a self-expanding stent adheres the intima to the media and adventitia, diminishing thrombosis in the false lumen.

dose aspirin and warfarin as an anticoagulant therapy for three months.

Discussion

Spontaneous and isolated dissection of the external iliac artery is a rare phenomenon. The etiologic factors for dissection of limb arteries are trauma, disorders of the con-

nective tissue, fibromuscular dysplasia, α 1-antitrypsin deficiency, medial degeneration, syphilitic angitis, atheromatous ulcer and physical strain.¹⁻⁴⁾ Although he has a history of the lower abdomen being run over without traumatic injuries by a motorbike at 9 years old, it is not thought that the direct forces of the traffic accident which did not result with in pelvic fractures, induced isolated and delayed dissection of an external iliac artery that oc-

curred at 36 years of age, particularly considering the protection of the bony pelvis and posterior location in the retroperitoneum. Usually, chronic dissection may lead to aneurysm formation followed by subsequent rupture. The relation between the motorbike accident and the acute vascular event 27 years later does not seem very plausible. We believe that atherosclerosis was the most likely cause of the spontaneous and isolated dissection of an external iliac artery, because angiography revealed that the patient had significant irregularity of the arterial wall at the area in which the dissection originated in this case. In consideration of him being symptom-free until now, we postulate that the turbulent flow and shearing stress due to local hemodynamic factors created intimal tears and an intimal disruption in the area of curvature of the iliac artery because of intimal weakening and diminishing in both elasticity and compliance by atherosclerosis.

Rapid diagnosis and treatment of the dissection of a limb artery is vital to avoid adverse outcomes. The extremity should be examined with attention to color, temperature and abnormal pulse. Noninvasive examination with continuous wave Doppler has been found to be helpful in the diagnosis. If the clinical suspicion is high, DSA is mandatory and should not be delayed. DSA can provide the extent of the dissection and determine strategies for treatment of the dissection.

Strategies for treatment of the dissection of an external iliac artery are varied. Repair by interposition of aorto- or iliofemoral bypass with polytetrafluoroethylene (Teflon®) or Dacron®, resection and primary suture if only a short segment of artery, extra-anatomic femoro-femoral bypass, or endovascular stenting has been described.^{2,5)} An endovascular stenting for limb arterial dissection may be performed with local anesthesia, it avoids opening-associated complications, does not continue to need anti-coagulant medications, and may be useful as a minimally invasive method. A few investigators also reported successful endovascular stenting for limb arterial dissections, although there are reports of cure of limb arterial dissections with balloon angioplasty alone.⁶⁻⁸⁾ We believe that

the endovascular stenting technique adheres the intima to the media and adventitia, and eliminates flow through the dissection and is optimal for the treatment of iliac dissections. In the future, the surgical repair may be undertaken as a second therapy after a failed endovascular attempt.

Conclusion

We suggest that endovascular stenting is the treatment of first choice for isolated iliac arterial dissections in consideration of the technical ease and safety of guiding IVUS like in this case, although long-term follow-up for iliac stenting needs to be elucidated before recommendation for increased use of this treatment can be made.

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