

Aneurysm of the Common Iliac Vein Mimicking a Pelvic Mass¹

골반 내 종괴 형태를 보인 총장골 정맥류¹

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Venous aneurysm, especially of primary origin, is rare. The authors report a case of a 63-year-old female who was admitted for back pain and an aneurysm of the common iliac which was detected incidentally. CT, magnetic resonance (MR), Doppler ultrasonography, and conventional venography showed an aneurysm of the left common iliac vein measuring 4.5 × 3 × 4 cm. Because there were no complications of the aneurysm, no further treatment was administered. Herein, we describe findings of a venous aneurysm of the common iliac vein mimicking a pelvic mass on CT and MR scans and with a review of the literature.

Index terms

Computed Tomography

Magnetic Resonance

Aneurysm, Iliac

Veins, Iliac

INTRODUCTION

Venous aneurysms are uncommon diseases that occur in the cervical vein, thoracic vein, and in the veins of extremities. Among the reported cases of venous aneurysms, iliac venous aneurysms are considered a rare form of the disease (1, 2).

Venous aneurysms of the common iliac vein can be asymptomatic or symptomatic through abdominal pain or swelling of the legs due to thromboembolism. Differentiation of a venous aneurysm from a true tumor is important for the proper management of the disease. We describe a case of a common iliac venous aneurysm mimicking a retroperitoneal mass, focusing on imaging findings.

CASE REPORT

A 63-year-old female visited our hospital for outpatient follow-up of chronic Hepatitis B virus. She had vague back pain and had no significant past medical history, except for cervical pain two years ago. Abdominopelvic CT was performed as a

routine evaluation of the liver and other organs.

Abdominopelvic CT scan showed a well-defined mass measuring 4.5 × 3 × 4 cm near both the common iliac vessels at the level of the fifth lumbar spine. On the portal phase of the contrast-enhanced abdominopelvic CT scan, the lesion showed heterogeneous enhancement [70 Hounsfield units (HU)] in comparison with homogeneous enhancement of the common iliac vein (100 HU). On the delayed phase, the tumor showed homogeneous enhancement (100 HU) as the common iliac vein (Fig. 1A). The mass showed the same density relative to the common iliac vein. We were not able to distinguish between neurogenic tumor and vascular tumor.

MRI was performed for the discrimination of the tumor. T1-weighted scans showed a hypointense mass relative to the muscle and common iliac vein. T2-weighted scans showed a hyperintense mass with central hypointensity (Fig. 1B). In addition, the mass showed good enhancement similar to that of the common iliac vein (Fig. 1C). Fluorodeoxyglucose (FDG) positron emission tomography-CT was performed for further evaluation of hypermetabolic malignancy. Accumulation of FDG within

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the mass was not observed.

On ultrasonography (US) with color Doppler, faint blood flow into the mass was noted (Fig. 1D).

Conventional venography was performed for confirmation of aneurysm. Venography showed a saccular aneurysm on the anteromedial aspect of the left common iliac vein; complicated lesions such as thrombus or rupture were not observed (Fig. 1E). Therefore, surgical treatment was not required, and the patient

was discharged with a recommended follow-up CT scan.

DISCUSSION

Venous aneurysm is an unusual disease, and the significance of this disease is unknown. Venous aneurysms are classified and divided into acquired and congenital lesions. These lesions are further classified into primary causes and secondary causes, such



Fig. 1. A 63-year-old female with a venous aneurysm of the common iliac vein.

A. Abdominopelvic CT scans (upper image in non-enhanced scan, middle and lower images in portal and delayed phases, respectively) show heterogeneous enhancement of the tumor (asterisks) relative to the common iliac vein (arrows).

B. T1-weighted axial scan (upper image) shows a hypointense mass (arrows) relative to muscle and common iliac vein. T2-weighted scan (lower image) shows a hyperintense mass with central hypointensity.

