

Chiropractic Management of Symptomatic Pedicle Hemangioma: a Case Report

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ABSTRACT

Spinal hemangiomas are the most commonly encountered primary vertebral tumors, which are benign and asymptomatic. They usually occur in the vertebral body and rarely extend into or originate from the posterior column. Thus, hemangiomas of the pedicle are extremely rare. Only one case of pedicle hemangioma has been documented in the literature. Disc herniations and annular tears are not always symptomatic, and they have always been observed in asymptomatic patients. Therefore, even with a thorough medical history and physical examination, patients with comorbid hemangioma and annular tears present a formidable challenge to the most experienced clinicians. This report describes a rare case of pedicle hemangioma and disc herniation without spinal cord compression in a 47-year-old woman complaining of lower back pain and inability to walk.

Keywords: benign tumor physiotherapy, chiropractic, disc herniation, hemangioma, pedicle hemangioma.

INTRODUCTION

Spinal hemangiomas are the most commonly encountered types of primary vertebral tumor. Most of these tumors are benign and asymptomatic (1). They rarely cause symptoms through epidural expansion of the involved vertebra, resulting in spinal canal stenosis, spontaneous epidural hemorrhage, and pathological burst fracture (2) They commonly occur in the vertebral body and rarely extend into or originate in the posterior column (3). Hemangiomas of the pedicle are extremely

rare. To the best of our knowledge, only one case of hemangioma of the pedicle has been documented in the literature, according to a PubMed and Google Scholar search on May 25, 2022 (4).

This case report describes a rare case of pedicle hemangioma and disc herniation in a 47-year-old woman complaining of lower back pain and inability to walk. □

CASE HISTORY

A 47-year-old woman presented with a one-month history of acute low back pain

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Article received on the 19th of May 2022 and accepted for publication on the 18th of June 2022

with radiating numbness extending into her right buttock and leg. Numbness was located at the L5 and S1 dermatomes, and she described a sense of lower extremity weakness that seriously affected her ability to walk, thereby requiring her ambulatory assistance. However, even with ambulatory assistance, she could only walk approximately 100 m before experiencing bilateral buttock and leg pain. She rated her level of pain on the numeric scale as 7/10 and quality of life score at 56% from the World Health Organization (WHO) quality of life score. She had a two-year history of mild low back pain and was previously diagnosed with pedicle hemangioma using lumbar magnetic resonance imaging (MRI) at the orthopedic consultation. Considering the risk of complications and poor prognosis, her oncologist and the neurosurgical team decided against performing any surgical procedure and attempting any biopsy. Exercise therapy and oral analgesics (etoricoxib and celecoxib) did not provide considerable alleviation. Thus, the neurosurgery team recommended chiropractic therapy because the patient's alternatives were restricted. The patient had never received any prior manual therapy.

Her most recent MRI revealed a 1.4 cm osseous hemangioma over the left L5 pedicle (Figure 1). An annular tear was identified with disc herniation at the L5–S1 (Figure 2), although the focal posterocentral protrusion did not compress onto the thecal sac or S1 nerve roots. Physical examination revealed tenderness along the bilateral L1–L5 paraspinal areas. The mobility of the spine was evaluated and revealed restrictions at the T3–4, T7–T8, and T12–L1 levels. Muscular contracture was palpated and identified at the bilateral iliacus, iliopsoas, rectus femoris, and erector spinae. The range of motion of her lumbar spine was restricted and uncomfortable at 10° of extension (normal range: 20°–35°). The straight leg test result was negative; however, the femoral stretch test revealed greater pain on the right side. On neurological evaluation, her right hip flexion strength diminished (grade 4/5) due to pain. No symptoms indicative of cauda equina syndrome were observed. Based on the clinical presentation and radiological findings, the patient was diagnosed with intervertebral joint disease caused by a benign pedicle hemangioma.

