ORIGINAL SCIENTIFIC ARTICLES

Spontaneous Spinal Epidural Hematoma Treated Non-Surgically in a Philippine Tertiary Hospital: A Case Report

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ABSTRACT

Spontaneous spinal epidural hematomas (SSEH) is a rare entity with an estimated incidence of 0.1 in 100,000, defined as a an epidural hematoma without any known inciting events such as trauma or an iatrogenic procedure. Currently, there are no local data pertaining to this disease entity. This paper presents a case of a 52 year old male, without any known comorbid coagulopathies or vasculopathies, and no preceding history of trauma or surgical procedures with sudden onset right-sided radicular pain and hemiparesis with left-sided hemianesthesia with spinal MRI findings of a spinal epidural hematoma but no vascular malformations seen on spinal angiogram. He was managed non-surgically, given short-course steroids, and sent home after 7 days in the hospital. There was no noted progression of his baseline deficits nor any recurrence of another acute spinal event. Upon follow up after 6 months, there was noted resolution of weakness and with only residual mild and patchy sensory deficit on the left. Traditionally treated surgically, this case reports highlights the role of conservative management in this rare condition with good functional outcome.

INTRODUCTION

Spinal epidural hematomas, a rare entity by itself, is usually caused by trauma or is secondary to iatrogenic procedures. When these inciting events are absent, it is referred to as a spontaneous spinal epidural hematoma (sSEH).[1] It has an estimated incidence of 0.1 in 100,000 per year[2,3] more frequent within the 4th to 5th decade of life and has a male to female ratio of 1.4:1.[1] Currently, there is a paucity of literature regarding this disease entity. Its pathophysiologic features, associated risk factors, and treatment are still not well-defined. Traditionally, patients found to have a spinal epidural hematoma are managed surgically but some evidence has been emerging regarding the utility of non-surgical management and associated outcomes. In the Philippine setting, there has been no local data regarding the prevalence or outcomes of SSEH (as searched through Acta Medica and Herdin). This case report aims to provide local data regarding sSEH.

CASE

This is a case of a 52-year-old male, known hypertensive and diabetic, coming in the Emergency Department complaining of right sided weakness. The night prior, he had no subjective complaints and without preceding history of trauma. The right-sided nape pain, burning in character, would extend to the right shoulder with radiation down the right upper extremity until his fingers, aggravated by movement of the neck in any direction. This was accompanied by right-sided weakness manifesting as difficulty elevating his shoulder above his head and difficulty lifting his right leg causing gait instability.

Ancillary history did not reveal any bleeding tendencies. He has no prior history of coagulopathies nor intake of antithrombotic medications. He has never undergone any spinal procedures. He has no known family history of bleeding disorders or vascular malformations.

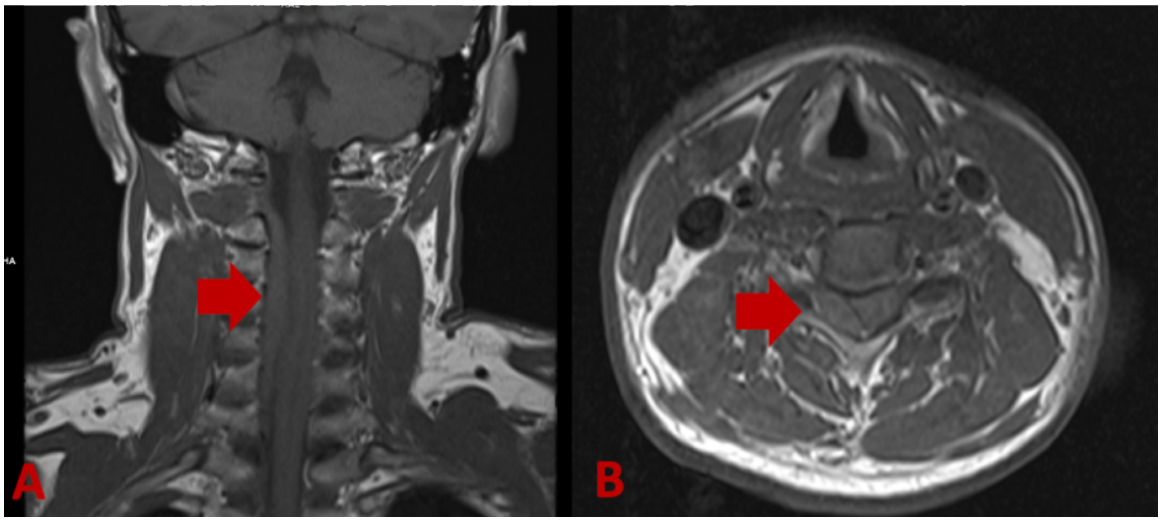
On examination, he had more prominent muscle weakness along the proximal right upper and lower extremity with a sensory level at the left C4 dermatome with 10% sensory loss to pinprick and crude touch extending down to S2 dermatome however with intact vibration sense and proprioception on all extremities. There was no noted tenderness along the cervical spine or areas of erythema or signs of skin infection on the back. Bulbocavernosus reflex was intact with tight sphincteric tone on digital rectal examination and had no long tract signs.

Work up revealed normal platelet count, normal prothrombin and activated partial thromboplastin time. Magnetic resonance imaging was done with the description of the spinal lesion as shown in the succeeding photo. The primary impression is a spinal epidural hematoma.

