

Hypotension Reveals the Presence of an Epidural Hematoma: A Case Report

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Introduction

- Reports of the incidence of epidural hematoma following epidural placement in non-obstetric patients vary widely from 1 in 2,700 to 1 in 42,000.¹
- Risk of clinically significant epidural hematoma increases with age, coagulopathy, abnormalities of the spinal cord or vertebral column, difficult needle placement, and indwelling neuraxial catheter during sustained anticoagulation.²
- Signs and symptoms of spinal epidural hematoma often involve lower extremity neurologic deficits and/or back pain.
- Diagnosis is best made by MRI and treatment may require surgical evacuation.
- Epidural hematoma can lead to permanent neurological injury although some patients make a full recovery if treated early.^{2,3}

Images

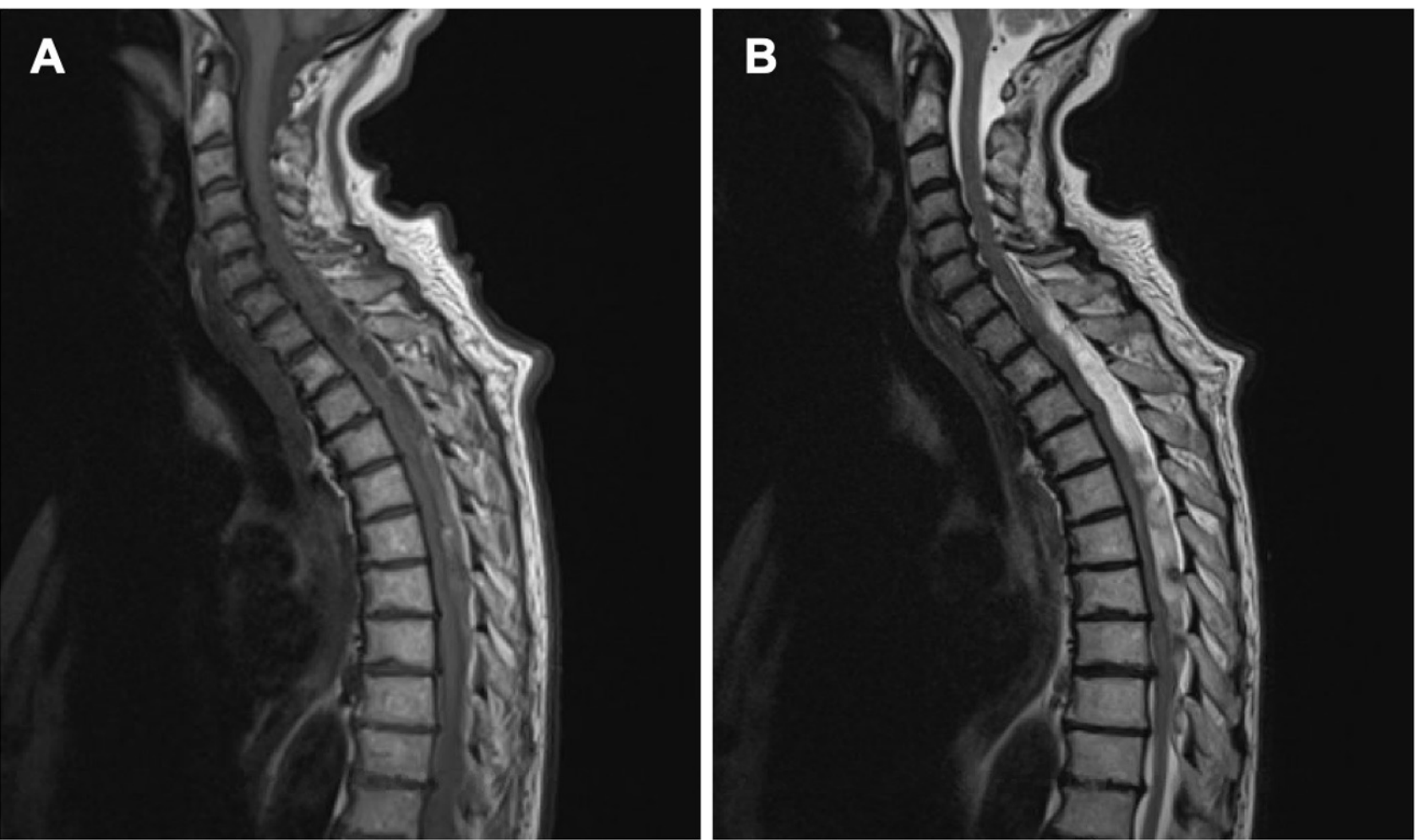


Figure 1. Sagittal MRI demonstrating posterior spinal epidural collection extending from C6-7 to T10-11 with severe stenosis of the spinal canal and compression of the thoracic cord. (A) T1-weighted image, (B) T2-weighted image.

