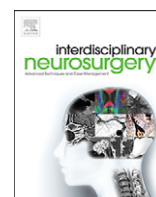




Contents lists available at ScienceDirect

Interdisciplinary Neurosurgery: Advanced Techniques and Case Management

journal homepage: www.inat-journal.com

Case Reports & Case Series (CRP)

Traumatic lumbar spinal subdural hematoma^{☆,☆☆}

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ARTICLE INFO

Article history:

Received 30 January 2014

Revised 17 September 2014

Accepted 21 September 2014

Keywords:

Trauma

Lumbar

Spinal subdural hematoma

ABSTRACT

Spinal subdural hematoma (SDH) is a rare and potentially life-threatening condition associated with trauma, lumbar puncture, hemorrhagic disorder, anticoagulant therapy, spinal surgery, tumor, vascular malformations, and spinal or epidural anesthesia. Traumatic SDH is even more uncommon than other forms of SDH with only 10 reported cases in the literature.

Following a punch to the head and loss of consciousness, a 35-year-old man reported headaches, right-sided tinnitus, and dull ache behind both eyes. He also experienced sacral pain with stiffness that was exacerbated by movement. MRI showed an isolated lumbar SDH causing mild stenosis. On follow-up, the patient still experienced right-sided tinnitus and bilateral sacral radiculopathy and was prescribed prednisone with only 10 reported cases in the literature.

Our case illustrates rapid resolution of a posttraumatic spinal SDH after treatment with oral corticosteroids. Recognition of blood products on MRI is vital to diagnosis and expedient treatment. There is agreement that prompt laminectomy with evacuation of SDH should be performed before permanent damage to the spinal cord occurs. Including our patient, 4 of 11 reported cases of thoracic or lumbar SDH resolved with conservative treatment.

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Introduction

Spinal subdural hematoma (SDH) is a rare and potentially life threatening condition associated with trauma, lumbar puncture [1], hemorrhagic disorder, anticoagulant therapy [2], spinal surgery, tumor, vascular malformations, and spinal or epidural anesthesia [3]. Traumatic spinal SDH is more uncommon with only 10 reported cases in the literature (Table 1). This case report involves a lumbosacral SDH following a head injury.

Clinical presentation

A 35-year-old man presented for neurosurgical consultation 1 week after being punched in the head and losing consciousness. An initial brain computed tomography (CT) was negative for any bony defects or intracranial hemorrhage. On presentation, the patient reported headaches, right-sided tinnitus, and a dull ache behind both eyes. He also reported sacral pain that radiated into his buttocks and was exacerbated by movement. Motor examination revealed 5/5 motor strength throughout the lower extremities, positive straight

leg-raise test at 30° bilaterally, positive bowstring test bilaterally, and positive femoral stretch test bilaterally.

A lumbar spine magnetic resonance image (MRI) without contrast demonstrated an isolated lumbar SDH extending from L4 to S1 causing mild spinal stenosis (Fig. 1). At a follow-up visit 2 days after the initial presentation, the patient reported continuing right-sided tinnitus and bilateral sacral radiculopathy when rising or lying down and with upward and lateral gaze. The patient was treated conservatively with 20 mg oral prednisone once daily for 10 days, with planned 1-month follow-up and repeat MRI of the lumbar spine. Blood tests including liver function tests, coagulation studies, and complete blood count were all within normal limits.

At his next follow-up (6 weeks later), the patient underwent an MRI of the lumbar spine that showed resolution of the previous spinal SDH (Fig. 2). He also reported that his bilateral sacral radiculopathy had completely resolved within 2 days of initiating oral steroids, although his right-sided tinnitus persisted. Physical examination revealed no motor or sensory abnormalities of the lower extremities. The patient was released back to normal activity without restrictions.

