Case Report

Non traumatic spinal epidural haematoma

NA Khalid & N Shah

Abstract:
Spinal epidural haematoma is a rare condition, which may be due to trauma, surgery, epidural catheterisation or disorders of coagulation. We report a case of 60 year old lady who was on warfarin for Atrial fibrillation (AF) presented with history of non-traumatic sudden onset pain in both legs and difficulty in walking. Magnetic resonance imaging (MRI) spine demonstrated epidural haematoma which was treated conservatively. Another dilemma was anticoagulation for AF. We examine the options to manage such case.

Keywords
anticoagulation, spinal haematoma, atrial fibrillation.

Learning Point
1. Spinal haemorrhage is a rare condition that can be epidural, subdural, or medullary
2. The primary treatment consists of surgical decompression and evacuation of the haematoma, with improved outcome if surgery is done within first 36 hours after the onset of paralysis.
3. Spontaneous spinal epidural haematoma should be suspected in any patient receiving anticoagulant agents with back pain associated with limb weakness, sensory deficits, or urinary retention.

In this case the issue of long-term anticoagulation remained. As direct oral anticoagulant (DOAC) can be used for stroke prevention in non-valvular AF, there are few reported cases of spinal haematoma on DOAC treatment.

Introduction

Spinal epidural haematoma was first described by Jackson in 1869. Spinal epidural haematoma is an uncommon, but recognised, clinical condition that needs emergency management. The association of spinal epidural haematoma with warfarin therapy has been well described[1] and Alderman raised awareness of this diagnosis in any patient receiving anticoagulants presenting with low back pain or sciatic pain as early as in 1956.[2] There are only few case reports describing conservative management in patients with neurological improvement. This case highlights a patient on anticoagulation who presented with spinal haematoma and managed conservatively despite progressive symptoms and worsening haematoma initially. We also describe a dilemma regarding restarting anticoagulation therapy.

Case Report

A 60 year old lady presented to the hospital with a two day history of intermittent pain in both legs which starts behind the knees radiates upto thighs into buttocks. She described the pain as cramp like and sharp in nature. She described difficulty in walking which aggravated pain. She went to an urgent care out of hour GP centre. The GP diagnosed sciatica and prescribed oral liquid morphine. Her pain did not improve after 2 days so she came to Accident and Emergency (A&E) department and was admitted to the hospital for pain control. Other past medical history included atrial fibrillation, cervical spondylosis, prolapsed vaginal wall, hysterectomy, hypertension and a gastrointestinal bleed 8 years ago. Medications included warfarin, omeprazole, gabapentin, indapamide, quinine, simvastatin, flecanide & tramadol.

On examination there was no focal neurology. There was no saddle anaesthesia. Orthopaedic review identified bilateral thigh pain on straight leg raised at 60 degrees. It was felt that the pain was due to hamstring tightness. The orthopaedic team requested rheumatology review which was arranged as outpatient.

Despite increasing analgesia her leg pain was constant and she developed urinary retention requiring a catheter. New neurological finding on examination was saddle anaesthesia and non-elicitable bilateral planter reflexes. Her international normalised ratio (INR) on admission was 3.3 and repeated after 3 days was 5.4. There was no other reason for deranged INR. As clinical signs had changed and there was no improvement in symptoms, a magnetic resonance imaging (MRI) spine was requested to look for cord compression. Her MRI of the spine showed epidural haematoma extending from L4-5 to S1/2 (figure1,T2 sagittal & figure2, T2 axial section)

Warfarin was stopped and the INR was reversed with vitamin K. Her case was discussed with

