



## Case Report

# Case report (precis): Atypical delayed presentation of cervical spinal epidural abscess

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## ABSTRACT

**Background:** Older patients with spinal epidural abscesses (SEA) may present in an atypical fashion, failing to exhibit the classical triad of pain, fever, and a neurological deficit. Rather, they may be less aware of pain, fail to develop a fever, and attribute their neurological deficit to “old age.” Further, their laboratory studies may not be abnormal, and critical findings on MR (i.e., more so than CT studies) may be overlooked. Here, we present an elderly patient with severe upper extremity monoparesis whose cervical SEA was overlooked for months.

**Case Description:** Over 10 months, and 6 months ago respectively, the patient had two successive MR scans ordered due to falls; both were interpreted as normal. Within the past few months, a third cervical MR, and an initial CT scan were performed; they both showed “questionable” changes (e.g. cortical irregularity/epidural air) that were largely ignored. When the patient presented to a spine surgeon with severe upper extremity monoparesis, the fourth MR clearly demonstrated a high cervical SEA. Of interest, laboratory findings were normal (e.g. white blood cell count (WBC), erythrocyte sedimentation rate (ESR), and C-reactive protein (CRP)). The patient successfully underwent an anterior cervical discectomy/and fusion (ACDF); cultures grew *Staphylococcus aureus*, and he was appropriately managed with intravenous antibiotic therapy.

**Conclusion:** This case report (precis) highlights three “teaching” points. First, elderly immunologically compromised patients may not develop the classical SEA triad of pain, fever, and a neurological deficit. Second, laboratory studies may remain normal. Third, it may take longer for abnormal findings to develop on MR/CT studies consistent with SEA in immunocompromised older patients, thus resulting in very delayed surgery.

**Keywords:** CT, Delayed diagnosis, Elderly patients, Epidural abscess, Fever, Missed diagnosis, MR scan, Neurological deficit, Normal laboratory studies, Pain, Surgery

## INTRODUCTION

Older patients with spinal epidural abscesses (SEA) may present in an atypical fashion, failing to exhibit the classical triad of pain (92–100%), fever (50%), and neurological deficits (47%).<sup>[1,2]</sup> Rather, they may be unaware of “new” pain, fail to mount a fever, and attribute their deficits to “old age.” Additionally, their immunological compromise may fail to produce abnormal laboratory findings. Further, they may take longer to develop abnormalities on MR (i.e. minimum of 2–4 weeks), and/or CT studies (i.e., minimum of 6–10 weeks).<sup>[1,2]</sup> In this “precis,” an elderly immunocompromised patient presented with several months of falls, and a severe progressive monoparesis. This deficit was finally explained by the large, high cervical retropharyngeal/diskitis/osteomyelitis/epidural abscess shown on the fourth MR scan, at which point the patient underwent an emergent anterior cervical discectomy/fusion.

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## CASE

Ten months ago, an elderly patient sustained a humerus fracture due to a fall; it was treated with a sling for 1 month. At the same time, the first cervical MR was performed; it was read as “normal”. Over 6 months ago, neck pain led to a second cervical MR; again it was interpreted as “normal”. A severe fall just a few months ago led to a third cervical MR, and an initial CT scan; both studies showed “questionable cortical irregularity” involving two contiguous vertebral bodies”. Specifically, the CT soft tissue images demonstrated “...air in the prevertebral and epidural spaces...” vs. artifact. Over the ensuing months, a Barium Swallow study confirmed dysphagia. By the time the patient presented to a spinal surgeon, they had developed a severe upper extremity monoparesis, bilateral Babinski responses, and diffuse unilateral upper extremity loss of pin appreciation. The fourth cervical MR clearly documented a high cervical diskitis/osteomyelitis, and a high cervical epidural abscess all of which contributed to marked cord deformity; there was also significant paraspinal edema. MR findings additionally included; severe intradiscal T2 STIR hyperintensity with endplate erosion, diffuse marrow edema, and moderate T2 hyperintensity involving the anterior epidural space. Interestingly, the laboratory studies were all normal; there were no elevations in the white blood cell count (WBC), erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), or procalcitonin levels. Blood cultures were obtained. However, in view of the patient’s significant neurological deficit, an emergent single-level ACDF was performed. At surgery, the abscess clearly involved the retropharyngeal, intradiscal, and anterior epidural compartments; “pus” was readily “irrigated out.” As the bone was relatively intact, a single-level anterior discectomy/fusion was performed. Notably, intraoperative cultures grew *Staphylococcus aureus*, and the patient was placed on appropriate long-term antibiotic therapy.

## DISCUSSION

This case report (precis) highlights several teaching points. First, elderly patients who are immunologically compromised may fail to present with the classical triad for SEA (e.g. pain, fever, and neurological deficits). Second, laboratory studies, including WBC, ESR, CRP, and procalcitonin levels may remain normal. Third, it may take longer for these older patients to develop the classical abnormal MR/CT findings diagnostic for SEA (e.g. MRs typically require at least 2–4 weeks to document infection, while CT’s usually take 6–10 weeks to become “positive”).<sup>[1,2]</sup> Fourth, these patients may undergo delayed surgery for SEA which carries mortality rates as high as 25-20%.<sup>[1,2]</sup>

### Declaration of patient consent

Patient’s consent not required as patients identity is not disclosed or compromised.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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