

## Thoracic Epidural Cavernous Hemangioma

Joong Won Ha, M.D., Soo Bin Lee, M.D., Yun Tae Lee, M.D., Ju Hyung Yoo, M.D., Hyun Cheol Oh, M.D.,  
Han Kook Yoon, M.D., Sang Hoon Park, M.D., Seong Hoon Kim, M.D., and Yung Park, M.D.<sup>✉</sup>

*Department of Orthopedic Surgery, National Health Insurance Service Ilsan Hospital, Ilsan, Korea*

A 31-year-old male presented with severe back pain and paraparesis. Imaging studies demonstrated an extraosseous, extradural mass without bone invasion at the T11–T12 vertebral level, located dorsal to the thecal sac. The spinal cord was compressed ventrally. The lesion was completely excised after a T11–T12 laminectomy. Histopathological examination revealed a cavernous hemangioma. The patient's symptoms improved after excision of the lesion.

**Key words:** cavernous hemangioma, thoracic vertebrae, epidural neoplasms

Cavernous hemangioma, also known as cavernous angioma, cavernous malformation or cavernoma is a developmental hamartomatous malformation. Extraosseous, extradural cavernous hemangiomas are rare and are usually presented as chronic progressive spinal cord syndrome, radiculopathy or a mere local back pain.<sup>1–3)</sup> An acute onset of symptoms is uncommon and if present, it is mostly caused by hemorrhage.<sup>1–3)</sup> We report a case a unique case of cavernous hemangioma showing acute symptoms without hemorrhage as well as chronic symptoms. The rarity of our case stresses a need to consider cavernous hemangioma as one of different diagnosis of extradural thoracic compressive myelopathy.

### CASE REPORT

A 31-year-old male presented with a severe back pain and weakness of both lower extremities. He recalled having similar symptoms five and two years ago, working in a sitting position for a long time, but the pain relieved spontaneously when he rested in a lying position. He had mild chronic back pain but it was tolerable to a degree that he did not have to seek medical care. He was an office worker and had no problems in executing daily life activities. He had no past medical history, no history of trauma, fever, deformity, weight loss, bowel, or bladder dysfunction. The patient recalled that acute,

excruciating pain suddenly developed when he was sleeping after a long day of work in a sitting position. When the patient visited the emergency room, all of both lower extremities motor grades were nearly grade 0, and there was a sensory impairment to all modalities below the twelfth thoracic dermatome. Hematological and biochemical investigations were within normal limits.

Computed tomography of the spine showed an extradural mass at the T11–T12 vertebral level without bony destruction. Magnetic resonance imaging (MRI) of the spine revealed an extradural lesion, opposite the T11–T12 vertebral bodies. The lesion was homogeneously isointense on T1 and T2 weighted images and showed homogenous contrast enhancement on T1 weighted images (Fig. 1). The lesion was located dorsally and had compressed the thoracic cord ventrally. The spinal cord at the level was displaced ventrally, and there was no signal change of the cord.

The patient underwent a T11–T12 laminectomy. The mass was blackish red in color, soft and friable. It was located epidurally and dorsal to the thecal sac. The lesion was peeled off the surface of the dura easily with mild adhesion (Fig. 2). There was no tear and subdural or intradural lesion on dura. Multiple proliferation of dilated vessels with flattened endothelium and blood cells inside and fibrofatty connective septae between vessels were noted in the histopathological examination, findings consistent with cavernous hemangioma (Fig. 3).

The patient was discharged five days after surgery. Postoperatively, both lower extremities motor grade recovered to grade V and all somatosensory system returned to nearly normal.

Received June 23, 2014 Revised December 24, 2014 Accepted January 6, 2015

<sup>✉</sup>Correspondence to: Yung Park, M.D.

Department of Orthopedic Surgery, National Health Insurance Service Ilsan Hospital,  
100 Ilsan-ro, Ilsandong-gu, Goyang 410-719, Korea

