

Bilateral Iliac Artery Aneurysms Presenting Constipation

Shoh TATEBE¹⁾, Takao YOSHIMURA¹⁾, Shin-ichi OHTANI¹⁾ and Takashi KOBAYASHI²⁾

¹⁾Department of Thoracic and Cardiovascular Surgery, Mito Saiseikai General Hospital, 2-1-1 Futabada, Mito, Ibaraki 311-41, Japan, and ²⁾Department of Radiology, Ibaraki Prefecture Central Hospital, Ibaraki 309-17, Japan

Received January 4, 1994

Summary. A case of a 65-year-old man with isolated iliac artery aneurysms presenting constipation is reported. The diagnosis of bilateral iliac aneurysm was made by computed tomography (CT) and arteriography. Three-dimensional CT was useful in making a definitive diagnosis. Surgical treatment included Y grafting and right internal iliac artery reconstruction. The literature on this subject is also reviewed.

Isolated iliac artery aneurysms are rare.¹⁾ Because this lesion is located deep in the pelvic cavity and is associated with few symptoms, it can be difficult to detect. Several reports have described cases of ruptured internal iliac artery aneurysms.²⁻⁴⁾ We report here a case of bilateral iliac artery aneurysms presenting severe constipation which was successfully treated with surgery.

CASE PRESENTATION

A 65-year-old man was admitted to our hospital with a complaint of severe constipation on January 6, 1993. He had suffered from constipation for half a year and needed an enema everyday. Abdominal examination revealed a palpable mass in the lower abdomen, while digital rectal examination revealed a pulsatile pelvic mass.

Blood chemistry, blood cell counts, and urinalysis were normal. Computed tomography (CT) and three-dimensional CT (Fig. 1a, b) showed bilateral iliac artery aneurysms. Three-dimensional CT was obtained by performing a helical CT scan using a computer in which a three-dimensional figure was generated from the individual section. The left internal iliac artery aneurysm occupied almost the whole minor pelvic cavity. The abdominal aorta was free from aneurysmal change and the inferior mesenteric artery was

patent. Both external iliac arteries were normal.

Arteriography (Fig. 2) was carried out with a 5F pigtail catheter. The catheter was introduced through the femoral artery, and placed in the abdominal aorta. The lesion was confirmed by arteriography, but the left internal iliac artery aneurysm was not completely visualized.

An elective operation was performed on February 8, 1993. The left internal iliac artery aneurysm extended deep into the minor pelvic cavity and adhered tightly to the sigmoid colon and rectum. Both common iliac arteries had aneurysmal changes, however, the abdominal aorta was normal as shown by CT and the arteriography. A gelatin coated knitted Dacron graft (20×10 mm Gelseal™) was used for Y grafting. The distal ends of the graft were bilaterally anastomosed to the external iliac arteries. Since the left internal iliac artery had no back flow, the left internal iliac artery was considered occluded at the peripheral portion. For this reason, reconstruction of the internal iliac artery was performed only on the right side. (Fig. 3) The patient's postoperative course was uneventful, and he was discharged on the 14th postoperative day.

DISCUSSION

Isolated atherosclerotic aneurysms arising from hypogastric arteries are rare, with a reported incidence of only 0.4% among all atherosclerotic aneurysms.¹⁾ Because isolated iliac artery aneurysms are located deep in the pelvis, they are rarely discovered during ordinary examination.

