Case Report
Chronic lumbar epidural haematoma presenting with acute paraparesis

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Summary
Chronic spinal epidural haematomas are very rare and have been reported to occur only in the lumbar region. They usually become symptomatic through radicular pain or neurogenic claudication. The epidural bleeding is thought to originate from a rupture of an epidural vein due to a sudden increase in intra-abdominal pressure or due to trauma.

The patient reported on here developed acute paraparesis about 8 weeks after a mild fall on the buttocks. MRI showed a spinal epidural mass located dorsolaterally at the level of L3–L5. The mass was surgically removed. Histological and immunohistological studies disclosed an organised haematoma.

The clinical, radiological and intra-operative features of this case are described, and the relevant literature is analysed.

Keywords: Epidural bleeding; spinal haematoma; cauda compression.

Introduction
Chronic spinal epidural haematomas are very rare and, due to special anatomical conditions, occur only in the lumbar region [4, 17]. Mostly, the initial symptoms are radicular pain or neurogenic claudication. In the present case, however, acute paraparesis took place about 8 weeks following a mild fall on the buttocks. Histological analysis of the surgical specimen, treated as an epidural space consuming process, revealed granulation tissue as evidence of previous bleeding. The present report describes clinical, radiological and intra-operative features of this case and reviews the literature.

Case report
The 80-year-old patient had suffered from low back pain for years. In June 2002 he slipped on the stairs and fell on his buttocks without experiencing persistent back pain. Eight weeks later strong pain developed in the lower lumbar spine and both hips. On the evening preceding admission the patient within a few hours lost the ability to walk due to motor failure in both legs.

The patient was taken to the emergency department on the next day about noon. On admission there was moderate paraparesis. Reflexes were present in both upper extremities but absent in the legs. There were no long tract signs. Bilateral slight hypesthesia was evident caudal to L3. The anal reflex was absent, and sphincter tone was markedly reduced. Residual urine amounted to 300 ml. These findings were indicative of a transverse sensory and motor lesion caudal to L3 (ASIA Score C).

X-rays of the lumbar spine showed degenerative changes. MRI with and without gadolinium-DTPA demonstrated a spinal epidural mass at L3/4, and also at L4/5 (Figs. 1–3), with right dorsolateral compression of the cauda equina. The mass seemed to penetrate the ligamentum flavum and so to be situated above and under the ligament. There was almost no contrast enhancement following application of Gadolinium EDTA. Diagnosis was made about 4 hours following admission.

Emergency right sided L3/4 and L4/5 interlaminar fenestrations were performed immediately. A soft bluish-black mass without fluid parts measuring about 4 centimeters with a consistent capsule was already visible in the region of the paravertebral muscles in close contact with the ligamentum flavum. The lesion was situated partly above the ligament and partly subligamental. A previous rupture of the “flaval” ligament in the area where the lesion penetrated it, could not be excluded, the capsule was in very close contact to it. There was no visible rupture of the ligamentum flavum. When opened, the capsule discharged soft brownish tissue. The cauda equina was markedly compressed at L3/4 and L4/5. Since intra-operative evaluation of frozen sections was not possible to exclude a malignant lesion, the affected dura was also removed. The final histological diagnosis was: “organised haematoma” (Fig. 4). The patient was treated with dexamethasone for one week, starting preoperatively. The initial dose was 3 mg three times a day, which was reduced step by step.

The patient regained his ability to walk unaided, and was transferred to a rehabilitation centre 18 days following admission. At discharge, neither pain nor pareses were detectable. Sphincter function had fully recovered (ASIA Score E). Following rehabilitation treatment, the patient was neurologically normal. Unfortunately, he refused to undergo any postoperative imaging.
Chronic lumbar epidural haematomas (CLEH) comprise a very rare group of spinal haemorrhages. To our knowledge, only 14 cases have been described thus far [2, 3, 5, 8, 11–14, 16, 17, 21]. The mean age of these patients including the present was 68.5 years (41 to 90 years) with a slight male preponderance (60% male, 40% female). They presented with radicular pain or symptoms and signs indicative of a lumbar spinal canal stenosis (Table 1). In contrast, the patient described here developed acute paraparesis.

CLEH resemble chronic intracranial subdural haematomas in their origin and clinical course. Mild trauma often occurs (Table 1), though their share in the aetiology of the haemorrhage often appears doubtful. Lumbar epidural haematomas seem more likely to become chronic because of the width of the vertebral canal and the better pressure tolerance of the cauda equina as compared with the spinal cord in the thoracic or cervical region [4, 13].

The pressure in the epidural veins is lower than in the vena cava [8]. The absence of valves in the epidural plexus and in the vertebral bodies allows blood flow in both cranial and caudal direction. According to Bryun and Bosma [4], the epidural venous plexus can be regarded as a system that balances the pressure/volume ratio in relation to intracranial, intrathoracic and intra-abdominal blood pressure and blood volume changes.

Therefore some authors believe that lumbar epidural bleeding could result from rupture of an epidural vein, caused either by a sudden increase in intra-abdominal pressure impacting on a previously damaged or weakened vein, or by mild trauma [6, 10, 19]. Blood from the vena cava could thus return to veins of the vertebrae and epidural plexus. On the other hand, the development of such haematomas is also attributed to arterial bleeding [1]. The protracted, chronic clinical course in all patients (Table 1) speaks against this hypothesis.

Vascular malformations of the epidural space have been reported to cause acute spinal epidural haematomas [8, 10, 15, 18, 20]. Groen and Poenssen [10] found this in only 13%. So far, there is no report on a chronic lumbar epidural haematoma due to a spinal vascular malformation.

CLEH may also be caused by bleeding from smaller vessels of the ligamentum flavum [13, 22]. This would explain the dorsal or dorsolateral location of these haematomas in nearly all cases (Fig. 3). In this case, the hematoma was located in this way. Furthermore, in

Discussion

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