TEL: +82-31-900-0227 FAX: +82-31-900-0343 E-mail: yungspine@gmail.com

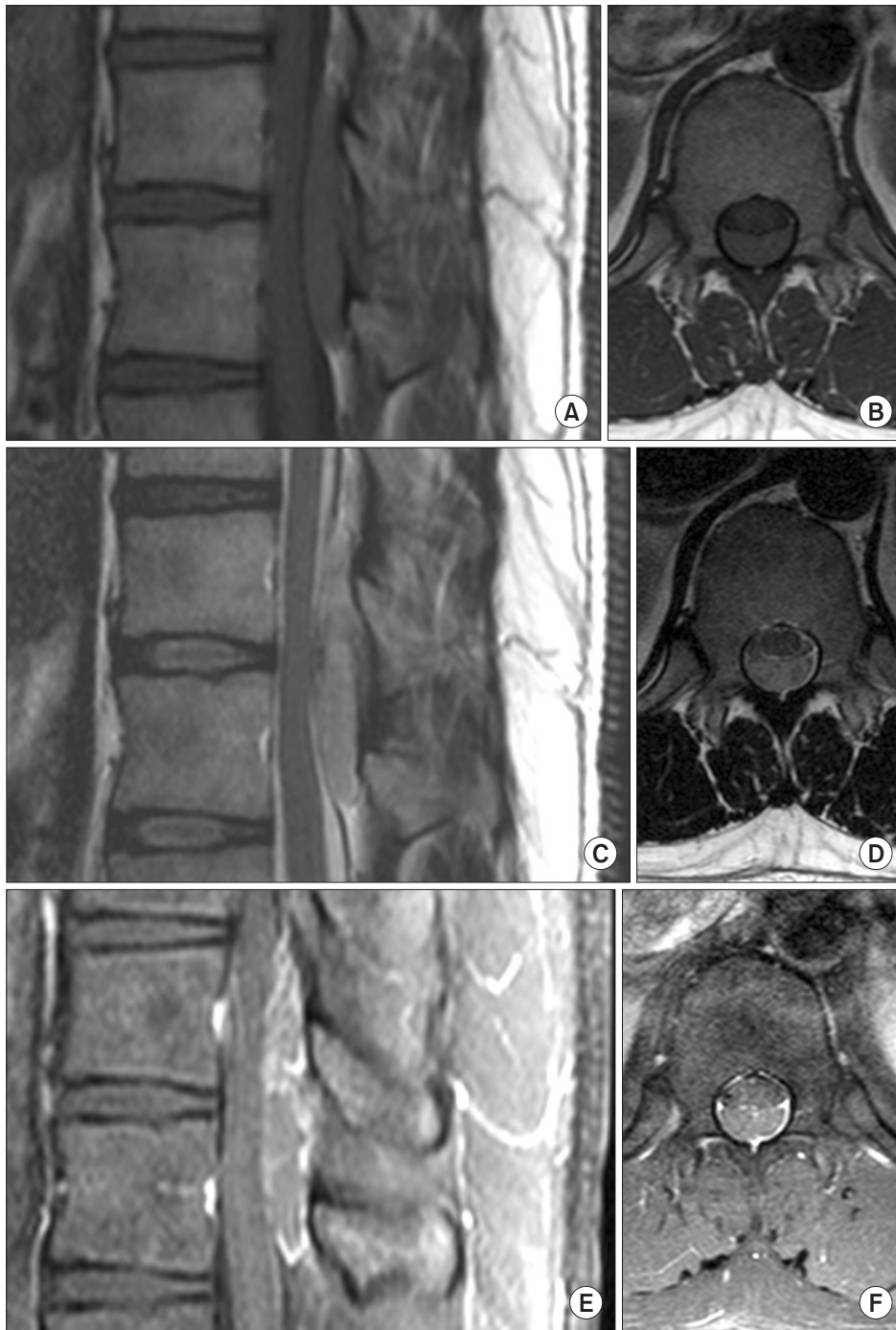
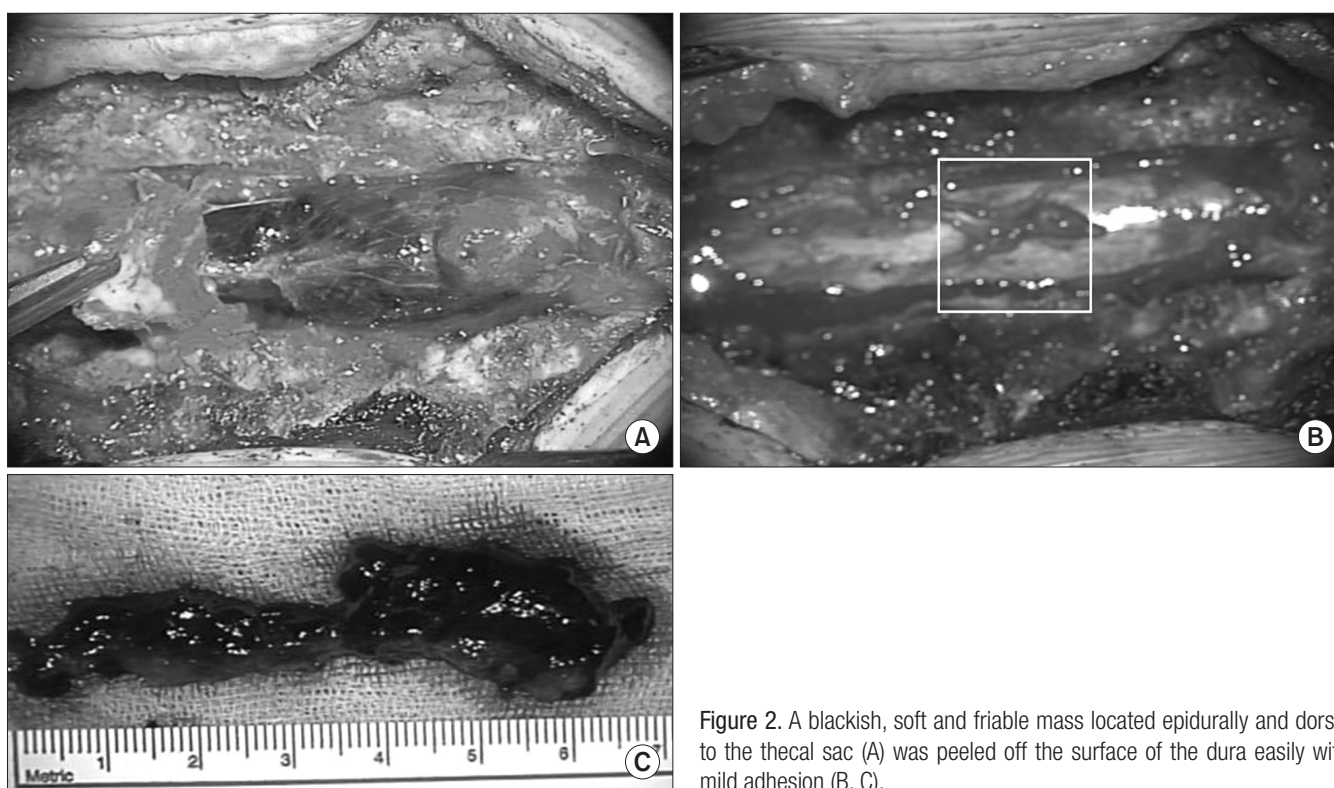


