

Spontaneous Rupture of the Iliac Vein: Report of a Case

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Abstract: We report a rare case of a spontaneous rupture of the iliac vein which was then surgically treated with good results. A 66-year-old woman was admitted complaining of leg swelling and lower abdominal pain. On the 3rd day after admission, an operation was performed because of a gradually increasing hematoma in the retroperitoneal space. Laparotomy revealed a 17 mm longitudinal tear on the anterior surface of the left external iliac vein with a thrombus inside the lumen. Most of the previously reported 14 cases of this nature have required emergency operations.

Key Words: spontaneous rupture of iliac vein, venous thrombosis, retroperitoneal hematoma

Introduction

Only 14 cases of spontaneous rupture of the iliac vein have been reported in the literature^{1–13} and most required emergency operations. We herein report a 15th case in which the patient underwent surgical repair on the 3rd day after the onset of clinical symptoms.

Case Report

A previously healthy 66-year-old woman noticed her left leg was swollen up to the groin when she awoke. On arrival at Showa University Hospital in the afternoon, she also complained of pain in the lower abdomen and shortly thereafter collapsed. Her blood pressure was 70/42 mmHg but immediately recovered to 100/66 mmHg after being placed in the supine position. Her hemoglobin was 12.0 g/dl and hematocrit was

35.2%. The abdomen was slightly distended in the left iliac fossa but no pulsatile mass was detected. Left lower limb swelling was notable. A computed tomography (CT) scan (Fig. 1) revealed a hematoma in the left iliac fossa and a thrombus was also evident in the left iliac vein. No aneurysmal formation was detected. A diagnosis of retroperitoneal bleeding with subsequent iliac vein compression by the hematoma was made. The next day, arteriography showed no extravasation of the contrast medium, and venography showed a thrombus in the left iliac vein also with no extravasation. Her hemodynamic condition remained stable but a transfusion of 2 units of whole blood was necessary because the hemoglobin decreased to 7.7 g/dl. On the 3rd day after admission, the hemoglobin again decreased to 7.5 g/dl and a CT scan (Fig. 2) showed an enlarged retroperitoneal hematoma extending to the kidney. A laparotomy performed on the same day disclosed a large retroperitoneal hematoma containing clotted venous blood in the left iliac fossa. An examination of the hematoma revealed a tear in the anteromedial side of the left external iliac vein with a fresh clot inside the lumen (Fig. 3A). No bleeding from the tear was evident. After thrombectomy, bleeding from the distal end of the vein was reduced to a satisfactory level, but not from the proximal end. The proximal portion of the vein appeared to be compressed by the overlying right common iliac artery pressing against the sacral promontory. The longitudinal tear in the vein was 17 mm long and the edges of the wall were smooth (Fig. 3B). The vein showed no macroscopic abnormalities. The tear was repaired with a 6-0 polypropylene suture.

The patient's postoperative course was uneventful and limb swelling gradually diminished, but venography, which was performed 2 weeks after the operation, showed an obstruction of the left iliac vein resulting in extensive collateral circulation.

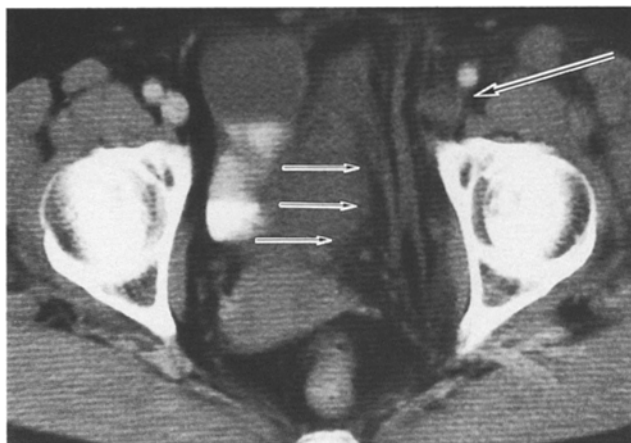


Fig. 1. Computed tomography (CT) scan. The left iliac vein (*long arrow*) was dilated with a thrombus while a retroperitoneal hematoma (*short arrows*) was located in the left iliac fossa