The patient was placed on a trial schedule of conservative treatment that included thoracic spinal adjustment with a high-velocity, low-amplitude force, and skin-to-skin contact manual adjustment daily for the first week. Spinal rehabilitation treatment with intermittent robotic traction (Spine MT series, Shinhwa Medical, Korea) was applied to the intervertebral restriction to restore nerve function and region of hemangioma was avoided. On the numeric rating scale, the pain score decreased from 7/10 to

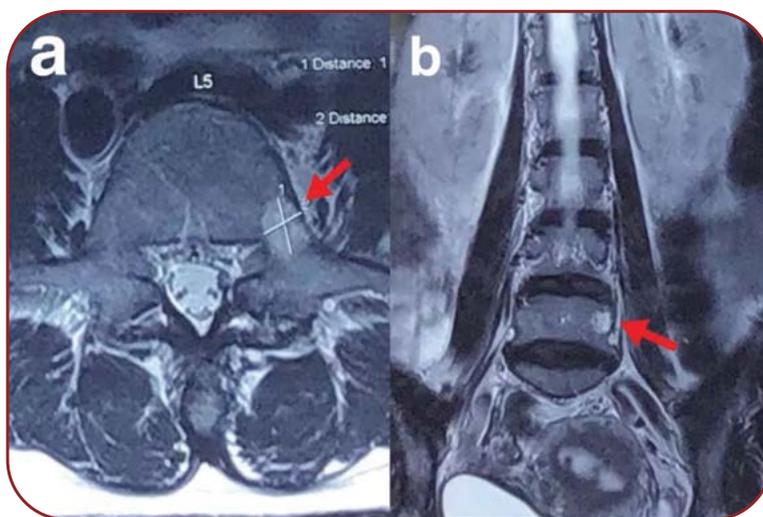


FIGURE 1. No vertebral collapse, significant marginal osteophyte, and osseous erosion were observed. At the left L5 pedicle, a T1 and T2 hyperintense 13.3 × 10 mm osseous lesion that was not associated with any adjacent marrow edema or cortical disruption can be observed (red arrow)

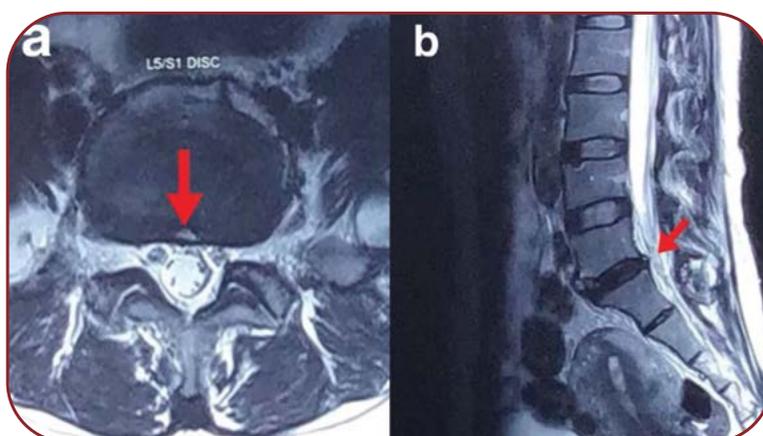


FIGURE 2. At the L5/S1, the disc is desiccated. It is associated with a focal posterocentral disc protrusion (red arrow), and anterior–posterior and lateral dimensions of the central spinal canal are not narrowed. No foraminal stenosis was observed (a). The disc herniation did not cause any compression onto the thecal sac or the descending S1 roots. However, it was associated with an annulus tear. Contour of the thecal sac was smooth (b)