Discussion

Nontraumatic spinal SDH is a known complication of lumbar puncture [1] and may be associated with hemorrhagic disorders [2], anticoagulation therapy [2], spinal surgery, tumors [4], vascular malformations [5], and spinal or epidural anesthesia [3]. Posttraumatic spinal SDH is very uncommon with only 10 cases reported in the literature (Table 1). Five of the 10 (50%) reported cases of traumatic

[☆] Sources of Support: No sources of financial support were used in this report.

^{☆☆} This paper was presented as a poster at the 81st Annual Scientific Meeting of the American Association of Neurological Surgeons (AANS); New Orleans, LA; April 28 to May 1, 2013.

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Table 1
Available literature of traumatic spinal subdural hematoma.

Author	Year	Title of Report	Patient Age (Yr.)	Sex	Injury Site	Co-Morbid Brain Lesion	Neurological Deficits at Presentation	Treatment	Patient Outcome
Rader	1955	Chronic subdural hematoma of the spinal cord: report of a case	40	M	Thoracic	N/A	Monoplegia	T9–T11 Laminectomy	Poor: Monoplegia; no improvement in symptoms
Stewart & Watkins	1969	Spinal cord compression by chronic subdural hematoma. Case report	77	F	Thoracic	N/A	Paraplegia	T3–T2 Laminectomy	Poor: Second laminectomy performed extending to T12; no clinical improvement post-surgery
Zilkha & Nicoletti	1974	Acute spinal subdural hematoma. Case report	26	F	Lumbar	N/A	Paraplegia	L1–S1 Laminectomy	Good: Asymptomatic and normal neurological examination 4 weeks post-admission
Paredes et al.	1981	Cervical spinal subdural hematoma	9	M	Cervical	SAH; IVH	Quadriplegia	Surgical: cervical spine	Poor: Quadriplegic
Juvonen et al.	1994	Widespread posttraumatic spinal subdural hematoma: imaging findings with spontaneous resolution: case report	63	M	Thoracic	N/A	Paraplegia	Conservative Non-Surgical	Good: Spontaneous resolution of spinal SDH
Lee et al.	1996	Traumatic spinal subdural hematoma: rapid resolution after repeated lumbar spinal puncture and drainage	15	M	Lumbar	SDH	Bilateral Sciatica	Lumbar Drain	Good: Spinal SDH resolved 16days post-trauma; intracranial SDH resolved 6 weeks post trauma
Shimada et al.	1996	Spinal subdural hematoma	68	N/A	Thoracic to Sacral	SDH	Back Pain	L1–L3 Laminectomy, T8–T9 Laminectomy	Good: Patient's symptoms completely resolved immediately after surgery
Chen et al.	2001	Cauda equina syndrome caused by delayed traumatic spinal subdural hematoma.	31	M	Lumbar to Sacral	ICH	Cauda Equina Syndrome	L3–L5 Laminectomy	Good: Patient able to walk and self-void 2days post-trauma; no recurrence of spinal SDH at 2year follow-up
Hung et al.	2002	Traumatic spinal subdural hematoma with spontaneous resolution	12	M	L1–L5	SDH	Left Sciatica	Conservative Non-Surgical	Good: patient able to walk 1week post-trauma; spinal SDH almost 100% resolved at 12days post-trauma; no deficits at 4weeks post-trauma
Greiner-Perth et al.	2007	Traumatic subdural hematoma of the thoraco-lumbar junction of spinal cord	82	F	Thoracic–Lumbar Junction	N/A	Hypoesthesia, Paraparesis	T12 Laminectomy and L1 Partial Laminectomy; Rapid Surgical Drainage	Good: patient able to walk 5days post-operative; complete evacuation of SDH 14days post-operative
Gordon et al.	2014	Traumatic Lumbar Spinal Subdural Hematoma	35	M	Lumbar–Sacral	N/A	Sacral Pain and Radiculopathy	Conservative Non-Surgical	Good: resolution of radiculopathy and spinal SDH at 6-week follow-up

Abbreviations: F=Female; ICH=intracerebral hematoma; IVH=intraventricular hemorrhage; M=Male; N/A=not applicable; SAH=subarachnoid hemorrhage; SDH=subdural hematoma.

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