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Surgery Today (2003) 33(8):639-641.

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Isolated Iliac Artery Aneurysm Caused by Fibromuscular Dysplasia : Report of a Case

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Running title: Iliac Artery Aneurysm from Fibromuscular Dysplasia

Key words: Common iliac artery aneurysm, Internal iliac artery aneurysm,
Fibromuscular dysplasia.

Abstract

Fibromuscular dysplasia (FMD) can develop in many different arteries, but iliac artery aneurysms are rare. A 69-year-old Japanese woman was admitted to our hospital for treatment of a right common iliac artery aneurysm. Aortography revealed aneurysms in both the right common iliac artery and the left internal iliac artery. Notably, the right common iliac artery aneurysm had a 'string-of-beads' appearance. At surgery, the aneurysms were resected, and replaced with Y-shaped vascular prostheses. The histopathological diagnosis was fibromuscular dysplasia (FMD). This due to its rarity case of common iliac artery aneurysm due to FMD is reported.

Introduction

Fibromuscular dysplasia (FMD) is a segmental, non-atherosclerotic vascular disease of unknown etiology.¹ Initially, FMD was thought to be confined to the renal artery, but later it was recognized to progress to other arteries as well.^{2,3} However, an isolated iliac artery aneurysm caused by FMD is seldom reported.^{4,5} We report herein a case of common iliac artery aneurysm and internal iliac artery aneurysm resulting from FMD.

Case Report

A 69-year-old Japanese woman with a history of lower abdominal pain was admitted to our hospital after a screening computed tomography (CT) scan revealed an iliac artery aneurysm. Her medical history included an appendectomy at the age of 22 and a left ovarian resection at the age of 23. Her family history was noncontributory. On physical examination, she was 156 cm tall and weighed 56 kg, with a blood pressure of 114/68 mmHg and a pulse rate of 75/min in regular. Her chest sounded clear, with normal heart sounds and no audible murmurs. A painless, pulsating 'egg-sized' mass was palpable in her right lower quadrant abdominal region. Angiography revealed a right common iliac artery aneurysm and a left internal artery aneurysm, but there were no signs of abnormal narrowing or dilating in the abdominal aorta or its branches

(Fig. 1). CT scan demonstrated a right common iliac artery aneurysm with a maximum diameter of 2.0 cm, and a left internal iliac artery aneurysm a maximum diameter of 1.8 cm. Renogram study revealed normal renal function on both sides.

At surgery, the abdominal aorta and aneurysms were exposed via the retro-peritoneum approach. The aneurysms were resected and replaced with Y-shaped vascular prostheses, made of albumin-coated knitted polyethylene terephthalate polyester.

The proximal anastomosis was just distal to the internal mesenteric artery orifice and was reinforced using Teflon mesh. A specimen excised from both aneurysms showed medial fibroplasia and disorganization of elastic lamina. Histopathological examination confirmed aneurysmal dilation due to FMD characterized as the medial type (Fig. 2). Postoperative angiography revealed good patency.

Discussion

FMD is a heterogeneous group of non-inflammatory disorders characterized by disorganization of the muscular arterial walls and resulting in arterial luminal narrowing and arterial aneurysms.⁶ The renal, internal carotid, iliac, subclavian, and vertebral arteries are the most common sites of FMD.³ The luminal stenosis it produces in the renal arteries may cause renovascular hypertension. FMD can appear at any age, even in

childhood, but it most often occurs in young women.⁷ Although common iliac artery aneurysms due to FMD are rare, an internal iliac artery aneurysm due to FMD has never been described as far as we know.^{4,5}

Histologically, FMD is classified into medial, intimal, and adventitial (or periarterial) types. Medial FMD accounts for 95% of cases and is further divided into medial fibroplasia, perimedial fibroplasia, and medial hyperplasia.³ The present case was diagnosed as medial fibroplasia, characterized by multifocal areas of close apposition of internal and external elastic laminae with intervening areas of smooth muscle cells. Establishing a preoperative diagnosis of aneurysms due to FMD was difficult in this patient. Because the angiographic study showed the right common iliac artery aneurysm with a 'string-of-beads' appearance, we doubted that these aneurysms were caused by FMD. The surgical indications for aneurysms due to FMD are the same as those for other aneurysms. Our patient's renal function was within the normal range, and therefore, we did not perform reconstruction of the left renal artery. Finally, because FMD is a multivessel disease, careful and complete evaluation and follow-up are of critical importance.

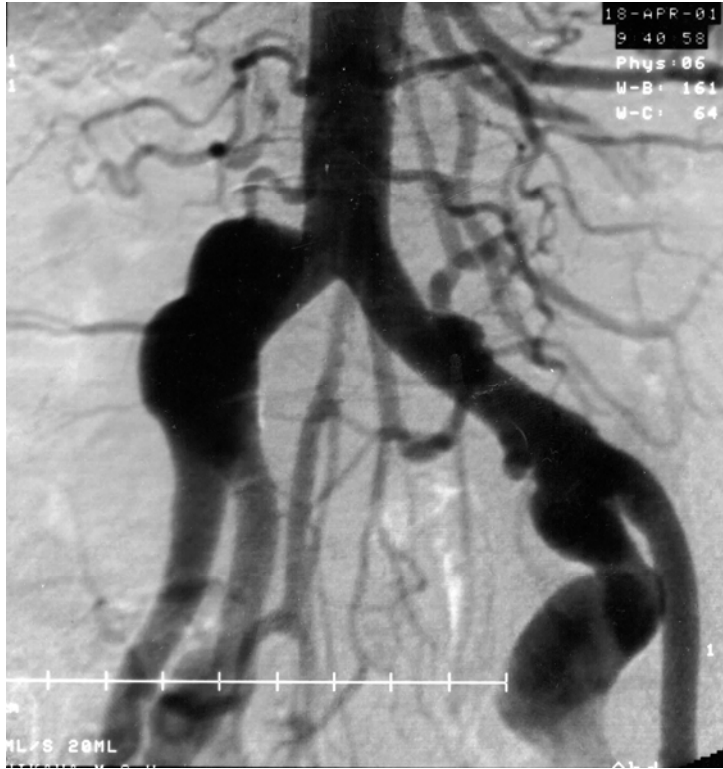
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Figure legends