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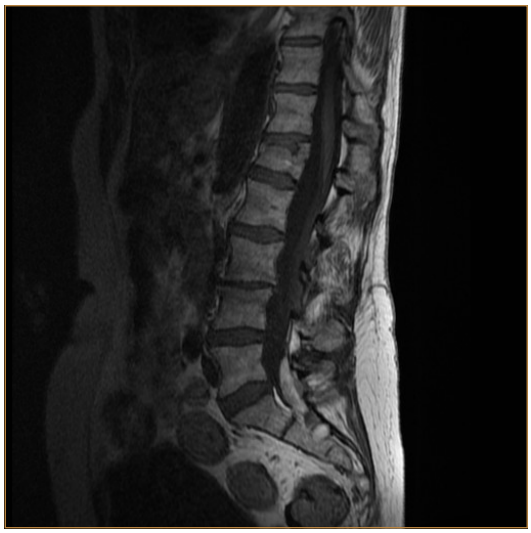

Figure 1.

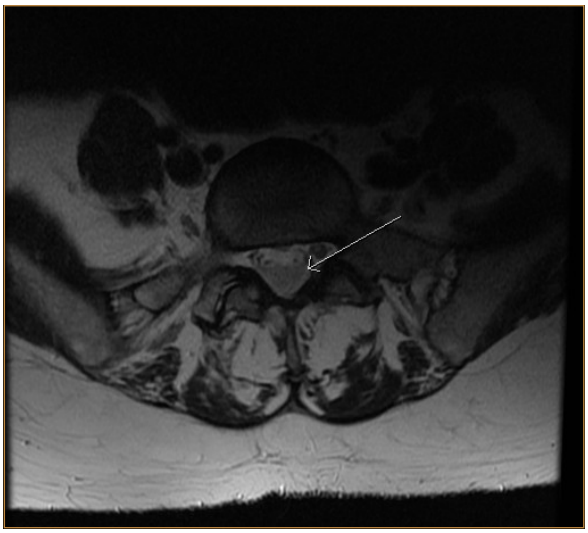

Figure 2.

spinal surgeons and a plan was made to treat her conservatively and repeat the MRI scan in four weeks. During admission the weakness in both legs progressed, and therefore an MRI spine was repeated approximately 1week after the index admission, which showed progression of epidural hematoma. Her case was discussed with spinal surgeons again. The spinal surgeon felt that the bleed was not actively leaking and clot size was not large enough for evacuation, also there was enough CSF space around nerve roots. The spinal surgeon also felt that the history of vaginal prolapse was contributing to urinary retention. Weighing up risks of having intraoperative cardiac complications (risk factors for Ischemic heart disease were hypertension, hypercholesterolemia and atrial fibrillation) versus minimal benefit of intervention, conservative management was planned. By the time the surgeon reviewed this case, it was over 48 hours since the index symptoms. Her analgesics were optimized. Her pain was under control and she was discharged home with follow-up. Prior to discharge the urinary catheter was successfully removed. Unfortunately, she was readmitted in 3 days due to urinary retention, back pain and saddle anesthesia. MRI spine showed epidural bleed extension along the sacral root (fig3 T1 sagittal section & fig 4 T1 Axial section).

After achieving pain control and urinary catheterisation she was discharged home with a catheter. The catheter was removed two weeks after discharge and she was seen by urogynaecologist who advised self-catheterisation before bed for symptoms of nocturia which gradually resolved. In the Neurology clinic three months following the index admission, the MRI scan showed significant reduction in size of epidural haematoma. At six months' follow up the MRI showed complete resolution of epidural bleed (fig5 sagittal T& Fig6 Axial T1). There was a significant improvement in

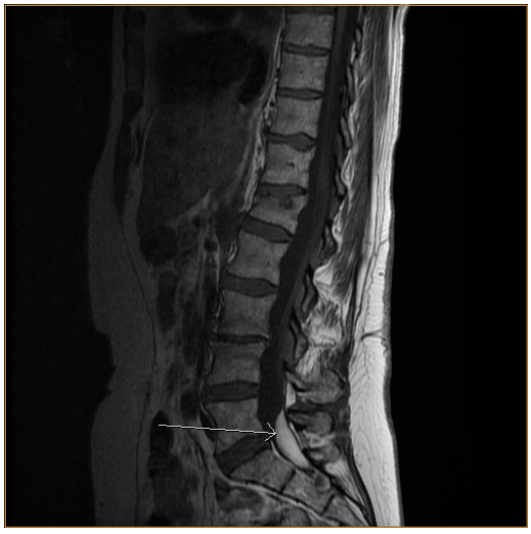

Figure 3.