Early diagnosis is difficult because these lesions are usually asymptomatic. The most frequent symptoms are gastrointestinal^{5,6)} (nausea, vomiting, constipation) and genitourinary.⁷⁾ Less frequently, vascular complications^{8,9)} such as an A-V fistula, pelvic pain,

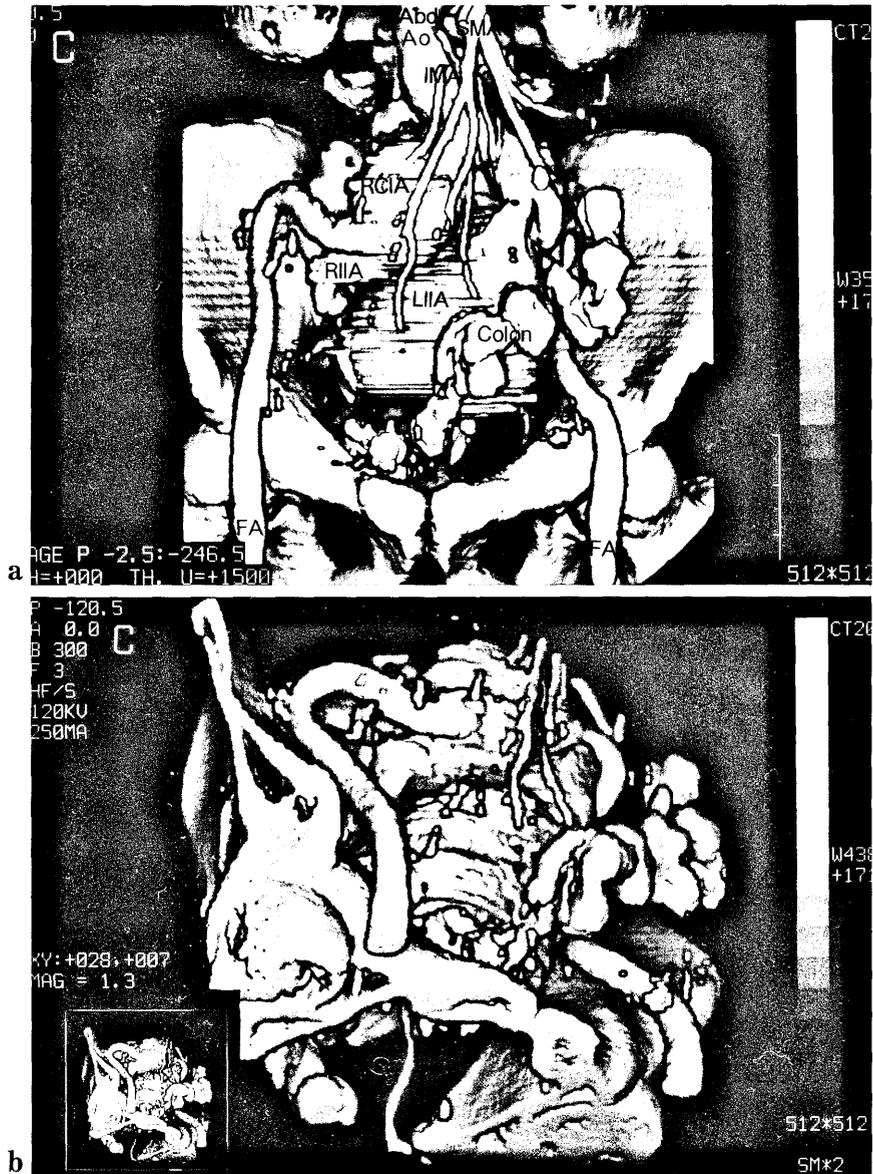


Fig. 1. a, b. Three-dimensional computed tomography. The figure has been constructed from the CT-section. The right iliac artery aneurysm can be clearly recognized at the site denoted by RCIA, and the left one extends deep into the pelvic cavity as denoted by LIIA. Abd Ao: Abdominal aorta, SMA: Superior mesenteric artery, IMA: Inferior mesenteric artery, RCIA: right common iliac artery, RIIA: right internal iliac artery, LIIA: left internal iliac artery, FA: femoral artery.