Figure 1. Preoperative magnetic resonance images showing the epidural cavernous hemangioma on the dorsal side of the spinal cord isointense on the T1 weighted image (A, B), isointense on T2 weighted image (C, D), and homogenous contrast enhancement on T1 weighted image (E, F).

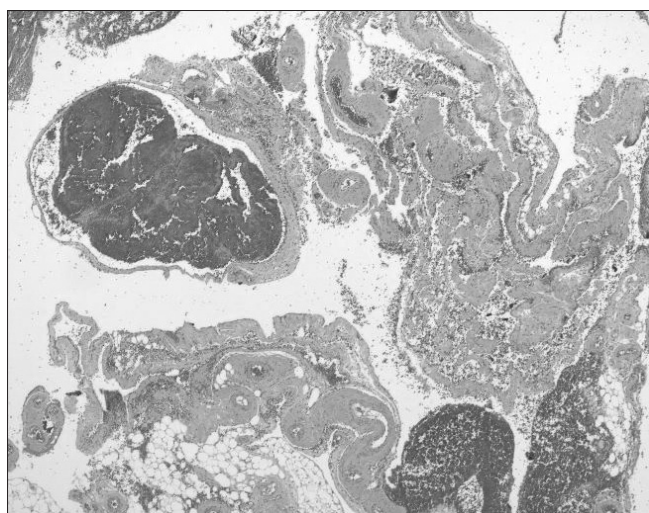
## DISCUSSION

Cavernous hemangioma is a benign vascular malformation which can occur anywhere in the central nervous system.<sup>2,4)</sup> Pure epidural cavernous hemangioma is only rarely noted with about 100 cases reported in the literature thus far.<sup>5)</sup> Common clinical presentation is a progressive myelopathy or radiculopathy. Rarely, there may be acute symptoms with a significant neurologic deficit, and it can be

explained by a sudden increase in volume of the lesion, mainly due to hemorrhage, or thrombosis of the draining veins.<sup>1,3)</sup> In a study reported by Aoyagi et al.,<sup>1)</sup> hemorrhage was absent only in one of five patients with acute myelopathy. However, in our case, the patient had no prodromal symptoms except for chronic back pain that was tolerable without any medication. Yet when he was sitting for a long time, a sudden onset of severe back pain with a rapid progress of paraparesis occurred. During surgery there was no definite hema-



**Figure 2.** A blackish, soft and friable mass located epidurally and dorsal to the thecal sac (A) was peeled off the surface of the dura easily with mild adhesion (B, C).



