

Spontaneous posterior cervical epidural hematoma: A case report

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Informed Consent

The authors stated that the written consent was obtained from the patient presented with images in the study.

Conflict of Interest

No conflict of interest was declared by the authors.

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Abstract

Spontaneous spinal epidural hematoma (SSEH) is a rare neurological emergency affecting the spinal cord. The etiology of SSEH is unknown, but it may occur due to using anticoagulants and antiplatelet agents, which are commonly used to treat vascular diseases. Because of its rarity and non-specific initial symptoms, early and accurate diagnosis can be difficult, potentially negatively impacting a patient's survival and quality of life. In this report, we present the case of a young male patient with SSEH who had no comorbidities, did not use anticoagulants, and presented with sudden-onset neck pain without predisposing factors. Regarding survival and prognosis, postoperative patient follow-up is equally important as prompt diagnosis and treatment of SSEH.

Keywords: posterior cervical, laminectomy, neck pain, spontaneous, re-bleeding

Introduction

Spontaneous spinal epidural hematoma (SSEH) is a hemorrhage in the spinal epidural space without evident traumatic or iatrogenic causes [9]. SSEH requires prompt diagnosis and treatment, as its risk of morbidity and mortality is high despite its estimated frequency of only 1 in 100,000 population [7]. SSEH is a rare condition with an unknown origin that may occur secondary to using anticoagulant and antiplatelet agents, primarily prescribed for vascular disease treatment. Due to its extreme rarity and initial non-specific symptoms, early and accurate diagnosis can be challenging, potentially impacting the patient's clinical course and quality of life [1].

While the pathogenesis of SSEH is not yet fully understood, coagulation disorders, vascular malformations, hypertension, cancer, pregnancy, and anticoagulant and antiplatelet therapies are believed to be the primary causes of SSEH [4]. Nevertheless, in 40% of cases reported in the literature, no predisposing factor has been identified [5].

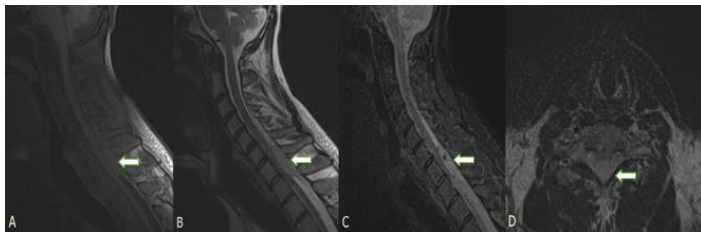
The most common clinical symptoms of SSEH include sudden-onset spinal pain, followed by nerve root and spinal cord compression symptoms [8]. While the severity of its symptoms is variable, they are often atypical, and the extent and duration of bleeding are significantly related to the severity of the clinical presentation [6]. SSEH is most commonly located between the lower cervical and upper thoracic levels but can occur throughout the entire spine. Prompt and accurate diagnosis and emergency surgical intervention can yield positive neurological and functional outcomes [10,11].

This report presents the case of a young male patient with SSEH who had no comorbidities, did not use anticoagulants, presented with sudden-onset neck pain, and had no known predisposing factors.

Case presentation

A 36-year-old male patient presented to our emergency department with severe neck pain that had started three days earlier. Ethics approval and participation consent were not required as this report presents our clinical experiences and observations regarding a single individual. The patient exhibited no motor or sensory deficits or neurological issues on examination. The patient had not experienced recent head or spinal trauma, undergone surgical treatment, or smoked. Routine blood parameters, including bleeding time, platelet count, and biochemical tests, were normal. Contrast-enhanced cervical magnetic resonance imaging (MRI) revealed a posterior SSEH at the C6-T1 level. The patient underwent emergency surgery (Figure 1).

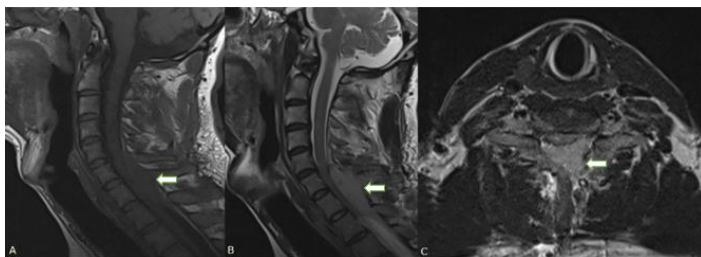
Figure 1: Preoperative MRI showing a posterior SSEH located at C6-T1 level. (A) T1-weighted images showing isointensity, (B) T2-weighted sagittal images showing heterogeneous signal intensity, (C) contrast-enhanced T2-weighted sagittal images showing heterogeneous signal intensity, and (D) T2-weighted axial images showing spinal cord compression on dorsal and left lateral sides.



