

Case Report

Spontaneous resolved cervical spine epidural hematoma: A case report

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Abstract

Background: Cervical spine epidural hematomas (CSEH) are rare, and surgical intervention is typically required. Here, we present the rare case of a CSEH resulting from chiropractic manipulation successfully treated conservatively.

Case Description: A 44-year-old female with cervical myelopathy presented with a mild quadriparesis following manipulation by a chiropractor. Although magnetic resonance (MR) documented a CSEH, the lesion was treated nonsurgically as the patient refused operative intervention. Four days later, the patient demonstrated spontaneous improvement. Furthermore, the 1-month post manipulation cervical MR showed resolution of the CSEH mass effect, and her myelopathy fully resolved.

Conclusion: Few studies document the efficacy of conservative treatment of CSEH. In this case, a patient with cervical myelopathy presented with a mild quadriparesis following chiropractic manipulation. Although MR documented a CSEH, she refused surgery, but fortunately improved neurologically within the next 4 days and was intact within 1 postoperative month. We recommend performing more powerful studies with large sample size to better define criteria for conservative vs. surgical treatment of CSEH.

Key Words: Cervical cord, paresis, spinal epidural hematoma, spinal manipulation

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INTRODUCTION

Cervical spine epidural hematomas (CSEH) are rare and have an unknown etiology in most cases.^[6] As quadriparesis/plegia may result from these lesions, operative intervention is typically the initial treatment of choice. Nevertheless, we encountered a 44-year-old female whose cervical myelopathy increased following chiropractic manipulation. Although magnetic resonance (MR) demonstrated a CSEH, the patient refused surgery and neurologically improved. What follows is a case discussion and review of the literature regarding the nonsurgical vs. surgical management of CSEH.

CASE DESCRIPTION

We present the case of a 44-year-old female who presented with severe neck pain and mild quadriparesis

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following a coarse neck massage by an untrained person. On admission, she exhibited low-grade fever (oral 37.5°C) and severe cervical paraspinal muscle spasm accompanied by 4/5 quadriplegia (based on muscle strength grading 0–5), left upper limb hyperreflexia, and a left positive Hoffmann's sign.

Diagnostic studies

X-ray of the spine showed prevertebral soft tissue swelling that was confirmed on the cervical spine (C/S) MR imaging [Figure 1], along with an anterior extra-axial space-occupying lesion extending from C1 to C4 level resulting in complete obstruction of cerebrospinal fluid (CSF) flow [Figure 2]. The lesion was isointense on T1 image (most probable epidural hematoma), and hyperintense on the T2-weighted study. The white blood cell count was 9000/ μ l (89% neutrophils). Laboratory data revealed 3+ C-reactive protein whereas other infection-related inflammatory markers were negative (RF, 2ME, Widal, 48-h urine culture, stool exam, HIV, HCV, HBV, Wright, Coombs wright, Blood culture).

Refusal of surgical management

Based on the MR imaging, surgical removal of the CSEH was recommended. She opted for conservative treatment that included the care of an infectious disease specialist looking for the etiology of a fever with unknown origin (FUO). Four days later, her neurological examination improved, she was able to walk, but her "illness" continued. The follow-up C/S MRI confirmed significant relief of the CSEH lesion's mass effect [Figure 3]. Her fever resolved within 1 week, and the patient was discharged; 1 month later, she was neurologically intact. The repeat C/S MRI showed no residual extra-axial lesion or compression. In addition, all laboratory data were normal.

DISCUSSION

CSEH are rare and typically warrant surgical intervention. They may be attributed to trauma, congenital spinal vascular anomaly, and/or bleeding disorders. In rare cases, neck manipulation including chiropractic treatment can lead to acute CSEH.^[4] Performing a cervical MRI is the diagnostic study of choice as it best documents the extent/location of the lesion and whether there is significant cord compression (e.g., hyperintense cord signal indicating edema which may further prompt surgical consideration).

Location and etiology of spinal epidural hematomas

Most spinal epidural hematomas are found in the cervicothoracic or thoracolumbar regions; they rarely involve the cervical spine.^[3] Most CSEH exert posterior cord compression that is effectively management with a cervical laminectomy. Anterior CSEH are typically



Figure 1: The lateral cervical spine X-ray shows significant prevertebral soft tissue swelling

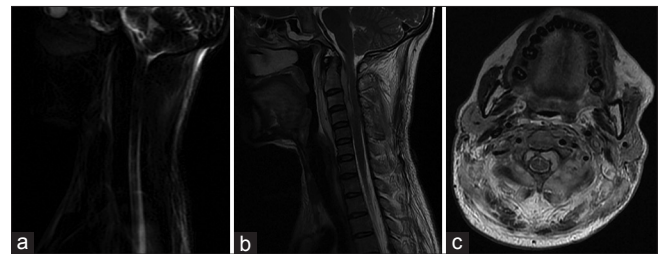


Figure 2: On admission emergency cervical MRI of this patient reveals severe CSF block (a) in upper cervical region due to compression and anterior hypersignal extra-dural mass from C1 to C4 on T2 weighted sagittal (b) and axial (c) views

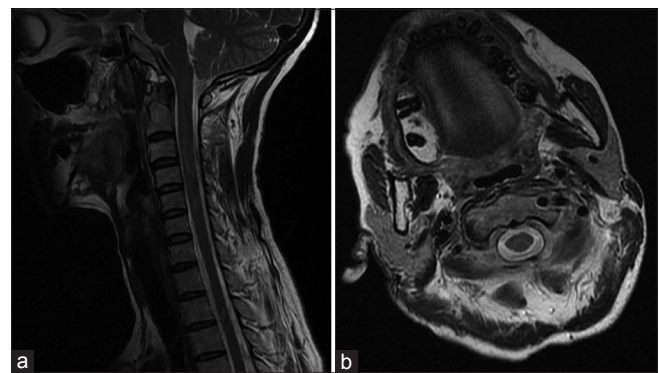


Figure 3: Repeated cervical MRI 4 days after first MRI shows no previous mass in T2-weighted sagittal (a) and axial (b) views

iatrogenic, and are typically related to anterior cervical spine procedures.^[7] In our patient, CESH occurred due to chiropractic manipulation.

Surgical vs. nonsurgical treatment of CSEH

Most surgeons would perform a laminectomy to treat a CSEH. Almost all studies recommend immediate decompressive surgery and some even advocate surgery (laminectomy or laminoplasty) during the first 48 hours for patients with an incomplete cord injury.^[2] Furthermore, many studies documented

nonsurgical therapy for CSEH correlated with poor outcomes.^[1] Although the majority of studies reported good recovery after surgical excision of CSEH, others documented the same results with conservative treatment. However, very few reports discussed the effective management of CSEH with non-surgically.^[5,8]

The use of conservative treatment for CSEH is controversial. In some patients with myelopathy and progressive deterioration, surgical management is often chosen as it is associated with less risk/better outcomes. Here, we highlighted lack of adequate criteria for choosing nonsurgical management of CSEH with accompanying myelopathic deficits, especially if acute in onset.

CONCLUSION

We present a patient who developed acute myelopathy and a mild quadriparesis after chiropractic cervical manipulation. MR documented a CSEH that was successfully managed without surgery – this was largely due to the patient’s refusal of acute operative intervention. There are few such cases in the literature as most would choose a surgical option to maximize recovery/outcome. We recommend performing more powerful studies with large sample sizes to better define criteria for selecting conservative vs. surgical treatment of CSEH.

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Conflicts of interest

There are no conflicts of interest.

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