

Ruptured iliac aneurysm presenting as lumbosacral plexopathy

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ABSTRACT

Isolated internal iliac aneurysms are rare. Unless rupture occurs, they usually remain asymptomatic. In this paper, a patient with a ruptured internal iliac aneurysm that resulted in chronic stage hematoma causing lumbosacral plexopathy and erosion of the pelvic bony structures is presented, along with magnetic resonance imaging (MRI) and computed tomography (CT) findings. To expedite the diagnosis of extraspinal radicular pain, one should pay attention to the extraspinal structures involved in lumbar CT or MRI examinations. If necessary, further investigation can be made with pelvic CT or MRI.

Key words: • *iliac aneurysm* • *aneurysm, ruptured*
• *lumbosacral plexopathy*

Isolated internal iliac artery aneurysms (IIAAs), without an accompanying aortic aneurysm, are rare and usually seen in the common iliac arteries. Among all iliac artery aneurysms, 50% are bilaterally located (1). IIAAs are asymptomatic unless they rupture (1, 2). We present a patient with lumbosacral plexopathy that underwent lumbar magnetic resonance imaging (MRI) in order to clarify its etiology. The patient was subsequently diagnosed with a large ruptured IIAA. MRI and computed tomography (CT) images of the case are presented.

Case report

A 54-year-old male patient presented to our neurology department complaining of chronic low back and right leg pain. Physical examination revealed evident atrophy and 3/5 muscle strength in the right femoral and gluteal muscle groups. The patient was pre-diagnosed with lumbar discopathy and referred to the radiology department for lumbar MRI. T1-weighted (TR, 600; TE, 23 ms) and T2-weighted (TR, 3000; TE, 104 ms) sagittal, and T2-weighted axial images were obtained using a 1.5 T MRI system (Signa LX Horizon, GE Medical Systems, Milwaukee, WI, USA). MRI showed lumbar degenerative changes compatible with the patient's age, but there was no finding in favor of prominent disk herniation or spinal stenosis. However, on sagittal T1-, and T2-weighted images a pelvic mass was observed with hyperintense signaling features and a thin hypointense wall, which was evaluated as a hematoma (Fig. 1). This lesion, which was partially visible in axial T2-weighted sections, was eroding the right iliac bone and sacral wing (Fig. 2). Another lesion with signal loss at its center was detected at the neighboring region lateral to the first lesion. After finding a third lesion with similar characteristics as the second lesion in the left half of the pelvis, an abdominopelvic CT examination was scheduled. CT was performed following oral and intravenous contrast media administration, and atherosclerotic and dolichoectatic changes to the abdominal aorta and its main branches were noted. Furthermore, in both internal iliac arteries fusiform aneurysmatic dilatations with mural circumferential thrombus material were detected (Fig. 3). The aneurysm on the right was 6 cm in diameter and the left one was 5 cm. Adjacent to the right-sided aneurysm a 6-cm diameter lesion with liquid density was detected on MRI, which showed mural contrast enhancement and was compatible with a hemorrhagic mass. The lesion was evaluated as a peri-aneurysmal hematoma caused by leakage. CT examination revealed erosion and a defective appearance on the right iliac and sacral bones adjacent to aneurysm and hematoma, which were due to chronic irritation (Fig. 4). As the patient had no history of surgery or trauma, and dolichoectatic and atherosclerotic changes were observed, cardiovascular consultation suggested the dilatations of the iliac arteries as pseudo-aneurysms caused by

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Figure 1. a, b. On sagittal T1- (a), and T2-weighted (b) lumbar MR images, peri-aneurysmal hematoma (*star*) is seen.