Fig. 2. CT scan. A retroperitoneal hematoma (*arrows*) extending to the left kidney is demonstrated

Discussion

Fourteen cases of atraumatic iliac vein rupture have been reported to date. With one exception,⁴ all cases underwent laparotomy on the day of admission. In most cases, a preoperative diagnosis of ruptured aortic or iliac aneurysm was made.^{6,7,9,11-13} Extensive preoperative testing was not possible in any of the cases due to hemodynamic instability. Among the 15 cases, including our case, there were 2 men and 13 women. The mean age of the patients was 63.8 years with a range of 41–83 years. Ruptured common or external iliac veins were seen on the right side in only 2 cases and on the left side in 13 cases. All four friable veins,^{1,2,4,5} contained thrombi because of inflammatory

changes. For the other 11 veins, the tears appeared smooth and four veins^{6,9,-11} contained no thrombi. However, three^{6,9,10} of those became occluded post-operatively. These results show the presence of venous obstruction due to a thrombus or to venous compression between the right iliac artery and the sacral promontory. Profound hypotension and lower abdominal distension are common symptoms in all cases of iliac vein rupture. In five cases, preoperative leg swelling was also reported.^{3,7-9,12} In many cases, symptoms occurred with bending or with the Valsalva position during defecation, which raises the blood pressure of the iliac vein.^{3,7,9-13} However, increased pressure alone is probably not sufficient to cause spontaneous venous rupture since the vein can serve as arterial sub-

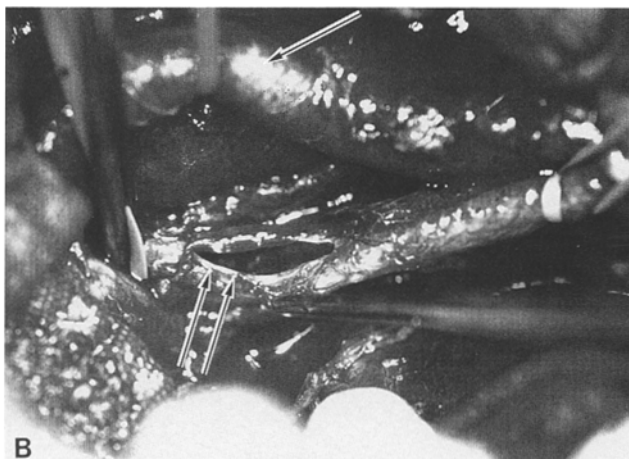


Fig. 3A,B. Operative findings. The vessel lifted by vascular tape is the external iliac artery (*arrow*). A tear and the fresh clot (*double arrow*) are seen in the external iliac vein (A). The 17-mm longi-

tudinal tear (*double arrow*) looks smooth after undergoing thrombectomy (B)

stitutes and can tolerate inferior vena cava ligation without rupturing. Therefore, a probable mechanism of spontaneous rupture of an iliac vein is a rapid increase in pressure in a vein possessing an underlying weakness due to either thrombophlebitis, aging, or gender.^{1,2,4,5,9,10,12}

Prompt resuscitation and surgical management are considered necessary although this is not always successful.^{2,5,11} In this case report, we initially diagnosed the problem as retroperitoneal bleeding from a small vein with subsequent iliac vein compression by the hematoma. The diagnosis was based on a CT scan which showed no aneurysmal formation and the angiography findings which revealed no extravasation by the contrast medium. No laparotomy was performed initially because we thought that it might be difficult to identify such a small bleeding point. Therefore, the patient was observed for 2 days. However, a laparotomy was performed on the 3rd day because of evidence of continued bleeding. We could not determine which occurred first, the vein rupture or the thrombus formation. However, the presence of the thrombus in the ruptured vein may have prevented abrupt, massive bleeding which often leads to the need for emergency operations.

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