Acute Spontaneous Spinal Epidural Hematoma Secondary to Aspirin

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ABSTRACT

Acute spontaneous spinal epidural hematoma (SSEH) is an extremely rare but a grave condition which if missed or diagnosed late can lead to serious life-debilitating neurological deficits. Numerous contributing factors are enlisted from idiopathic, trivial trauma to antiplatelet therapy. While aspirin is known to lower the risk of coronary artery disease and stroke, the risk of developing internal hemorrhages increases. Acute SSEH associated with aspirin is extremely rare. Emergency spinal decompression with evacuation of hematoma is the mainstay of treatment. We present a case of a 60-year-old male who presented to our hospital with sudden onset of backache followed by both lower limb paresis and inability to stand. The patient was on low-dose (75 mg) aspirin daily for ischemic heart disease. Emergency spinal decompression and hematoma evacuation was done due to worsening of neurological symptoms which led to improvement of symptoms.

Keywords: Aspirin, Spontaneous spinal epidural hematoma, Surgical intervention.

INTRODUCTION

Spontaneous spinal epidural hematoma is an emergency neurological condition that requires immediate surgical intervention in the presence of neurological deficit. The incidence of SSEH is 0.1/1,00,000 per year and most common presentation is neck or backache followed by paraparesis or quadriparesis, depending on the location of the hematoma.\(^1\) The largest literature review of SSEH till date is of 613 cases reported over more than one and half century.\(^2\) The reporting has increased in the recent past because of the inclusion of magnetic resonance imaging for diagnosis of SSEH.\(^3\) Early diagnosis with prompt surgical treatment increases the chance of functional recovery.\(^4,5\) We report a case of SSEH related to aspirin therapy where patient improved with neurosurgical intervention.

CASE REPORT

A 60-year-old male with a past medical history of hypertension and ischemic heart disease on aspirin therapy presented to the emergency department of our hospital with complaints of sudden onset of severe backache 3 hours prior to admission to another hospital. The patient was treated on an outpatient department basis considering his backache to be a mild symptom and sent home. However, the patient developed bilateral paraparesis and was taken to another hospital. Magnetic resonance imaging of the thoracolumbar region revealed aniso- to hyper-intense lesion on T1-weighted images (Figs 1 and 2), which appeared hyperintense on T2-weighted images (Figs 3 and 4) in the posterior epidural space at the D11/D12 level compressing the spinal cord with altered cord signal suggesting cord edema/ischemia. Postcontrast image did not reveal any enhancement (Fig. 5). He was later referred to our tertiary care center for further management. Neurological assessment of the patient revealed paraparesis below T11–T12 level. Muscle strength on the right leg was 2/5 and left leg was 5–/5. Touch and tactile
sensations were normal on the left with presence of hypesthesia on the right. Babinski reflex was positive on the right. Two-dimensional echocardiography findings were suggestive of an ejection fraction of 40% with presence of regional wall motion abnormality and concentric left ventricular hypertrophy.

The patient was undertaken for an emergency spinal decompression with all the due risks involved. Intraoperative finding was that of an epidural hematoma causing compression on the right side. Right hemilaminectomy followed by hematoma evacuation was done.

**FINDINGS**

Generalized oozing from multiple engorged epidural veins (venous plexus) was found and hemostasis done with bipolar diathermy. Patient was shifted to the intensive care unit for postoperative observation. The patient received intravenous antibiotics and low-dose steroids on postoperative day 0. Examination on postoperative day 1 showed marked improvement in the right and left lower limbs with muscle strength increased to 5+/5 and 5/5 respectively. Sensory disturbances on the right was resolved. Patient was mobilized and was requiring minimal support. The histopathology report was suggestive of blood clot and scanty adipose tissue with small venous channels. On postoperative day 4, patient had complete neurological recovery and was discharged with an advice to follow-up after a year.