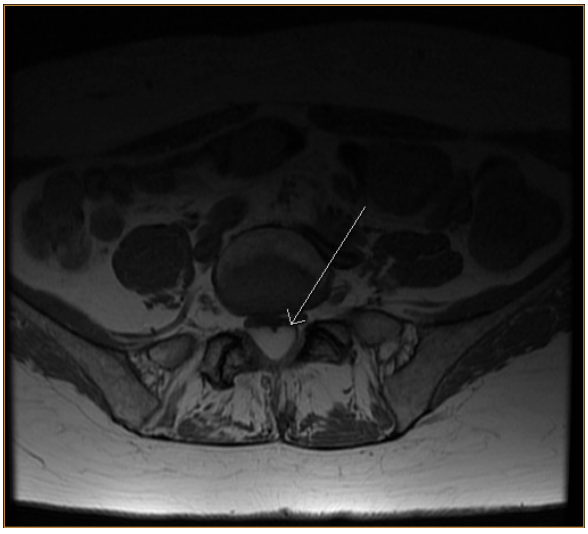

Figure 4.

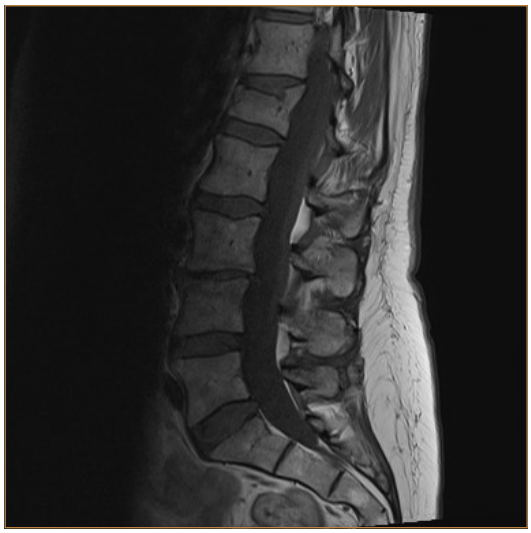

Figure 5.

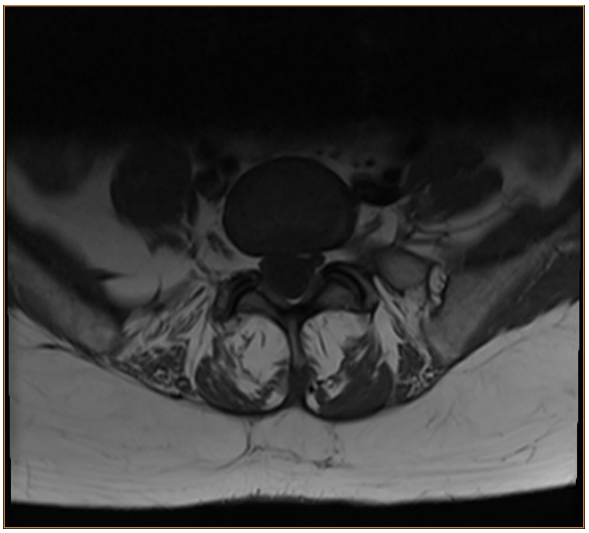

Figure 6.

her pain, weakness and urinary symptoms following the resolution of haematoma, although on some occasions she had mild neuropathic pain in both legs which responded well to pre-gabalin and amitriptyline.

She was seen by cardiologist with a view to consider newer oral anticoagulant (DOAC). The cardiologist felt that reversing bleeding in case of DOAC would be difficult, so suggested to re-start warfarin and keep INR around 2 for stroke prevention. However, the patient decided not to go back on anticoagulation.