**Figure 3.** Photomicrograph showing increased numbers of variable sized blood vessels and some of them containing blood clots (H&E,  $\times 40$ ).

toma or active bleeding to pinpoint hemorrhage as a cause of acute myelopathy.

Cavernous hemangiomas usually are isointense on T1 and isointense to hyperintense on T2 weighted images in MRI. Contrast enhancement frequently occurs.<sup>6</sup> In our patient the lesion was isointense in T1 and T2 weighted images, and homogenous contrast enhancement was seen. Differential diagnoses are schwannoma,

meningioma and metastatic tumor. Surgical total excision of the lesion is treatment of choice and it is possible for most of the lesions located posteriorly.<sup>1,2,7</sup> When total excision is not possible adjuvant radiotherapy is advised.<sup>8</sup> In our patient the lesion located posteriorly only and had no foraminal involvement so it was easily removed. With the sudden onset of severe neurologic deficit, a perfect result is doubtful and may result in disability or mortality.<sup>1,2,9</sup> Our patient recovered completely after immediate surgery and shows well-maintained clinical results two months into follow-up. However, a longer follow-up period may be necessary to detect secondary lesions or signs of recurrence.

## CONFLICTS OF INTEREST

The authors have nothing to disclose.

## REFERENCES

1. Aoyagi N, Kojima K, Kasai H. Review of spinal epidural cavernous hemangioma. *Neurol Med Chir (Tokyo)*. 2003;43:471-5.
2. Labauge P, Bouly S, Parker F, et al. Outcome in 53 patients with spinal cord cavernomas. *Surg Neurol*. 2008;70:176-81.
3. Caruso G, Galarza M, Borghesi I, Pozzati E, Vitale M. Acute

- presentation of spinal epidural cavernous angiomas: case report. *Neurosurgery*. 2007;60:E575-6.
4. Feng J, Xu YK, Li L, et al. MRI diagnosis and preoperative evaluation for pure epidural cavernous hemangiomas. *Neuroradiology*. 2009;51:741-7.
  5. Hatiboglu MA, Iplikcioglu AC, Ozcan D. Epidural spinal cavernous hemangioma. *Neurol Med Chir (Tokyo)*. 2006;46:455-8.
  6. Nagi S, Megdiche H, Bouzaïdi K, et al. Imaging features of spinal epidural cavernous malformations. *J Neuroradiol*. 2004;31:208-13.
  7. Devi BI, Banerjee AK, Kak VK, Indira DB. Spinal extradural cavernous hemangioma. *Neurol India*. 1997;45:38-9.
  8. Padovani R, Acciarri N, Giulioni M, Pantieri R, Foschini MP. Cavernous angiomas of the spinal district: surgical treatment of 11 patients. *Eur Spine J*. 1997;6:298-303.
  9. Kivelev J, Niemelä M, Hernesniemi J. Outcome after microsurgery in 14 patients with spinal cavernomas and review of the literature. *J Neurosurg Spine*. 2010;13:524-34.

# 흉추부의 경막 외 해면 혈관종

하중원 • 이수빈 • 이윤태 • 유주형 • 오현철 • 윤한국 • 박상훈 • 김성훈 • 박 웅<sup>✉</sup>

국민건강보험 일산병원 정형외과

31세 남자 환자가 극심한 흉추부 통증 및 하반신 마비로 내원하였다. 영상 검사상 제11, 12 흉추부 경막 배측으로 골외 경막 외 종양이 발견되었다. 척수는 복측으로 압박되어 있었다. 병변은 제11, 12 흉추 후궁 절제술 후 완전 절제되었으며 병리 조직 검사상 해면상 혈관종 소견을 보였다. 환자는 절제술 후 완전한 증상의 호전을 보였다.

**색인단어:** 해면상 혈관종, 흉추부, 경막 외 종양

접수일 2014년 6월 23일 수정일 2014년 12월 24일 게재확정일 2015년 1월 6일

<sup>✉</sup>책임저자 박 웅

고양시 일산동구 일산로 100, 국민건강보험 일산병원 정형외과

TEL 031-900-0227, FAX 031-900-0343, E-mail yungspine@gmail.com