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Case Report

Spontaneous resolution of tetraparesis because of postoperative cervical epidural hematoma

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Abstract

BACKGROUND CONTEXT: Symptomatic postoperative spinal epidural hematoma (PSEH) is a rare but potentially devastating postoperative complication, accounting for 0.1% to 0.2% of cases.
PURPOSE: To describe a patient with a PSEH that completely resolved, clinically and radiographically, without surgical treatment.
STUDY DESIGN: Case report and review of the literature.
METHODS: A 47-year-old man with no history of a bleeding disorder underwent anterior cervical interbody fusion for C5–C6 disc herniation. The dura was exposed through removal of the posterior longitudinal ligament, and extensive decompression of posterior osteophytes of C5 and C6 vertebral bodies was performed. The patient developed tetraparesis and respiratory distress rapidly in the postanesthesia care unit and was reintubated for assisted ventilation. The computed tomography (CT) scan revealed a very large ventral epidural hematoma compressing the dural sac from C1 to C6.
RESULTS: The patient was prepared for hematoma evacuation. However, the neurological symptoms and respiration problems began to resolve spontaneously before the surgery was started. The hematoma was markedly improved on the follow-up CT scan, and the patient was discharged 2 weeks after surgery without neurological deficit.
CONCLUSIONS: This case illustrates that an unpredictable extensive hematoma can occur after uneventful surgery of the cervical spine in low-risk patients. In case of the dural exposure with a creation of hidden and large epidural space, the spine surgeon must pay particular attention to the possibility of a PSEH during the early postoperative period.

Keywords: Cervical spine; Conservative treatment; Epidural hematoma; Postoperative

Introduction

Most surgical procedures of the spine result in a small, clinically insignificant epidural hematoma [1]. Postoperative spinal epidural hematomas (PSEHs) resulting in spinal cord compression and neurological deficits are rare but potentially devastating complications of spinal surgery [2–6]. The incidence of symptomatic PSEH has been reported to be 0.1% to 0.2% of cases [3–5,7,8]. Most cases of PSEH develop within a few hours of surgery [3,5]. However, several cases of delayed PSEH, occurring days to weeks after surgery, have been reported [4,8–11]. Despite the infrequent occurrence, PSEH can result in devastating neurological consequences and requires the continued vigilance by the spine surgeon. Any new or significant change in the neurological examination during the postoperative period warrants emergency spinal imaging for the presence of a PSEH. Most of the reported cases have occurred in the thoracolumbar region, and several cases in the cervical region have been reported after laminectomy or laminoplasty [6,8,9,11–13]. Anterior cervical discectomy and fusion have become popular procedures for degenerative disc disease of the cervical spine. The incidence of PSEH associated with this procedure is extremely rare [14–17]. We describe a patient undergoing anterior cervical interbody fusion, who presented with tetraparesis and

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respiratory difficulty that developed abruptly during the postoperative period.

Case report

A 47-year-old man presented with a 2-month history of radiating pain to both arms. The neurological examination revealed decreased sensation to pin prick and light touch between C6 and C8 dermatomes bilaterally. No obvious motor impairment could be elicited. The medical history was unremarkable except for a 4-year history of hypertension, which was treated by intermittent medication. Laboratory studies, including the platelet count, bleeding time, prothrombin time, and partial thromboplastin time, were all within normal limits. Plain radiographs of the cervical spine showed narrowing of the disc space at C5–C6. Magnetic resonance imaging (MRI) of the cervical spine revealed right paracentral disc herniation at C5–C6 with myelomalacia (Fig. 1, Left). Computed tomography (CT) scanning demonstrated segmental ossification of the posterior longitudinal ligament extending from C4 to C6, especially at C5 (Fig. 1, Right).