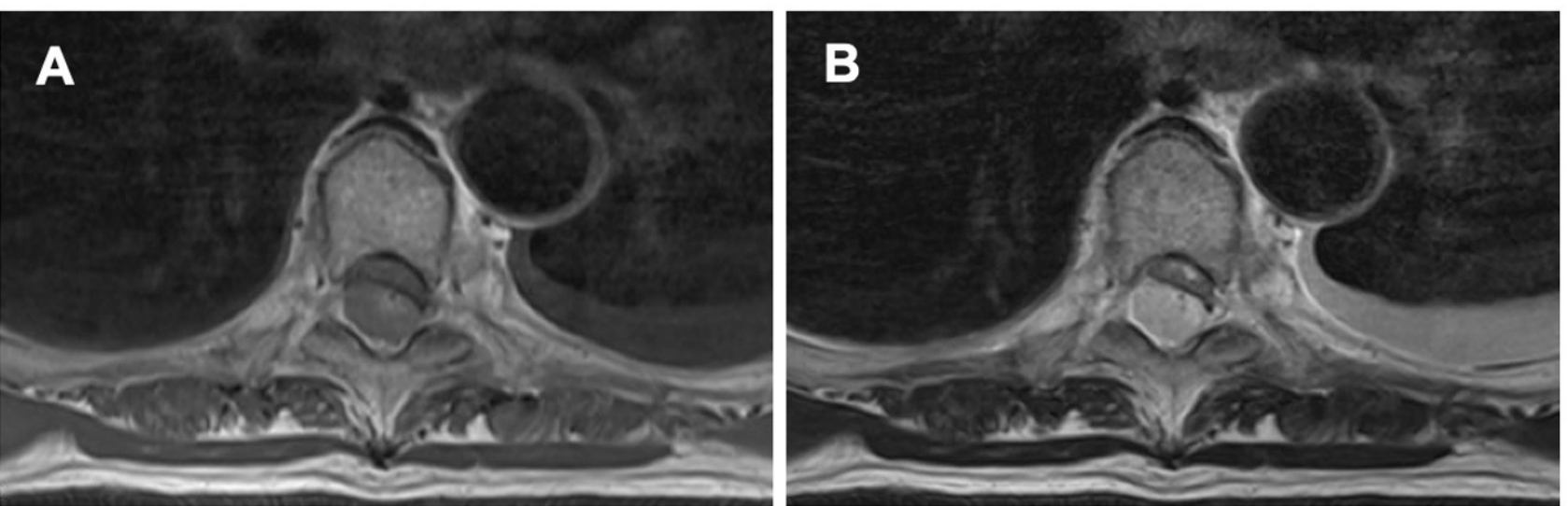


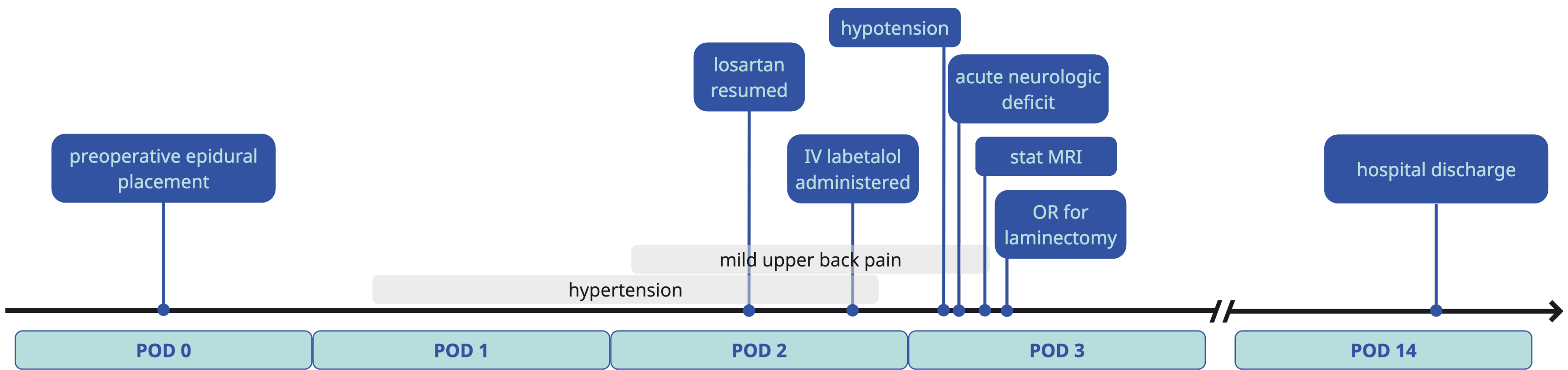
Figure 2. Axial MRI at the level of T6 demonstrating severe mass effect of the epidural collection upon the thoracic cord with compression against the posterior aspect of the vertebral body. (A) T1-weighted image, (B) T2-weighted image.