The patient was started on intravenous dexamethasone and immediately referred to a Neurosurgeon for evaluation. Upon initial assessment, no neurosurgical intervention was deemed warranted but was advised to undergo a spinal catheter angiogram. Operative findings on spinal angiogram showed no vascular malformations on vertebral artery, common carotid artery, thyrocervical trunk, ascending cervical, and on posterior intercostal arteries on levels T2-T5. The patient was discharged with stable neurologic deficits without undergoing evacuation of the spinal epidural hematoma. During his admission, muscle strength on the right remained stable with no deterioration, while his sensory deficits showed a nadir on the second hospital day, but with gradual improvement thereafter. The patient had no episodes of respiratory compromise or bowel and bladder incontinence or retention.

Upon follow up 6 months after being managed non-surgically, the patient was

Figure 1. Magnetic Resonance Imaging of the Cervical Spine with Intravenous Contrast. A non-enhancing spindle-shaped lesion is seen in the right lateral margin of the spinal cord, appearing extra-dural and extra-medullary, at the level of C2-C6. It appears isointense on T1 (Image B), and slightly hyperintense on T2 (Image A). It spans a length of 6.8 cm with a maximum oblique anteroposterior x width diameter of 1.7 x 0.7 cm at the level of C4. There is a consequent central spinal canal and right lateral recess stenoses and compression and leftward deviation of the cord.



already back to work and independent on all activities of daily living without residual weakness on the right and no urinary or bowel changes, but still noted to have patchy sensory loss to pinprick and crude touch on the left with the highest sensory level at T4. His interim history did not reveal any progression of his baseline deficits nor recurrence of an acute spinal event.

DISCUSSION

Majority of spinal epidural hematomas are caused by either trauma or develops after an invasive neurologic procedure. By definition, neither of these precipitating factors must be present in the clinical history for a spinal epidural hematoma to be considered spontaneous.[1] Several precipitating factors for the development of sSEH have been suggested and these would include anticoagulant therapy, therapeutic thrombolysis, coagulopathies such as hemophilia B and Factor XI deficiency, long-term aspirin use, and vascular malformations[1], pregnancy, and leukemia.[4] However, it should be noted that in 40-60% of cases of sSEH, no precipitating factor could be identified, thus qualifying as idiopathic in origin[1] much like the patient in our case.

The exact pathophysiologic mechanism is still unclear. It was postulated that the bleeding may originate from posterior epidural venous plexus which is vulnerable to sudden changes in pressure especially during Valsalva maneuvers that would cause an increase in the intrathoracic and intraabdominal pressure.[5,6] The anterior epidural venous plexus is relatively protected since it is covered by the posterior longitudinal vertebral ligament which could explain why hematomas would usually be found posteriorly.[6] However, arguments against a venous source are that venous bleeding would not create enough pressure to compress the spinal cord[7] and a venous source would not explain the speed of progression.[4]

sSEH are important, albeit rare, clinical entity as undiagnosed or misdiagnosed patients can lead to potentially poor neurologic outcomes, especially for those presenting with severe or progressive symptoms. Presenting symptoms may range from isolated back pain to those presenting with signs and symptoms of spinal cord compression.[1] The pain would often be located axially, would often be described as radicular, and typically worsens on Valsalva maneuver or other activities that could potentially increase the intraspinal pressure.[3]

The diagnostic tool of choice for cases suspected to be of a spinal epidural hematoma is a magnetic resonance imaging (MRI) of the spine[4,5,8] which can non-invasively show the location and extent of the hematoma, as well as rule out other potential differential diagnoses such as an epidural abscess or a vascular malformation.[8] MRI can also age the hematoma which has important prognostic implications especially if surgical intervention is contemplated. A spinal epidural hematoma will appear as a biconvex lesion in the epidural space with well-defined borders tapering superiorly and inferiorly.[1] An MRI done within 24 hours of onset of the hematoma will typically appear isointense on T1-weighted images, and hyperintense on T2-weighted images. Afterwards, it will appear hyperintense in both T1- and T2-weighted images.[4] A contrast-enhanced study can also reveal active bleeding which would appear as a central area of enhancement within the hematoma. A CT scan may also be useful especially when MRI is contraindicated or unavailable.[9]

sSEH can be managed either through a surgical or a conservative approach.[10] Because of the low prevalence rate, debatable pathophysiology, and varied clinical presentation, there are no clear guidelines as to when clinicians should pursue one over the other. Traditionally, these cases have been managed surgically through decompressive laminectomy and hematoma evacuation.[10]

But with increasing diagnostic ability of MRI to diagnose subclinical cases of sSEH, a non-surgical approach to management is also being increasingly adopted by physicians.[5,11]

Conservative management may refer to replacement therapy in the setting of coagulopathy, immobilization of the neck and/or administration of steroids for decompression. In a review made by Raasck and colleagues[12] of 65 cases of sSEH, comparing outcomes of those who underwent surgical and conservative management, showed that 73% of patients managed conservatively made a full recovery as compared to 48% of those treated surgically. However, it must be emphasized that the patients who underwent conservative treatment had, on average, smaller neural deficit on presentation. It is also important to note that patients managed conservatively must be monitored religiously for any progression of the baseline deficits or increase in hematoma size as these patient group may deteriorate even after a marked period of recovery.[5]

CONCLUSION

Spontaneous spinal epidural hematomas remain an enigmatic and rare condition. Traditionally treated surgically, this case highlights the role of conservative management for sSEH which was associated with a good functional outcome at 6 months.

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