After six months of index admission, she had an ocular prosthesis in left eye and as part of surgery she had a CT head which showed an incidental finding of right frontal sub-dural haematoma which was later followed up and treated conservatively.

Discussion

Non-traumatic spinal haemorrhage is a rare condition that can be epidural, subdural, or medullary.[3] They are often associated with anticoagulation therapy. Other causes include blood disorders, arterial hypertension, atherosclerosis and trauma. The primary treatment typically consists of surgical decompression and evacuation of haematoma. Surgical treatments within first 36 hours after the onset of paralysis especially in spinal cord compression are expected to show improved outcome[1] and cases in which the symptoms improve with conservative treatment are rarely reported.[3]

Spontaneous spinal epidural haematoma should be suspected in any patient receiving anticoagulant agents who complains of local or referred spinal pain associated with limb weakness, sensory deficits, or urinary retention.[4] The usual clinical presentation of a spontaneous spinal epidural haematoma is sudden onset of pain in neck or back and it leads to paresis depending on the level of the lesion and compression of the nerve root. Its incidence as estimated by Holtas et al is 0.1 per 100,000 people and it is most frequent after the fourth or fifth decade. The male/female ratio is 1.4 : 1.[5] Our patient presented with leg weakness and urinary retention and saddle anaesthesia suggesting a lesion at L4/L5 to S1/S2. The most common sites of spinal haematoma are the cervicothoracic or thoracolumbar junction.[6]

Thorough neurological examination and a low threshold to perform MRI leads to the quick diagnosis of spinal epidural haematoma.

Early surgical intervention is the treatment of choice for spontaneous spinal epidural haematomas.[4] The treatment in most cases remains urgent laminectomy and evacuation of haematoma but J Duffil et al[7] described recovery in cases of spinal haematoma where conservative approach had been taken. These patients should be monitored in neurosurgical units and if symptomatic recovery with haematoma resolution does not continue, early surgical intervention may still be considered.[7] Many authors emphasise the role of early surgery, especially within 48 hours in cases with incomplete spinal cord dysfunction, or 36 hours for complete spinal cord dysfunction.[8, 9]

A high level of suspicion, vigilance and immediate intervention can prevent major morbidity and mortality from intra spinal haemorrhage.[10]

Early diagnosis is key here. This patient's symptoms improved gradually without surgical intervention, though it is difficult to say if the outcome could have been different if surgical intervention was considered. In this case early surgical intervention was not possible due to delay in diagnosing epidural haematoma. Our case recovered

with conservative therapy but the dilemma about long-term anticoagulation remained. An opinion from a cardiologist was sought for long-term anticoagulation for atrial fibrillation. There were discussions regarding starting warfarin, as bleeding from DOAC is difficult to reverse.

There have been numerous case reports about the use of anticoagulation and spinal haematoma, Khaled M Kebaish discussed the safe use of anticoagulation for DVT prophylaxis or cardiovascular prophylaxis postoperatively if it is well monitored with target INR control.[11]

Jaeger et al. reported a case of spinal haematoma on DOAC treatment[12] - a patient on rivaroxaban (for prevention of venous thromboembolic events following an orthopaedic surgery of the lower extremity) who developed an epidural spinal haematoma. There are 4 approved DOACs for use in patients with non-valvular atrial fibrillation for prevention of stroke. The DOACs include factor Xa inhibitors (rivaroxaban, apixaban, and edoxaban) and a direct thrombin inhibitor (dabigatran). The DOACs have been compared in large randomised, double-blind trials with warfarin. In comparison, rivaroxaban and dabigatran have similar risk of intracranial haemorrhage as compared to warfarin.[13] To the best of our knowledge, only three cases in the literature described Rivaroxaban induced non-traumatic spinal haemorrhage.[14]

The use of anticoagulation has been expanding, thus clinician should suspect spinal haemorrhage in patients presenting with leg pain and focal neurology.

Acknowledge

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Conflict of interest

None.

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