C. T1-weighted coronal scan with contrast enhancement shows the same enhancement of the tumor (arrow) compared with the common iliac vein.

D. Sonography with color doppler shows blood inflow to the aneurysm (An) and aneurysmal neck (arrow).

E. Early (right image) and late (left image) phases of venogram show contrast filling in the aneurysm (arrows) on the anteromedial aspect of the left.

as trauma or factors that can have an influence on the modification of venous structures (3). Many studies have also suggested that a primary aneurysm of the iliac vein, such as the present case, is rare (2, 4).

Ysa et al. (2) reported a case of a thrombosed iliac venous aneurysm. In addition to their case, the study presented a retrospective review of 21 reported cases. They reported that the most common cause of iliac venous aneurysm is arteriovenous fistula secondary to trauma.

An iliac venous aneurysm may be presented with various symptoms such as swelling of the legs, abdominal pain, and dyspnea. Symptoms due to thrombus and venous stasis are common. In 32% of the cases, aggravated symptoms and persistent symptoms remain (2, 5). Various treatment strategies are needed for iliac venous aneurysms depending on the cause. Surgical procedures such as aneurysm removal or ligation of the fistula, medical anticoagulation, and elastic compression can be used (2). Arteriovenous fistula followed by trauma must be surgically removed (6). In addition, an asymptomatic primary venous aneurysm can be surgically resected (5).

Venous aneurysms can be detected with US, CT with contrast enhancement, and MRI. CT scan is particularly helpful in the detection of combined congenital anomalies and complicated aneurysms, such as thromboembolism (2).

In our case, a well-defined mass measuring $4.5 \times 3 \times 4$ cm was observed near both common iliac vessels. Coronal and sagittal multiplanar reformation images of CT scan showed continuity of the mass with inferior vena cava (IVC). Although the mass with delayed homogeneous enhancement same as IVC helped us to consider aneurysm originating from IVC, we could not exclude the possibility of a retroperitoneal mass such as leiomyosarcoma, angiosarcoma, or neurogenic tumor. Also, small tumors may present homogeneous attenuation, whereas large tumors have heterogeneous attenuation with extensive necrotic change. In such cases, MRI can be helpful. Neurogenic tumors such as schwannoma and neurofibroma located in the paravertebral area show characteristic features on MRI (7). Heterogeneous enhancement of the tumor on CT and MRI indicates mixed fast and slow flows. Krinsky et al. (8) suggested a pattern of enhancement called the layered gadolinium sign. This sign occurs due to very slow flow in the aneurysm, which results in poor mixing of in-flow within the aneurysm. This gadolinium

sign can be helpful to the radiologist in diagnosing a venous aneurysm from solid neoplasms.

As seen in the present case, a venous aneurysm without symptoms can mimic a retroperitoneal mass. In such cases, imaging modalities are more useful. However, there are few cases focusing on radiologic findings relative to the reported cases of venous aneurysms. The authors used various imaging modalities, and these tools helped to distinguish a common iliac venous aneurysm from a mimicking pelvic mass. However, it is not necessary to perform all imaging modalities in every case.

In conclusion, it is important for the radiologist to recognize an iliac vein aneurysm mimicking a true mass, followed by an accurate radiologic diagnosis for the proper treatment of the disease.

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골반 내 종괴 형태를 보인 총장골 정맥류¹

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일차성 정맥류는 드문 질환이다. 저자들은 등쪽 통증으로 입원한 63세 여성에서 우연히 발견한 총장골 정맥류를 보고하고자 한다. CT, MR, 도플러 초음파, 고식적 정맥조영술을 통해 $4.5 \times 3 \times 4$ cm 크기의 총장골 정맥류를 확인하였다. 정맥류에 동반된 합병증이 없어 더 이상의 치료는 시행하지 않았다. 저자들은 CT와 MR에서 골반 내 종괴와 유사한 총장골 정맥류의 영상소견들을 다른 보고들과 비교하여 기술하고자 한다.

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