2/10 during the first week. Subsequent therapy sessions included instrument-aided soft tissue mobilization (Massage Instruments, Strig, Korea) to alleviate the contracture of lumbar muscles. Lumbar spinal manipulation was avoided to prevent iatrogenic hemangioma fractures. Treatment sessions were scheduled twice weekly for three months. Rehabilitative strengthening exercises and stretching techniques were used for endurance training. Toward the end of treatment, her pain medication was gradually decreased. By the end of the three-month therapy period, the patient had healed completely and resumed normal daily activities without experiencing any residual symptoms. Her WHO quality of life score recovered from 56% to 100%. At the 12th month follow-up call, the patient reported being fully symptom-free. □

DISCUSSION

Morphology of the L5 pedicles plays an important role in the L5–S1 intervertebral complex. L5–S1 isthmic spondylolisthesis is characterized by abduction, shortness, and width in comparison with the normal population (5). By contrast, the L5 pedicles in degenerative spondylolisthesis are characterized by adduction, lengthening, and thinning (5). Pedicle stress damage causes back pain and discogenic diseases (6). Moreover, lumbar pedicle screw fixation and fusion have been commonly used for treating discogenic low back pain (7). Therefore, when the structure of the L5 pedicle is altered by these highly vascular lesions, bone weakness may occur in the intervertebral complex, cord compression, and discogenic disease.

Patients often presenting with back pain and a history of a previously documented incidental hemangioma should not prevent a clinician from assessing more serious causes of back pain such as osteoporotic compression fractures, spinal cord infections, and metastatic lesions (8). Only a small percentage of spinal hemangioma cause symptoms, mostly back pain and neurologic issues, with estimates ranging from 0.9% to 1.2% becoming symptomatic, and they rarely do an aggressive invasion to the adjacent structures (1). In addition, disc herniations and annular tears are not always symptomatic, and they have always been observed in people with no symptoms (9). Therefore, even with a thorough medi-

cal history and physical examination, patients with comorbid hemangioma and annular tears present a formidable challenge to the most experienced clinicians.

Patients with symptomatic vertebral hemangiomas and disc herniation complain of back pain or neurological symptoms to their chiropractors. In the case of back pain, a coordinated management performed by a team consisting of neurology, neurosurgery, rehabilitation physician, chiropractor, and radiologist is crucial in determining whether a vertebral hemangioma or disc herniation is the source of the pain generated during a given complaint. As treatments involving chemotherapy, radiotherapy, and surgery for hemangioma variants are controversial, surgical intervention is often required in situations with neurological complaints, and a coordinated approach with a radiologist to determine the degree of extension into the spinal cord or neural foramina is critical (8). A chiropractor might be helpful in the conservative management of pain in patients with severe symptoms. Although high-level evidence supports chiropractic spinal manipulation as an effective approach for low back pain (10) and unresectable aggressive sacral hemangioma (11), spinal manipulation should not be used in the location of bone weakness caused by tumors to avoid pathologic burst fractures (12).

By generating a mechanoreceptive signal that reduces pain, relaxes muscle contracture, and affects posture, spinal manipulation can alleviate low back pain (13). Furthermore, recent research has reported that spinal manipulation may have therapeutic advantages in other areas of the spine besides the application site (14). These processes might explain the beneficial effect of thoracic spinal manipulation in alleviating the symptoms of the patient involving the lower back and lower extremity. This patient received instrument-assisted soft tissue manipulation to further reduce discomfort (15), as well as rehabilitative treatments to increase strength, gait, and posture. □

CONCLUSION

Patients with vertebral hemangiomas complain of low back pain and neurological symptoms to their primary care physician. Spinal hemangiomas are mostly asymptomatic, and pedicle

hemangiomas without vertebral body involvement are rare. When a pedicle hemangioma causes low back pain and neurological symptoms, conservative therapy such as chiropractic therapy could be explored, especially if other options are not available after verifying the diagnosis with MRI. However, as more studies are required on this topic, such manual treatment

procedures can be utilized with care in a multidisciplinary approach. □

Conflicts of interest: none declared.

Financial support: none declared.

Authors' contribution: EC was involved in case information, drafted the manuscript and prepared the figures. All authors have read and approved the final manuscript.

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