The patient underwent an anterior approach to the cervical spine. Under the microscope, the protruded disc and posterior osteophytes that were compressing the spinal cord were removed after adequate distraction. The appropriate intervertebral space was enlarged with a drill. The dura was exposed through removal of the posterior longitudinal ligament, followed by removal of posterior osteophytes of vertebral body centrally and laterally. During the procedures, the leakage of cerebrospinal fluid was not observed. Epidural bleeding was controlled with application of bone wax and Gelfoam packing (Pfizer Inc., New York, NY, USA). Next, a Solis cage (Stryker Spine, South Allendale, NJ, USA) was impacted with putty form of Grafton (Osteotech, Inc., Shrewsbury, NJ, USA) mixed with autologous bone chips and inserted into the C5–C6 disc space. During the surgery, the blood loss was about 100 mL—a quantity that generally does not change clinical conditions—and the vital signs were stable. The surgery was uneventful without any problems, including bleeding during closure of the operative field. When the patient was extubated, irritability and increased blood pressure were observed. The vital signs were as follows: blood pressure, 160/80 mm Hg; and heart rate, 90 beats/min. The patient was fully awake and able to move all four extremities well in the operating room and was transferred to the postanesthesia care unit. Ten minutes later, the patient became restless, had weakness of extremities (grade 1/5), and became cyanotic and dyspneic. No swelling or bleeding was observed on neck inspection. The patient was immediately reintubated and provided assisted ventilation; the vital signs stabilized. The chest radiograph was normal. A lateral radiograph of the cervical spine excluded a graft complication. After checking of radiograph, dexamethasone was intravenously administered to reduce ongoing spinal cord injury. An urgent CT scan was performed immediately and revealed a very large ventral epidural hematoma compressing the dural sac from C1 to C6 (Fig. 2). The patient was prepared for evacuation of hematoma. However, the patient's neurological symptoms and respiration problems

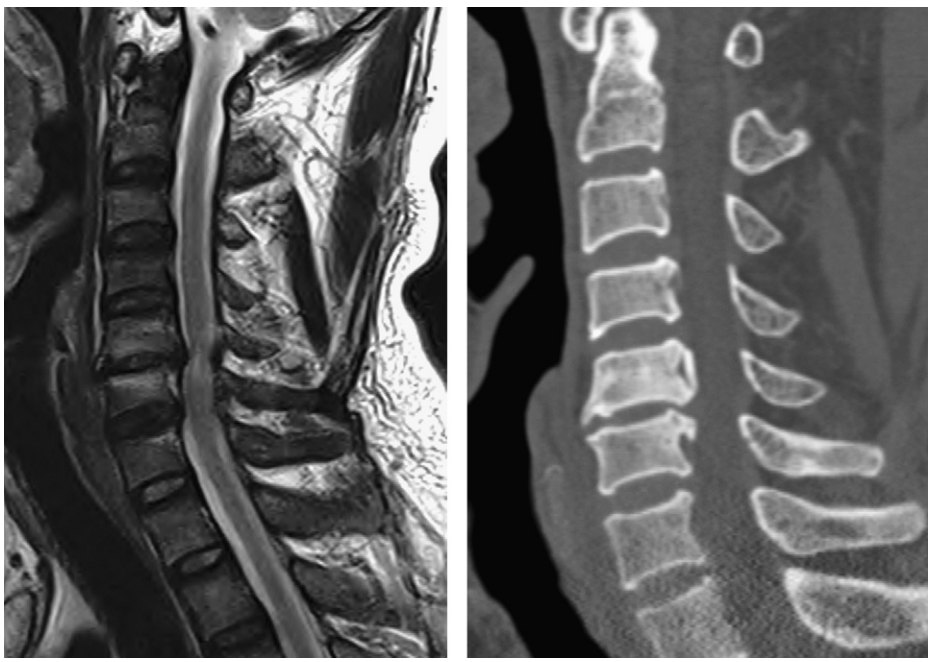

Fig. 1. (Left) Preoperative sagittal T2-weighted magnetic resonance imaging of the cervical spine showing spinal stenosis and signal change consistent with myelomalacia at C5–C6. (Right) A sagittal reconstruction of computed tomography scans revealing segmental ossification of the posterior longitudinal ligament.