Case Description

A 71-year-old female with a history of gastric neuroendocrine tumor presented for subtotal gastrectomy. Her past medical history was otherwise significant for hypertension, hyperlipidemia, non-insulin-dependent diabetes mellitus, mitral valve prolapse, obstructive sleep apnea, gastroesophageal reflux disease, and overactive bladder. She was not on anticoagulation or antiplatelet agents. Laboratory studies demonstrated a normal platelet count, INR, and PTT. She underwent uneventful preoperative thoracic epidural catheter placement at T7-8 on the first needle pass. Postoperatively, she received routine subcutaneous heparin (SQH) 5,000U every 8 hours for deep venous thrombosis prophylaxis.

The patient reported mild back pain without neurologic deficits on the morning of POD2. Due to persistent hypertension (SBP 140-170mmHg), her home dose of losartan was resumed on the afternoon of POD2 and a single dose of IV labetalol 5mg was administered later that night. She became hypotensive (BP 80/47mmHg) on the early morning of POD3 and an IV fluid bolus was administered. At that time the patient noted that she was unable to feel or move her lower extremities. The epidural bupivacaine infusion was immediately discontinued. Examination revealed absent motor function of bilateral lower extremities and sensory deficit up to T4 bilaterally. There was no evidence of migration of the epidural catheter.

Laboratory studies demonstrated normal platelet count (225K/uL) and slightly elevated PTT (46.3sec). MRI of the spine revealed a compressive dorsal epidural hematoma extending from C6-7 to T10-11 (Figures 1 and 2). The patient was taken emergently to the OR for T1-9 laminectomy and hematoma evacuation within 4 hours of initial report of symptoms. She was transferred to the neurosurgical ICU postoperatively. Mean arterial pressure was maintained >85mmHg for 72 hours to optimize spinal cord perfusion. The patient was discharged to an inpatient rehabilitation facility after a 2-week hospital stay. Prior to hospital discharge there was gradual improvement in her neurologic status, but she continued to have significant weakness in bilateral lower extremities and required a foley catheter for neurogenic bladder.



During her 4 weeks of inpatient rehabilitation, she progressed but still required assistance. At the patient's 9-month neurosurgical follow-up appointment she was noted to have made a significant recovery. She was living independently and walking with a rolling walker or four-point cane. She had control of her bowel and bladder function and neurologic examination demonstrated 5/5 strength in all muscle groups of the right lower extremity and 4+/5 in the left lower extremity with intact sensation to light touch bilaterally.

Discussion

- The patient's identifiable risk factors for epidural hematoma include age and spinal stenosis.
- Mild PTT elevation is seen in some patients receiving prophylactic SQH dosing and is of unclear clinical significance.²
- Although the patient's mild back pain on POD2 may have been associated with the development of an epidural hematoma, it was a nonspecific finding in the absence of neurologic deficits.
- Elevated blood pressure POD1-2 may have maintained spinal cord perfusion despite compressive hematoma and subsequent hypotension could have led to spinal cord ischemia.
- Time to development of symptoms of epidural hematoma in patients with perioperative epidural catheters varies widely with many presenting >24 hours after epidural placement.³
- Surgical decompression less than 8-12 hours after symptom development leads to improved outcomes.^{3,4}

Learning Points

- Epidural hematoma can have a delayed presentation and occur despite adherence to anticoagulation guidelines.
- Neurologic deficits related to epidural hematoma may be exacerbated by hypotension.
- Quick action is critical when epidural hematoma is suspected.

References

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