Under general anesthesia, the patient was placed in a supine position. The surgical site was disinfected with a tincture of iodine and covered with sterile drapes. The skin was incised using the classical posterior cervical approach, and the hematoma was completely evacuated via a left-sided C7-T1 hemilaminectomy. The surgical site was closed to fit the anatomy, and a Hemovac drain was inserted. Following surgery, the patient was awakened and taken to the postoperative neurosurgery clinic.

On the first postoperative day, although the pain had decreased, a significant regression was observed in neurological functions. On examination, there was hypoesthesia below C7, and finger flexion and extension had a motor strength of 2/5, with all lower extremity muscles having a strength of 2/5 as well. The American Spinal Cord Injury Association Impairment grade was C. An urgent repeat cervical MRI revealed C6-T1 epidural re-bleeding (Figure 2).

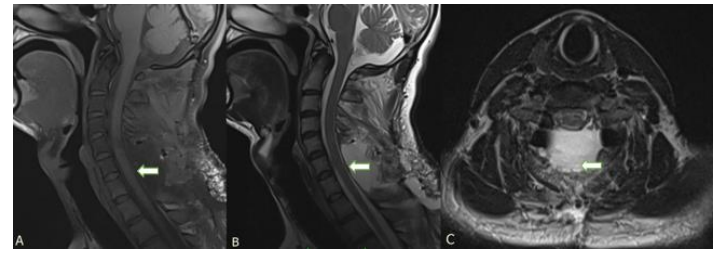
Figure 2: Postoperative MRI showing a recurrent posterior SSEH at C6-T1 level. (A) T1-weighted images showing isointensity, (B) T2-weighted sagittal images showing heterogeneous signal intensity suggestive of spinal cord compression, and (C) T2-weighted axial images showing spinal cord compression in dorsal and left lateral sides in the laminectomy area.



Due to the patient's symptoms and MRI findings, a second surgery was performed. This time, the patient underwent C6-C7 total laminectomy, followed by posterior cervical instrumentation involving C5-6 lateral mass screw fixation and C7 pedicle screw fixation. On the second postoperative day, the pain subsided, and motor strength improved. By the first postoperative week, lower extremity motor strength had reached 4/5; by the

second postoperative week, it had returned to 5/5. A follow-up MRI showed complete evacuation of the hematoma (Figure 3).

Figure 3: MRI images showing the spinal cord following hematoma evacuation in the second surgery. (A) T1-weighted sagittal images, (B) T2-weighted sagittal images, and (C) T2-weighted axial images.



The sutures were removed in the second postoperative week, and the patient was transferred to the physical therapy department for rehabilitation.

Discussion

SSEH is a rare but significant neurological emergency that can occur at any age, although it primarily affects those over 40 years old [12]. The use of anticoagulants and antiplatelet drugs in treating vascular diseases is among the most common factors contributing to the development of SSEH [13].

It is estimated that 25% to 70% of SSEH patients have a history of anticoagulant use. The first cases of SSEH were described by Jackson in 1869, and since then, approximately 900 cases have been reported, with 40% to 60% lacking an identifiable etiology. After the onset of SSEH, the pathophysiologic process involves mechanical compression and hemodynamic variation. An epidural hematoma can directly damage the spinal cord structure or lead to spinal cord hypoxia [2]. Multiple studies have shown that prompt surgical intervention can result in rapid recovery within 12–36 h. Therefore, timely decompression surgery is paramount for SSEH [11]. However, many studies have also reported favorable outcomes with conservative treatment in patients with mild clinical symptoms [3].

Conclusion

Although SSEH is rare, its clinical symptoms can rapidly progress. In addition to early diagnosis and prompt treatment, patient follow-up is crucial. SSEH clinical outcomes are closely related to its symptoms, and surgical options are determined based on the patient's clinical condition and MRI findings. Close monitoring of the patient following surgery is critical for the prognosis.

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