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CASE REPORT

An Interesting Rare Case of Compressive Myelopathy

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KEYWORDS

Compression Myelopathy
Hematoma
Surgical Decompression

ABSTRACT

An interesting case of paraparesis due to compression by a spinal meningioma was investigated and taken up for surgery. Intraoperatively, we were surprised to find a large hematoma, likely related to a forgotten trivial injury. And this patient recovered near completely after evacuation of clot. This case is reported for its rarity, large spinal hematoma mimicking a meningioma with a good recovery. The incidence (1,000,000) of spinal hematoma presenting as meningioma after a forgotten trivial injury is rare.

CLINICAL PRESENTATION

- A 51 years old lady evaluated for low back pain radiating to both lower limbs, difficulty in walking with numbness of 3 months duration.
- On clinical examination, she had weakness of both lower limbs – power 4/5 with hypotonia. Positive Babinski sign. Localised pain in mid thoracic region. Loss of sensation from D6-D9, band like tightness in D8 and impaired tandem walking.

INVESTIGATIONS

- Routine blood tests like complete blood count (CBC), electrolytes, renal parameters and liver enzymes were normal. Her MRI spine reported as spinal meningioma D6-D8 (Figure 1).

NEUROSURGERY OPINION

- Advised to do PET scan to exclude malignancy, when PET scan was done it revealed low grade uptake in endometrium and no evidence of malignancy in spinal mass.
- Pre op ECG, ECHO, coagulation profile were normal.
- Surgery was done where she underwent surgical decompression of D6-D7 with laminectomy.
- The surgeon was surprised to see a **large hematoma** mimicking meningioma compressing the spinal cord. Even though MRI with contrast reported meningioma, it was a hematoma. He drained the hematoma, took biopsy from the mass (Figure 2). On repeated questioning, patient said she had minor trauma to her back three months ago.

HISTOPATHOLOGICAL EXAMINATION OF LESION

- Histopathological examination (HPE) of spinal lesion was consistent with hematoma with bony trabeculae and fibro hyalinised stroma of dura

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and hematoma (Figure 3) was due to trivial injury sustained by her.

POST OPERATIVE PERIOD

- Weakness of lower limb improved, sensation started regaining, was mobilised and made to walk and she showed good recovery.

FINAL DIAGNOSIS

- Trivial traumatic anterior cord hematoma with compressive myelopathy D6-D8.

Figure 1. T2 – weighted sagittal MRI showing a mass consistent with meningioma at D6-D8.

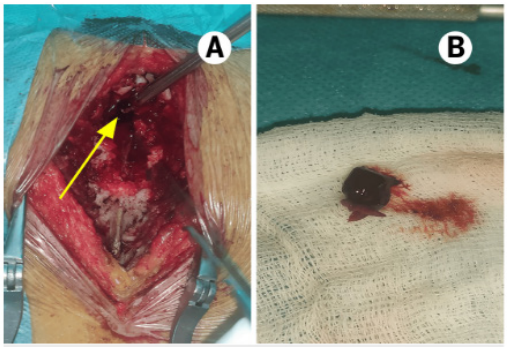

Figure 2. Arrow head showing large blood clot.

SPINAL HEMATOMA

- Collection of blood in between spinal duramater and body of vertebra.
- Spinal epidural hematoma is a rare condition that usually presents with acute, severe pain at the location of the hemorrhage, with radiation to the extremities.
- It can rapidly develop to include progressive and severe neurologic deficit with an estimated incidence of ~1 per 1,000,000 people per year.
- The spinal hematoma can be epidural, intradural, intramedullary where the patient requires multiple discectomy and vertebrectomy.
- This includes both spontaneous and those caused by trauma or procedures.
- It can be iatrogenic while giving spinal block, anesthesia or manipulation.
- If care not given urgently it has high mortality.
- Commonest area is C5 to T2.

CAUSES

- **Trauma:** Fractures or dislocations of the spine, or blunt trauma.
- **Iatrogenic Causes:** Procedures like lumbar punctures, epidural anesthesia, or spinal surgery.
- **Coagulopathies:** Bleeding disorders, such as hemophilia, that impair blood clotting.
- **Anticoagulant Medications:** Medications like warfarin or heparin that thin the blood.
- **Spinal Arteriovenous Malformations (AVMs):** Abnormal connections between arteries and veins in the spine.
- **Spinal Tumors:** May cause bleeding or compression of the spinal cord.