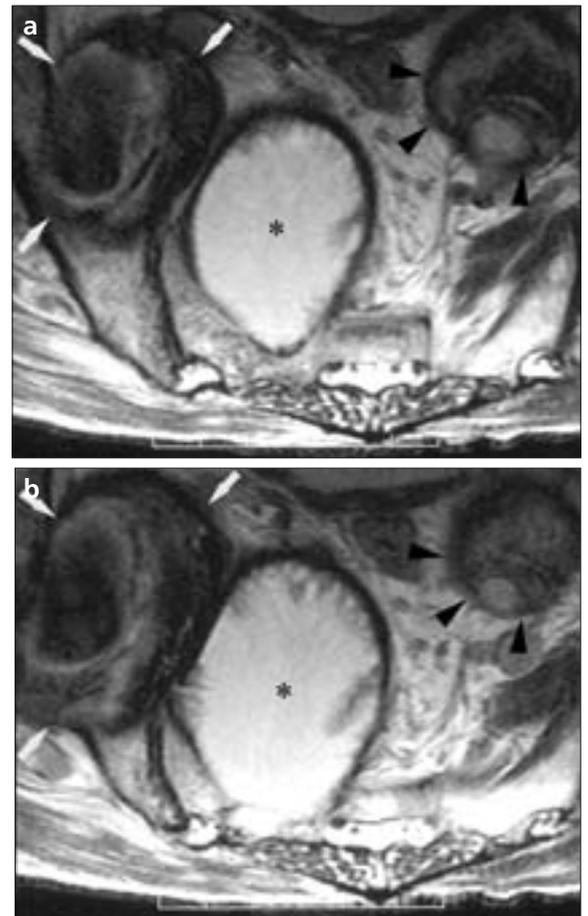


Figure 2. a, b. Sequential axial T2-weighted lumbar MR images (a, b) reveal the right internal iliac artery aneurysm (*arrows*), peri-aneurysmal hematoma (*star*) adjacent to it, and the left internal iliac artery aneurysm (*arrowheads*). It is striking that the hematoma, which is closely related to the sacral foramina, is located deep in the pelvis (compatible with the course of lumbosacral plexus), and is placed on the sacral wing.

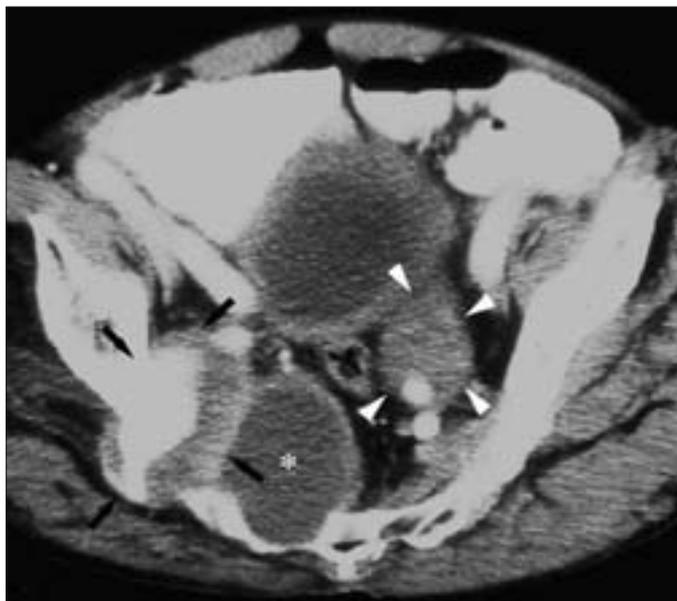


Figure 3. Contrast-enhanced pelvic CT section demonstrates the right internal iliac artery aneurysm (*arrows*) that eroded the right iliac bone, the neighboring peri-aneurysmal hematoma that eroded the sacral wing (*star*), and the left internal iliac artery aneurysm (*arrowheads*).

atherosclerosis, and proposed drainage of the hematoma and ligation of the right internal iliac artery. However, the patient declined surgery and was lost to follow-up.

Discussion

IIAAs are rare and account for 1%–2% of all aortic aneurysms (3). Their prevalence increases with age (rare before 60 years). It is almost impossible to examine them by physical examination, as they are located deep within the pelvis.

IIAAs are mostly seen in the common iliac arteries (70%–90%), followed by the internal iliac artery. They tend to be asymptomatic unless rupture occurs (1, 3). Symptoms may appear whenever they cause local compression of adjacent pelvic formations. In many surgical series, ruptured iliac artery aneurysms were reported to have a mean diameter of 6 cm. Elective reparation is offered by many surgeons for patients in the optimal risk group, and to those with iliac aneurysms >3 cm in diameter (1).

IIAAs are extremely rare, with an incidence of approximately 0.008%. The most common etiologies are hypertension and atherosclerosis, while congenital, luetic, traumatic, and postpartum aneurysms have also been

