Intraosseous Hemangioblastoma Mimicking Spinal Metastasis in the Patient with Renal Cell Carcinoma

Heecheol Cho, M.D., Sun-Ho Lee, M.D., Eun-Sang Kim, M.D., Ph.D., Whan Eoh, M.D., Ph.D.
Department of Neurosurgery Samsung Medical Center, Sungkyunkwan University, School of Medicine, Seoul, Korea

Sporadic osseous hemangioblastomas in the vertebra are extremely rare and they can be misdiagnosed as a vertebral hemangioma or metastasis in imaging studies. We report an intraosseous hemangioblastoma that arose from the 11th thoracic vertebra and was diagnosed initially as a metastasis in a patient with renal cell carcinoma. Diagnosis, surgical treatment and adjuvant radiosurgery of such case in reference to the literature are discussed.

Key Words: Hemangioblastoma · Bone neoplasm · Vertebra · Radiosurgery.

INTRODUCTION

Hemangioblastomas are benign hypervascular neoplasms, which are primarily tumors of the central nervous system. These tumors can occur sporadically or may constitute the most common and characteristic manifestation of von Hippel-Lindau (VHL) disease. Although hemangioblastomas are normally located in the cerebellar hemispheres, they can also occur as isolated and intramedullary tumors in the spinal cord. They rarely occur extradurally in a paraspinous location. However, sporadic intraosseous hemangioblastomas in the vertebra are extremely rare. We report a case of sporadic osseous hemangioblastoma that grossly originated from the thoracic vertebra and was diagnosed initially as a metastasis in a patient with renal cell carcinoma.

CASE REPORT

A 55-year-old man was admitted to our department with a one year history of low back pain. He complained of recently aggravated severe back pain. His prior history revealed a left radical nephrectomy performed one year earlier in another hospital due to renal cell carcinoma. The physical examination demonstrated paraparesis grading 4/5 and impaired sensation below T12 dermatome to pin-prick sensory testing. The anteroposte-
neoplastic stromal cells with foamy cytoplasm (Fig. 3). These findings were most consistent with a diagnosis of a hemangioblastoma. A complete workup of VHL disease including brain MRI, chest and abdominal CT, fundoscopy and polymerase chain reaction (PCR)-sequencing to test for VHL gene mutations did not reveal any evidence related to VHL disease. Consequently, stereotactic radiosurgery using a Novalis shaped beam radiosurgery system (Brain LAB, Heimstetten, Germany) was performed for the residual vertebral masses. There were no complications resulting from radiosurgery. Two year after surgery, there were no signs of recurrence at the last follow-up (Fig. 4).

**DISCUSSION**

A hemangioblastoma is the most common primary adult intraxial posterior fossa tumor. The second most common location is the spinal cord, where the frequency ranges from 2-3% of primary spinal cord neoplasms to 7-11% of spinal cord tumors. However, purely intraosseous hemangioblastomas of the spine are extremely rare. The present case differed from the extradural spinal hemangioblastomas previously reported, which
were all independent of the bone and dura. Many extradural spinal hemangioblastomas extended along the spinal roots into an intervertebral foramen and a few cases presented as a unilateral extraspinal mass. The bone changes due to the tumors consisted of pressure erosions of the lamina, pedicle or body.

The imaging characteristics are quite similar to those of vertebral hemangiomas and many lesions of this type are simply followed up without treatment. Even though some hemangiomas may lead to cord compression, the radiological features in our case were different from those of hemangioma. Extensive involvement of the pedicle without involvement of the entire vertebral body and involvement of an adjacent vertebra would be unusual in compressive vertebral hemangiomas. The features that would have been unusual in a vertebral hemangioma were the involvement of two adjacent vertebrae and the presence of a blood supply derived in part from the anterior spinal artery. The natural history and treatment of an osseous hemangioblastoma have not been clarified. The true prevalence of osseous hemangioblastomas remains unknown. Some authors reported that continued observation may be possible for long intervals in asymptomatic localization because hemangioblastomas exhibit a stuttering growth pattern and are frequently asymptomatic. However, a microsurgical resection remains the treatment of choice for the majority of symptomatic and sporadic hemangioblastomas of the spinal cord. Two previously reported cases were treated by decompression rather than by a total excision. In the other case, Steinmetz et al. suggested a complete spondylectomy suggesting that a gross total resection for hemangioblastomas should be attempted, when possible, because osseous hemangioblastomas appear to be benign lesions. However, when a complete resection is impossible, as in other areas of the central nervous system, radiotherapy should be reserved for subtotal removal or after tumor recurrence, even though it is unknown if adjunctive radiotherapy is suitable after incomplete resection or after tumor recurrence, even though it is unknown if adjunctive radiotherapy is suitable for subtotal removal might be a proper treatment modality when complete resection of symptomatic osseous hemangioblastomas is impossible.

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