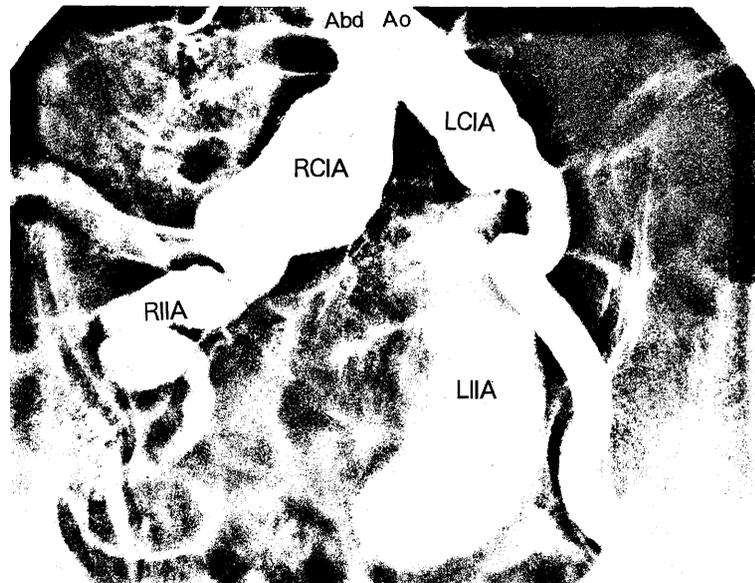


Fig. 2. Arteriography. Bilateral iliac artery aneurysms are similarly recognizable but the left internal iliac artery is less visualized in comparison with the three-dimensional CT scan. LCIA: Left common iliac artery. Other abbreviations are the same as in Fig. 1.

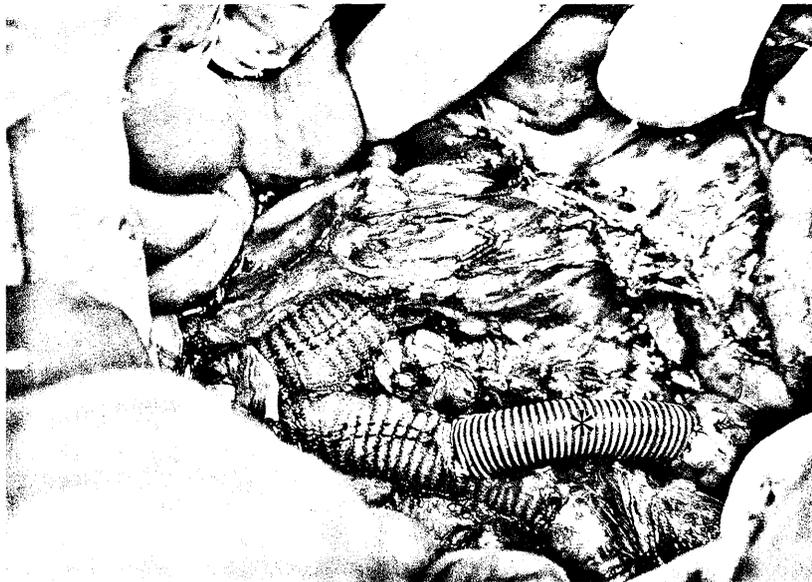


Fig. 3. Y-grafting and reconstruction of the right internal iliac artery. The proximal anastomosis is at the abdominal aorta (left) and the right internal iliac artery has been reconstructed as shown by the asterisk (*).

or thrombosis and neurological signs²⁾ have been noted. Our case presented only constipation.

The major complication of such aneurysms is rupture into the bowel, retroperitoneal space, or abdominal cavity. The mortality rate in elective operations is 33.3%,¹⁰⁾ and though rupture might necessitate emergent procedures, the mortality rate climbs higher: 75%.¹¹⁾

Diagnosis was made using plain radiography of the abdomen and pelvis, CT with contrast enhancement, and arteriography. Arteriography definitively establish a diagnosis of isolated iliac artery aneurysm.