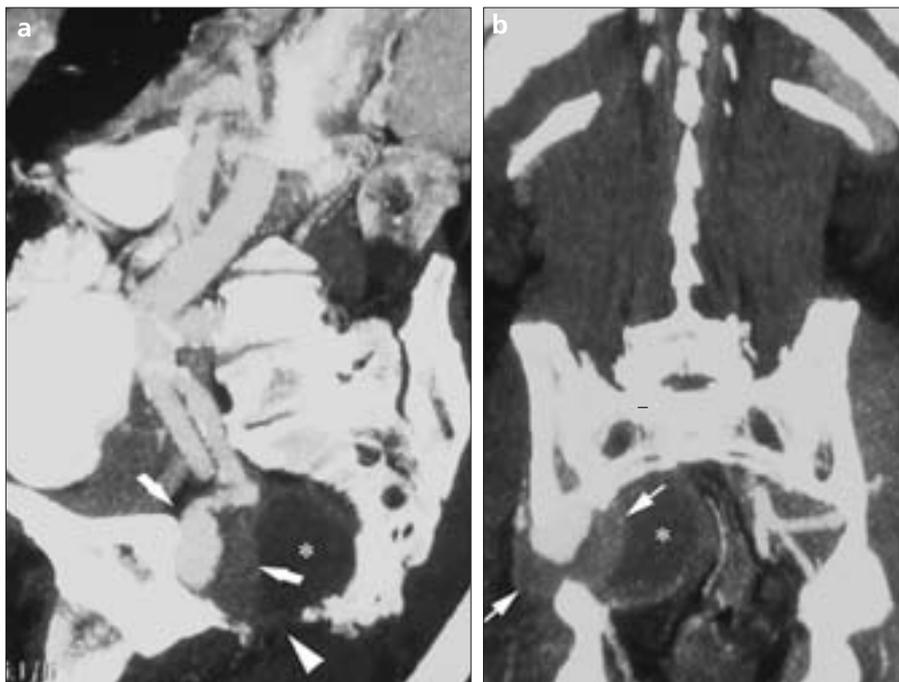


Figure 4. a, b. Sagittal-oblique (a) and coronal (b) reformatted CT images display erosion of the iliac bone (arrowhead), the right internal iliac artery aneurysm (arrows), and peri-aneurysmal hematoma (star).

reported. They may cause urinary retention and hydronephrosis, lower abdominal and perineal pain, constipation, and lower extremity edema or thrombosis by compressing the urinary tract, rectosigmoid colon, and pelvic formations such as venous vessels (2).

Neurological symptoms may arise due to compression of IIAA to the nerves, especially those originating from L5 and S1, as they lie directly behind the internal iliac arteries. Ischemia resulting from thrombosis of aneurysms that occur in the 2 branches of internal iliac artery feeding the nerve trunks has also been reported (2).

In the presented case, there were bilateral IIAAs without focal dilatation of the abdominal aorta or common iliac arteries. The right-sided aneurysm was 6 cm in diameter, and adjacent to it, a peri-aneurysmal hematoma secondary to limited rupture was visible, also 6 cm in diameter. These right-sided lesions were compressing the branches of the lumbosacral plexus, thus causing plexopathy symptoms.

Radiculopathy or plexopathy, due to neural compression, are rare complications of intra-abdominal aneurysms. Published reports of radiculopathies or lumbosacral plexopathies due to aneurysms originating mainly from the

abdominal aorta and iliac artery, or its branches are scarce (2–8).

In a retrospective study by Kleiner et al. 12,125 patients that presented to hospital because of lumbosacral radiculopathy during a 7-year period were evaluated, and in only 12 of them was an extraspinal origin detected. Among these 12 patients, 9 had an occult malign tumor, 1 had a hematoma, 1 had an obturator artery aneurysm, and 1 had an ischiadic nerve sheet tumor. The most favorable radiologic modalities for diagnosing these patients were thought to be abdominopelvic CT and MRI. It was striking that lumbar CT and MRI were shown to be insufficient (4). Similarly, in a report by Kleiner and Thorne, of a hypogastric artery (internal iliac artery) aneurysm case that caused obturator neuropathy, the benefits of retroperitoneal and pelvic CT and/or MRI were shown with suspicion (4). Similarly, in a report by Kleiner and Thorne, of a hypogastric artery (internal iliac artery) aneurysm case that caused obturator neuropathy, the benefits of retroperitoneal and pelvic CT and/or MRI were shown with suspicion (4). Similarly, in a report by Kleiner and Thorne, of a hypogastric artery (internal iliac artery) aneurysm case that caused obturator neuropathy, the benefits of retroperitoneal and pelvic CT and/or MRI were shown with suspicion (4).

It is important to be alert to the extraspinal origin of pain in elderly patients with radiculopathy symptoms. Extraspinal radiculopathy should be considered in patients over 50 years of age when there is dysesthesia in the lower extremities, night pain, history of a malign tumor, and radiculopathies of the 3rd or 4th lumbar nerve roots (4).

Today, MRI is usually the method of first choice for examining lower extremity radicular pain. These examinations frequently reveal pathologies related to the skeletal system, like discopathy, spondylosis, or spondylolisthesis; however, in some cases, more obscure origins of pain may exist.

In the presented case, the extraspinal cause of pain was demonstrated with lumbar MRI (after noticing the lesion and broadening the field of view) and subsequent abdominopelvic CT. In order to expedite the diagnosis of extraspinal radicular pain, care must be taken for the extraspinal pathologies that may be included in the field of view. If necessary, further examinations should be carried out, such as pelvic CT or MRI, which can occasionally include the abdomen.

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