The patient however followed up after 8 months. On examination, the patient conveyed that he resumed his daily activities a week after being discharged and had no muscle weakness or gait disturbances. The only complaint was of seldom tingling sensation in the right ankle region.

**DISCUSSION**

An epidural hematoma, in general, is a collection of blood between the bone and the duramater. It can be classified into intracranial (extradural hematoma) and spinal epidural hematoma (SEH). Spinal epidural hematomas
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can be further classified into spontaneous SSEH and traumatic. Spontaneous spinal epidural hematoma can be idiopathic in almost 50% of cases. The etiology has been contemplated between epidural venous plexus and spinal epidural arteries with the pendulum swinging toward the former. Some predisposing factors are coagulopathy, arteriovenous malformation, anticoagulation, antiplatelet therapy, therapeutic thrombolyis for acute myocardial infarction, thrombocytopenia and conditions causing an increased intrathoracic/intra-abdominal pressure as in cough, sneezing, and Valsalva maneuver. Traumatic SEH can be due to vertebral fractures, postspinal surgeries, lumbar puncture, and any spinal intervention. Spontaneous spinal epidural hematoma is found across all age groups being more frequent after the fourth or fifth decade and the rarely seen in pediatric age group.

Spontaneous spinal epidural hematoma was in the lower thoracic region. Spinal epidural hematoma located at cervical or cervicothoracic region the mortality ranged from 6 to 9%, especially in patients with cardiovascular disease and those undergoing anticoagulant management. The study of factors determining postoperative outcome showed no correlation between age, gender, position of the hematoma, and postoperative outcomes. Spontaneous spinal epidural hematoma should be considered as a differential diagnosis in pregnant females with severe back pain, as there are reported cases of the same. Some studies though state that the condition may be caused by rupture of the spinal venous system. Pathophysiology behind the statement was pressure changes within the posterior epidural venous plexus due to thin walls and being valve less. Some authors believe the spinal epidural arteries to be the source as the intrathecal pressure is higher than the venous pressure. Symptomatically, SSEH presents as sudden onset of unbearable pain in the back or neck with weakness. At times this pain can radiate to the lower extremities as it is of radicular character. Within a few hours there can be varying degrees of motor and sensory deficit due to spinal cord compression. Magnetic resonance imaging is the diagnostic modality of choice in the diagnosis of SSEH. Although the emergence of diffusion-weighted imaging with the use of periodically rotated overlapping parallel lines with enhanced reconstruction seems to be more accurate in detection of a spinal hematoma.

Mainstay treatment of SSEH is urgent decompression of the spinal cord in the presence of neurological deficits to ensure early recovery. On the contrary, some authors have mentioned conservative management followed up with imaging studies in cases of spontaneous resorption of hematoma leading to spontaneous recovery of neurological deficit.

The patient in our report denied history of trauma to his back. He was on antiplatelet therapy (aspirin) daily as he had past medical history of myocardial infarction and on a cardioselective -blocker for blood pressure control. He denied all the other predisposing factors during history taking. Hence, after excluding all the various probabilities, it was concluded that aspirin was the etiology of SSEH in our case scenario with the knowledge of the fact of no direct correlation between the two. Literature review, however, has put light on more cases of SSEH associated with antiplatelet therapy ranging from single-antiplatelet, i.e., aspirin to dual-antiplatelet therapy. The CURRENT-OASIS 7 trial states that there is no difference in bleeding tendencies between high and low doses of antiplatelet therapy. Based on this, it could safely be inferred that aspirin could cause SSEH as in our patient.

CONCLUSION

Spontaneous spinal epidural hematoma is a rare neurological emergency that should be considered while dealing with sudden-onset pain in the back associated with neurological deficits. Magnetic resonance imaging is the gold standard imaging technique for diagnosis. Urgent/emergency decompression with hematoma evacuation surgery is the treatment of choice in patients with neurologic deficiency not relieved in the early period and a factor for good neurological outcome.

REFERENCES