We also found three-dimensional CT to be useful. The helical CT scan has some advantages: the images are clearer than a three dimensional reconstruction from conventional CT images with the use of a smaller amount of contrast medium. It can be performed with shorter scan time, and at arbitrary positions. The contrast medium is given intravenously, and complications due to arterial puncture can be avoided. Therefore, three-dimensional CT is applied in many instances of vascular diseases. In addition, the relationship between the aneurysm and other organs in the pelvic cavity is easily recognized, as shown in this case.

Surgical treatment should be carried out as soon as possible, because of the high possibility of rupture and ensuing high mortality rate in such cases. Extirpation of the aneurysm and reconstruction of the internal iliac artery has been recommended. However, in most cases, the aneurysms might show tight adhesions to adjacent structures, making complete removal impossible. For this reason, the aneurysm may be ligated at the proximal end. However, in the case of a bilateral iliac artery aneurysm involving the internal iliac artery as in the present case, ischemia of pelvic organs is to be prevented. According to Urayama et al.¹²⁾ ischemic colitis and/or sexual dysfunction was shown to occur in 50% of patients who underwent bilateral ligation. We reconstructed only the right internal iliac artery, because the distal anastomotic site of left internal artery was deep in the pelvic cavity, and the peripheral site of the artery was thought to be occluded. The patient in this case has not developed symptoms of ischemic colitis or sexual dysfunction.

CONCLUSION

We encountered a case of a bilateral internal iliac

artery aneurysm. Three-dimensional CT proved more useful in making a definitive diagnosis and seeing the extension and relation to the surrounding tissues than arteriography.

Acknowledgments. The authors express thanks to Dr. Valerie Asher for English editing.

REFERENCES

- 1) Silver D, Anderson EE, Porter JM: Isolated hypogastric artery aneurysm. Review and report of three cases. *Arch Surg* 95: 308-312, 1967.
- 2) Drissi-Kacemi A: Isolated internal iliac artery aneurysm: Report of one case and review of the literature. *J Cardiovasc Surg* 29: 68-69, 1988.
- 3) Matsubara J, Nagasue M, Tsuchishima S, Shimizu T: Bilateral ruptured isolated internal iliac aneurysms: Report of a case and review of the literature. *Jap J Surg* 19: 760-763, 1989.
- 4) Katagiri M, Kasuya S: Surgery for an isolated aneurysm of the internal iliac artery: Report of three cases. *J Cardiovasc Surg* 31: 118-120, 1990.
- 5) Perdue GD, Mittenthal MJ, Smith RB, Salam AA: Aneurysm of the internal iliac artery. *Surgery* 93: 243-246, 1983.
- 6) Victor DW Jr, Werdick GM, Proudfoot RW: Internal iliac artery aneurysm presenting as severe constipation. *J Ky Med Assoc* 85: 310-312, 1987.
- 7) Marino R, Mooppan UMM, Zein TA: Urological manifestations of isolated iliac artery aneurysms. *J Urol* 137: 232-234, 1987.
- 8) Weimann S, Flora G: Primary arteriovenous fistula between the common iliac vessels secondary to aneurysmal disease. *Surgery* 102: 91-95, 1987.
- 9) Morrow C, Lewinstein C, Menachem YB: Spontaneous iliac arteriovenous fistula. *J Vasc Surg* 6: 605-608, 1987.
- 10) Kasulke RJ, Clifford A, Nichols WK, Silver D: Isolated atherosclerotic aneurysms of the internal iliac arteries. *Arch Surg* 117: 73-77, 1982.
- 11) Manaster BJ, Greenberg M, Rubin JM: Isolated internal iliac artery aneurysms. *J Comput Assist Tomogr* 6: 842-844, 1982.
- 12) Urayama H, Ueyama K, Takahashi A, Kato A, Tokuraku M, Tsuchida K, Watanabe Y: Effect of surgery for combined abdominal aortic and internal iliac artery aneurysm on postoperative intestinal ischemia and sexual dysfunction. *J Jap Surg Soc* 92: 1719-1722, 1991. (in Japanese)