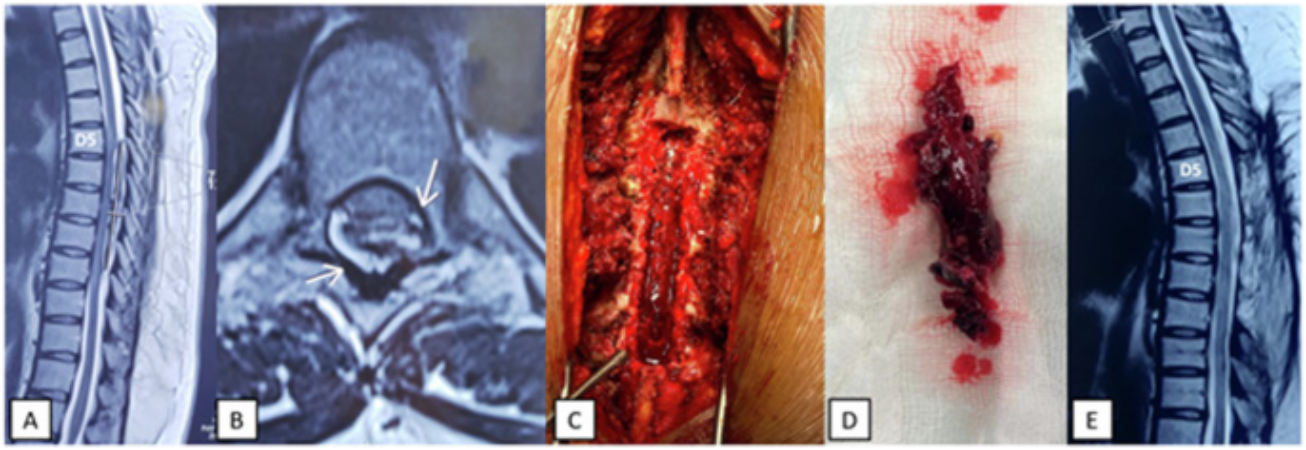

Figure 3. Excised large hematoma.

Idiopathic Cause

- **Other rare causes –** Pregnancy, ascites, rheumatoid arthritis, ankylosing spondylitis, SLE, inflammatory vasculitis.
- Mainly arterial, few venous causes
- Acupuncture, straining which raises intraspinous pressure, weight lifting, prolonged Valsalva maneuver or stretching can cause spinal hematoma.

There is entity called spontaneous spinal hematoma in children.

SYMPTOMS

- **Back Pain:** May be severe and localized or radiate to the limbs.
- **Neurological Deficits:** Weakness, numbness, tingling, or paralysis in the limbs or trunk.
- **Bowel or Bladder Dysfunction:** Loss of control over bowel or bladder function.
- **Loss of Reflexes:** Diminished or absent reflexes.

DIAGNOSIS OF SPINAL HEMATOMA

- **Magnetic Resonance Imaging (MRI):** The preferred imaging technique to visualize the hematoma, assess its size and location, and identify any associated spinal injuries.
- **Computed Tomography (CT) Myelography:** An alternative imaging method if MRI is not available.

TREATMENT OF SPINAL HEMATOMA

- **Surgical Decompression:**

Removal of the hematoma to relieve pressure on the spinal cord and nerve roots, especially if there are neurological deficits (Figure 4).

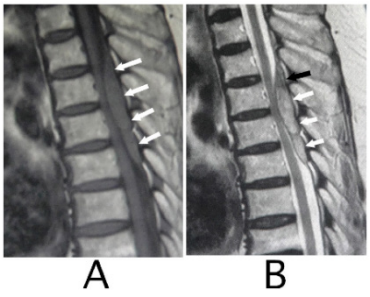

Figure 4. 4A & 4B showing MRI features of large meningioma.

- **Conservative Management:**

May be an option in some cases, especially if symptoms are mild and improving.

- **Management of Underlying Conditions:**

Addressing any bleeding disorders or anticoagulant medications that may be contributing to the hematoma.

Prognosis

- **Early diagnosis and treatment:** Improve the chances of full recovery.
- **Delayed treatment:** Can lead to permanent neurological damage or paralysis.
- **Severity of neurological deficits:** Impacts the prognosis. Patients with complete neurological deficit at the time of surgery may have a poorer outcome than those with incomplete deficits.

