

## Spinal epidural hematoma following epidural anesthesia. Case report

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**SUMMARY:** Spinal epidural hematoma following epidural anesthesia. Case report.

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*Epidural anesthesia is one of the preferred modes of analgesia intra- and postoperative in limb surgery. Although considered very safe, serious complications can occur with 0.1-1 per 10,000 epidural injections. We present a case of a patient who experienced an acute lumbar epidural hematoma after epidural anesthesia.*

**RIASSUNTO:** Ematoma spinale successivo ad anestesia epidurale. Caso clinico.

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*Sono note le complicazioni che possono presentarsi in seguito ad anestesia spinale molte delle quali descritte in letteratura (con un'incidenza di 0,1-1 ogni 10.000 procedure). Viene presentato il caso di una paziente che, successivamente ad anestesia epidurale, ha sviluppato un ematoma epidurale lombare trattato con successo chirurgicamente a due giorni dalla diagnosi della complicanza.*

**KEY WORDS:** Epidural hematoma - Surgery - Anticoagulants.  
Ematoma epidurale - Chirurgia - Anticoagulanti.

### Introduction

Epidural hematoma after spinal or epidural anesthesia has been acknowledged as a rare but serious complication, which may cause permanent neurologic deficits even though emergency laminectomy is performed (8). The most frequently encountered complications are cardiovascular or neurological.

The spectrum of neurological complications includes transient neurological deficits, permanent nerve root injury, myelopathy and arachnoiditis. Neurological injury can be caused mechanically, at the time of introduction of epidural catheter, or when the drug is erroneously injected into the spinal cord or the blood vessels causing toxic myelopathy (10) or compressive myelopathy by epidural hematoma.

Epidural hematoma is a rare cause of neurological injury following epidural injection and is associated usually with therapeutic or prophylactic anticoagulant therapy.

Emergency decompression has been advocated for facilitating better neurological outcome.

### Case report

A woman 82-yr-old was admitted and scheduled for total right knee replacement. Laboratory was remarkable for prothrombin time, partial thromboplastin time; platelet count was within normal limits.

Surgery was performed under combined spinal and epidural analgesia at D12-L1 space. The catheter was applied with the patient in the sitting position by 18-G Tuohy needle and the loss of resistance technique with a 10 ml plastic syringe filled with normal saline. The patient reported no paresthesias. A closed-end catheter (0.9 mm) with three lateral orifices was inserted 5,5 cm into the epidural space. There was no blood or cerebrospinal fluid (CSF) leak through the needle or the catheter. The operation was uneventful, and the patient was comfortable upon the admission at the post-anesthesia care unit.

The patient received low molecular weight heparin (40 mg enoxaparin sodium) subcutaneously 10h after the surgery. On the first postoperative day, the patient complained of severe back pain, which was relieved with oral analgesics. After 6h, the patient complained of complete motor paralysis of the lower limbs and decreased sensation from L1. An epidural hematoma was suspected and an MRI scan revealed a linear mass in posterior epidural space from D11-L3, with severe compression of the spinal cord (Fig. 1).

The epidural catheter was then withdrawn and the patient was transferred to the neurosurgical intensive care unit. Laminectomy was performed at the D12-L3 level with complete evacuation of

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Fig. 1 - Sagittal magnetic resonance imaging demonstrating an epidural hematoma at D11 - L3.

the hematoma. Postoperatively, the leg pain disappeared and motor function improved.

She was discharged from the hospital on postoperative day 9 and over the next few weeks complete motor and sensitive functions returned.

## Discussion

Spinal epidural hematoma is a rare complication of epidural anesthesia. Moen et al. (5) found statistically significant differences in the incidence of epidural bleeding when epidural injection was given for obstetric

procedures (one in 200,000) and for knee replacements (one in 3,600). Apparent risk factors for developing spinal hematoma following neuraxial anesthesia are female gender, old age, difficult procedure, history of gastrointestinal bleeding, anticoagulation therapy even if shortly started after the spinal injection (4). The insertion site (thoracic vs. lumbar) and the approach (midline vs. paramedian) of the epidural space are sometimes believed to increase the risk of epidural bleeding. Vandermeulen (9) found 68% of all spinal hematoma following neuraxial anesthesia to be associated with haemostatic abnormality. The incidence of hematoma formation increases with increasing dose of anticoagulation.

Clinical diagnosis is usually straight forward but exact pathology can be determined only with MRI. The prognosis following epidural hematoma is related to the duration of symptoms and neurological status before intervention. In a review by Horlocker (3) the neurological follow up following spinal hematomas showed that only 38% of the patients had a partial or full recovery. The most favourable outcome seemed to occur in patients who underwent laminectomy for epidural hematoma within 8h of diagnosis (6). It is commonly believed that after this time span an increased risk of permanent damage occurs.

In contrast to the general recommendation, in our patient underwent surgery 2 days after the diagnosis of the epidural hematoma, and nevertheless she had a complete neurological recovery, i.e. surgery can also be performed after more than 8h.

Although reports indicated the possibility of spontaneous remission of hematoma and compression on the spinal cord by conservative therapy (7, 2), we emphasize that only emergency decompressive laminectomy is able to provide good outcome.

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