

Case Report

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Radiculopathy Caused by Internal Iliac Artery Pseudoaneurysm Managed with Endovascular Embolization

The authors describe a case of pseudoaneurysm arising from internal iliac artery presented with radiculopathy mimicking the symptoms of lumbar disc disease or spinal cord tumor. Among the several preoperative evaluation including CT, MRI, electrophysiologic study and ultrasonography, important diagnostic clue was obtained by ultrasonographic findings of turbulence flow at the core of partially enhanced mass in the pelvic cavity. The patient was managed with endovascular coil embolization successfully. The current case makes us remind that assessment of neurological symptoms on lower extremity should include consideration of extraspinal cause in pelvis.

KEY WORDS : Pseudoaneurysm · Internal iliac artery · Radiculopathy · Endovascular embolization.

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INTRODUCTION

The most common cause of the neurological symptoms on the lower extremities comes from the area around the spinal canal or spinal root. When the clinicians examine such patients, the lumbar disc herniation or spinal cord tumor are initially considered. However, a lesion on extraspinal area could be a cause of the neurological presentation on lower extremity^{1,7,10}. The authors describe a case of pseudoaneurysm in the pelvic cavity presenting radiating pain and motor weakness on lower extremity like symptoms of lumbar disc herniation or spinal cord tumor.

CASE REPORT

A 58-year-old woman presented with radiating pain on L5 and S1 dermatomes and weakness of right lower extremity, especially the ankle dorsiflexion grade II. The symptom had started one year before and aggravated gradually. On lumbar and thoracic spine magnetic resonance image (MRI), however we could not find any lesion which could explain her neurological symptoms (Fig. 1). The electrophysiologic examination showed multiple lumbosacral radiculopathy such as cauda equina syndrome mainly on the right side. She had a history of high-dose pelvic irradiation for the cervical cancer of uterus 10 years ago. Pelvis MRI, checked at gynecology department, showed a 5.5×7 cm sized heterogeneously enhancing mass on the left presacral area. The mass eroded the sacral bone, resulting

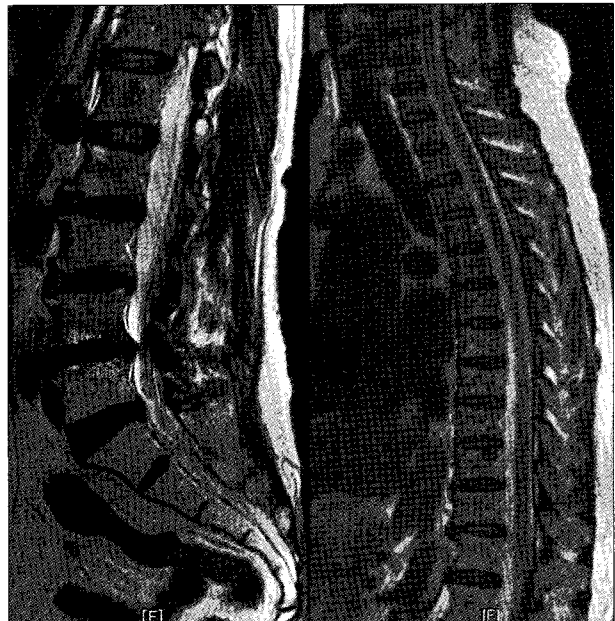


Fig. 1. Lumbar and thoracic spine T2-weighted magnetic resonance image showing no abnormality on thracolumbar area.

- Received : August 10, 2007
- Accepted : November 12, 2007
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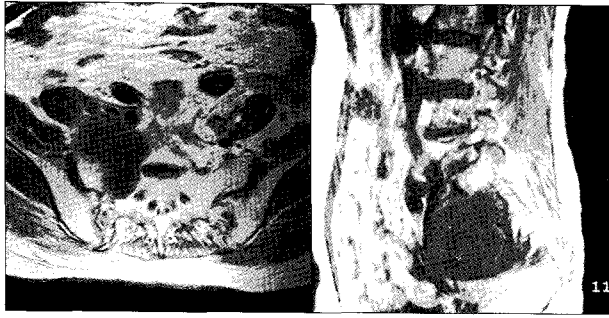


Fig. 2. The pelvic magnetic resonance image showing 5.5×7 cm sized partially enhancing heterogenous mass which is eroding the sacral bone and widening the right S1 neural foramen.

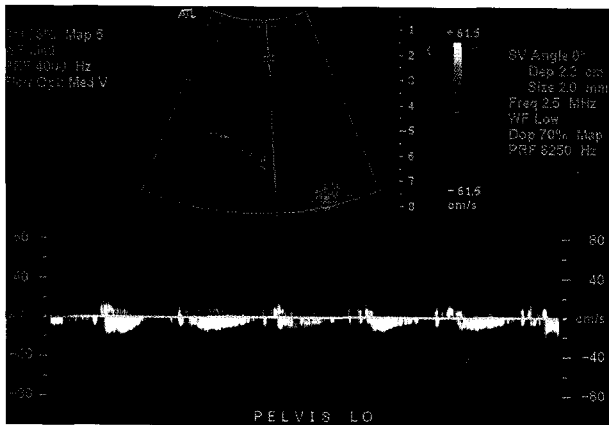


Fig. 3. Ultrasonography on pelvis area showing turbulent vascular flow in the center of mass.