From Literature

Duverney, described spinal hematoma causing compressive myelopathy in a postmortem specimen.

In 1869, Jackson et al reported first clinical case of spinal hematoma.

Spinal hematoma: a literature survey with meta-analysis of 613 patients.

1. Anti-coagulant therapy – need not be the sole cause.
2. Another important cause is spinal anaesthesia.
3. 1/3rd of the case is idiopathic.
4. Early diagnosis minimises neurological complications [1–3].

IMPORTANT CONSIDERATIONS

1. Appearance of hematoma can change over time as blood breaks down.
2. Meningioma can get calcified and affect the signal intensity and enhancement.
3. In some cases, it is difficult to differentiate between meningioma and hematoma solely by MRI study. Further investigations are necessary (Figures 5 and 6).
4. Spontaneous spinal epidural hematoma is often idiopathic. In some conditions, there will be coagulopathies, vascular malformations, iatrogenic procedures. In these conditions, some trivial injuries can produce massive spinal hematomas.

TYPE	ENHANCEMENT	APPEARANCE	DEFINED MASS	LOCATION	SIGNAL INTENSITY
MENINGIOMA	HOMOGENEOUS AFTER CONTRAST	LOBULAR	WELL DEFINED CAN BE CALCIFIED	INTRADURAL-EXTRAMEDULLARY SPACE	HYPOINTENSE T1 ISO/HYPERINTENSE T2
HEMATOMA	NO ENHANCEMENT AFTER CONTRAST	DEPENDS ON AGE OF HEMATOMA. ACUTE-HYPOINTENSE CHRONIC-HYPERINTENSE	DEPENDS UPON.	EPIDURAL SUBDURAL SUB-ARACHNOID	ISOINTENSE T1 HYPERINTENSE T2

Stage	Time	Component	T_1	T_2
Hyperacute	<24 h	Oxyhaemoglobin	Hypointense	Hyperintense
Acute	1–3 days	Deoxyhaemoglobin	Isointense	Hypointense
Subacute–early	3–7 days	Intracellular methaemoglobin	Hyperintense	Hypointense
Subacute–late	1–2 weeks	Extracellular methaemoglobin	Hyperintense	Hyperintense
Chronic	>2 weeks	Haemosiderin	Hypointense	Hypointense

Figures 5 and 6. Spinal mengioma and hematoma compared.

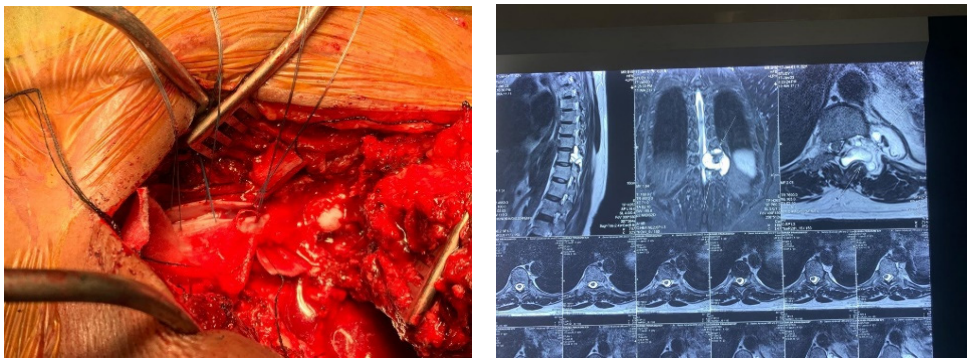

Figure 7. Another patient from our hospital showing extra-medullary spinal compression by a hydatid cyst.

5. Some conditions of epidural hematomas can be associated with vascular malformations.
6. Increased intra-abdominal pressure as in the form of ascites, pregnancy, straining for stools, rheumatoid arthritis can end up with spontaneous hematoma.
7. In mild cases, conservative treatment had been tried.
8. Spontaneous bleeding can occur inside a tumor, can cause big hematoma.
9. Spinal hematoma can lead to serious complications if not treated promptly. Its management requires a multidisciplinary team, including neurosurgeons, orthopedic trauma surgeons, CCU consultants, anesthetists, nursing staff, and paramedical personnel.
10. There is an entity called conservative management in selected cases after discussion with the relatives.

We had a similar case in our hospital where compressive myelopathy was due to hydatid cyst and that patient similarly had hydatid cyst in liver also (Figure 7).

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