Figure 1 Intra-arterial digital subtraction angiography showing the right common iliac artery aneurysm and the left internal iliac artery aneurysm (A). There are no signs of abnormal narrowing or dilation in the abdominal aorta or main abdominal branches(B).

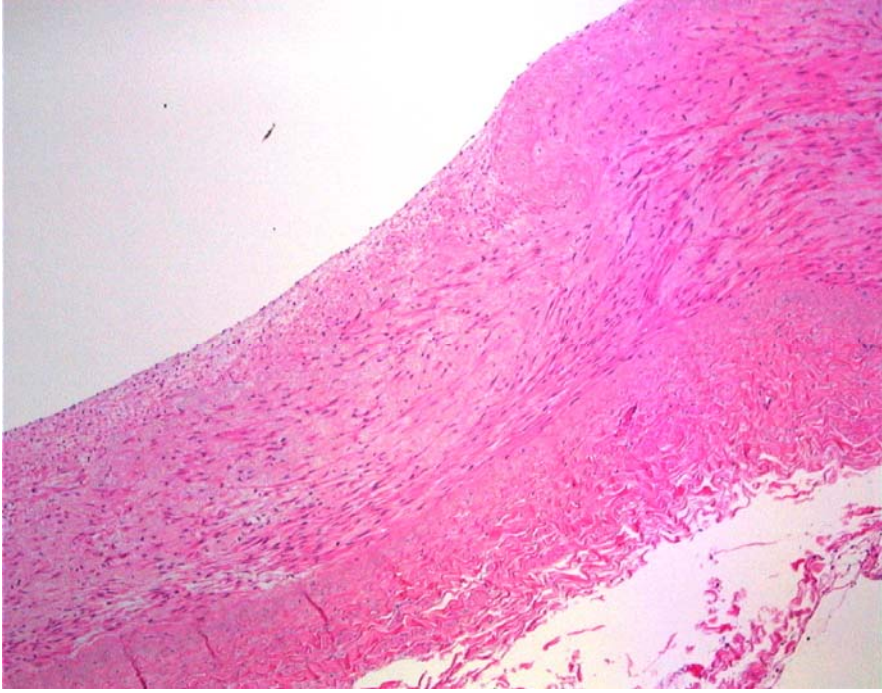
Figure 2 Photomicrograph of the wall of the right common iliac artery aneurysm. Note the increase in medial smooth muscle cells with derangement of their orientation. (hematoxylin-eosin, A; X40. B; X100.)



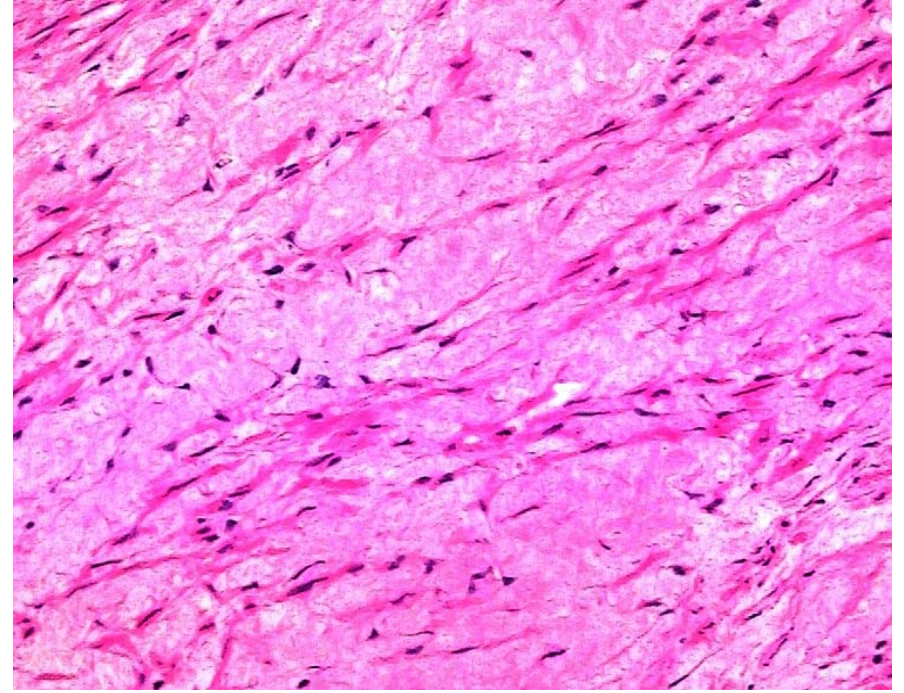
A



B



A



B