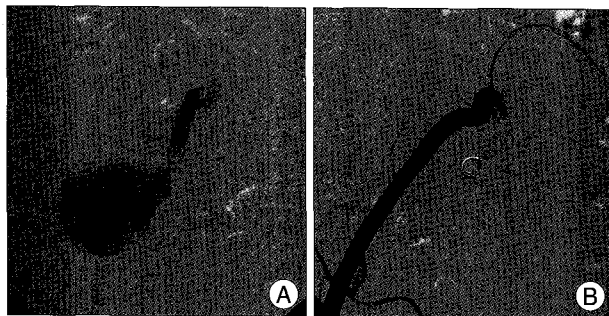


Fig. 4. Angiography showing pseudoaneurysm (A) and after coil embolization at the neck of pseudoaneurysm and proximal branch of right internal iliac artery (B).

in widening of the S1 neural foramen (Fig. 2). Initial radiological impression was ovarian tumor or tumor of neural origin. Further evaluation with ultrasonography was performed to obtain more information about the mass, preoperatively. The turbulent vascular flow was detected in the central part of the mass by ultrasonography suggesting pseudoaneurysm (Fig. 3). We changed treatment plan from direct surgery to endovascular embolization. On aortography approached from the left common femoral artery, a 5 cm sized pseudoaneurysm supplied from the right internal iliac artery was found. The proximal branch of right internal iliac artery and neck of



Fig. 5. Pelvic computed tomography checked 2 months (A) and 1 year (B) after embolization showing significant decreased size of mass.

pseudoaneurysm was embolized with 8 coils of 10 mm and 12 mm rolling diameter delivered from the 5 F DAV's catheter (Fig. 4). After embolization, the radiating pain was improved immediately and the motor weakness on the right lower extremity recovered gradually during 3 months except weakness of ankle dorsiflexion. The weakness of ankle dorsiflexion was not improved significantly until one year follow up. The follow-up computed tomography, obtained 2 months and 1 year after embolization, showed significant decrease in the size of pseudoaneurysm (Fig. 5).

DISCUSSION

Although radiculopathy is usually attributed to degenerative disc disease such as a herniated intervertebral disc in the lower lumbar spine, it may be related by other less common causes. The reported cases of extraspinal cause of lumbosacral radiculopathy were sporadic and overall incidence was seldom reported. Kleiner et al.¹⁰ reported that the incidence of extraspinal cause of lumbosacral radiculopathy was about 0.09% from the reviewing study of 12,125 patients who had spinal disorder.

Recently reported extraspinal causes include tumor of bone or soft tissue^{1,10,12,13,18}, pseudoaneurysm or aneurysm of the internal iliac artery⁷, inferior gluteal artery¹⁵, abdominal aorta¹⁹ or other pelvic artery³, and compartment syndrome or entrapment neuropathy¹¹. The various iatrogenic causes of pseudoaneurysm or arteriovenous fistulas in the pelvis were also reported, such as transvaginal needle biopsy¹⁵, renal transplantation^{6,8,14}, lumbar disc surgery⁹, and radiation therapy^{4,18} like current case.

The vascular lesion in the deep pelvic cavity could present radiating pain and motor weakness mimicking symptoms of herniation of lumbar disc or spinal cord tumor. The importance of clinical history and examination in the diagnosis of these lesions cannot be overemphasized. The current case makes us remind that assessment of neurological symptoms on lower extremity include consideration of

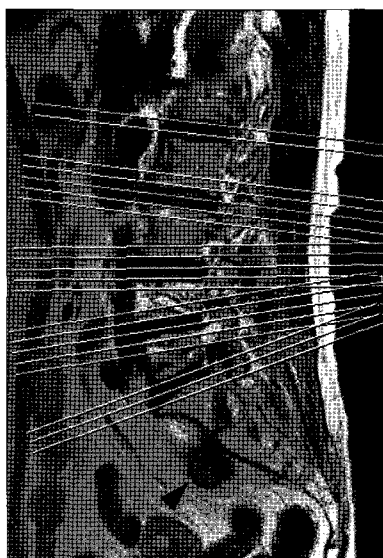


Fig. 6. Retrograde reviewing of lumbar MRI showing presacral mass (arrow) which was difficult to distinguish from the pelvic content.

extraspinal cause though it is rare.

Reviewing the previous lumbar spine MRI retrospectively, we could find out the mass at the extreme parasagittal section. However, it was difficult to distinguish partially sectioned mass from the pelvic organ or bowel signal. Moreover, the routine axial section didn't cover to the bottom of sacrum (Fig. 6).

MR imaging with CT or MR angiography may not provide a valuable data for diagnosis in chronic contained pseudoaneurysm filled with blood products. For evaluation of mass or vascular lesion in the deep pelvic structure, the role of ultrasonography should be emphasized. In this case, the ultrasonography provided crucial clue in the diagnosis and the decision for the treatment plan. Treatment strategies for the pseudoaneurysm in the deep pelvis could be either surgical excision or endovascular technique. In some of surgery cases, however, because of incorrect preoperative diagnosis, the surgeons may be confronted with severe and unexpected hemorrhage and the surgery can be aborted without effective treatment^{2,4,18}. Also, ligation of proximal artery during surgery may cause ischemic necrosis of leg¹⁸. Many of successful endovascular treatments for internal iliac artery pseudoaneurysm have been reported^{4,5,9,16,17}. Based on ultrasonographic diagnosis, we changed treatment plan from surgical excision to endovascular embolization that could avoid potentially lethal situation.

CONCLUSION

The vascular lesion in the deep pelvic cavity could present radiating pain and motor weakness mimicking herniation of lumbar disc or spinal cord tumor. The ultrasonographic

evaluation and endovascular embolization are considered as valuable tools for diagnosis and management for the vascular lesion for the deep pelvic area.

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