**Spinal Epidural Abcess - Staphylococcus aureus spinal epidural abscess in a young brazilian amazon man. Case report.**

Abscesso epidural espinhal por estafilococo aureus em paciente amazônida. Relato de caso.

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**ABSTRACT**

Spinal epidural abscess (SEA) is an extremely rare life-threatening infectious disorder. It accounts for 0.2-2.0/10,000 hospital admissions per year. We report on a young man with a recent history of furunculosis that evolved febrile back pain associated with triaparesia with right upper extremity paresis and crural paraplegia. He referred also symptoms of urinary incontinency. Magnetic resonance imaging (MRI) of the thoracolumbar spine showed an epidural mass compressing two thoracic vertebrae, from T4 to T5. The patient underwent urgent surgical decompression of the epidural abscess and culture of the purulent collection grew Methicillin-sensitive Staphylococcus aureus. Postoperative combined intravenous antibiotic treatment was instituted with metronidazole, oxacilin and gentamicin during 30 days. The patient had an uneventful recovery without any residual neurologic deficits. This report highlights the importance of an early suspicion of SEA in patients with febrile back pain and initial neurologic deficits with known risk factors for epidural abscess. Aggressive treatment with surgical decompression and systemic antibiotics seems to be an appropriate approach to prevent permanent neurologic deficits.

**Keywords:** Spinal epidural abscess; Staphylococcus aureus.

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**RESUMO**

O abscesso espinhal epidural (AEE) corresponde a uma enfermidade infecciosa extremamente rara e potencialmente fatal. Esta moléstia apresenta um freqüência de aproximadamente 0,2-2,0 casos/10.000 admissões hospitalares a cada ano. O presente estudo descreve o caso de um homem jovem, com história recente de furunculose, que apresentou quadro de febre e dor em região dorsal torácica associado à triaparesia (crural e em extremidade superior direita) e paraplegia crural. A imagem de ressonância nuclear magnética da coluna toracolombar mostrou a presença de uma coleção epidural que comprometia dois segmentos vertebrais torácicos (T4 e T5). O paciente foi submetido à descompressão cirúrgica de urgência do AEE e a cultura do material purulento obtido durante a operação revelou o crescimento de colônias de Staphylococcus aureus sensíveis à meticilina. O tratamento antibiótico intravenoso pós-operatório foi instituído com metronidazole, oxacilina e gentamicina durante 30 dias. O paciente apresentou uma evolução satisfatória e nenhum déficit neurológico residual foi identificado. O presente relato ressalta a importância de uma suspeita diagnóstica precoce de AEE nos pacientes com febre e dor torácica espinhal associada a um quadro de déficit neurológico, especialmente quando fatores de risco para abscesso epidural são identificados. O tratamento imediato com descompressão cirúrgica e esquema antibiótico sistêmico parece ser uma abordagem terapêutica apropriada para a prevenção de déficits neurológicos.

**Palavras-chave:** Abscesso espinhal epidural; Staphylococcus aureus.
INTRODUCTION

Spinal epidural abscess (SEA) is an extremely rare life-threatening infectious disorder accounting for 0.2-2.0/10,000 hospital admissions per year9,10. It is defined as a suppurative process localized between the spinal duramater and the vertebral periosteum within the spinal epidural space and occurs primarily in individuals over 30 years of age, with no tendency to any particular decade2, 4, 10, 13. Conditions commonly associated with SEA include immunocompromised states such as diabetes mellitus, alcoholism, cancer, and acquired immunodeficiency syndrome, as well as spinal procedures including epidural anesthesia and spinal surgery2, 4, 6, 11-14. Additionally, skin abscesses, furuncles, and paronychia are also described as SEA’s source of infection13.

The aim of this report is to describe the case of a young man with a recent history of furunculosis that evolved to an epidural abscess of the spinal column successfully treated with surgical decompression and antimicrobial therapy.

CASE REPORT

A 22 years-old brazilian Amazon man, with an unremarkable past medical and surgical history, except for a recent episode of furunculosis, was admitted presenting with a 10-days history of progressive back pain, tenderness and fever associated with lower limbs weakness of the voluntary musculature and sensory deficits on lower limbs and right arm. The patient referred also symptoms of urinary incontinency that started after the beginning of neurologic deficits. On admission, physical examination revealed cutaneous paleness, dehydration and fever. The neurologic assessment of the patient revealed tripaesia with right upper extremity paresis and crural paraplegia. Magnetic resonance image (MRI) of the thoracolumbar spine showed epidural abscess of the spinal column of dorsal aspect from T4 to T5 and surrounding inflammatory process (Fig. 1). As no other structural abnormality was identified, diagnosis of SEA was made and the symptoms were attributed to it.

Based on this diagnosis, the patient underwent surgical decompression of the suppurative inflammatory lesion with drainage of the purulent epidural collection. Culture of the purulent material obtained at the time of surgery yielded methicillin-sensitive Staphylococcus aureus as the causative agent. Postoperative combined intravenous antibiotic treatment was instituted with metronidazole, oxacilin and gentamicin during 30 days. The patient had an uneventful recovery and was discharged home in good clinical conditions. Follow-up was normal and, 2 years after surgery, the patient shows no residual neurologic deficits.

DISCUSSION

Spinal epidural abscess (SEA) is an uncommon infectious neurologic emergency that, since the first description by the Italian anatomist Giovanni Battista Morgagni in 1761 in Venice, has been challenging and amazing many neurosurgeons2, 3, 13. It is characterized by a suppurative process localized between the spinal dura mater and the vertebral periosteum within the spinal epidural space and accounts for 0.2-2.0/10,000 admissions per year in general hospitals9,11, 13. SEA is diagnosed by its clinical and radiological aspects and, whether early identified, permanent neurologic deficits can be prevented. However, the initial accurate diagnosis is made only in 26% of patients, reason why high morbidity and mortality rates are usually found, despite adequate treatment of SEA13, 16.

Most patients with SEA have one or more predisposing conditions, such as an underlying disease (diabetes mellitus, liver dise-
ase, alcohol abuse, or cancer), a spinal abnormality or intervention (degenerative joint disease, trauma, surgery, drug injection, or placement of stimulators or catheters), or a potential local or systemic source of infection (skin and soft-tissue infections, osteomyelitis, urinary tract infection, sepsis)\(^5\), \(^6\), \(^9\), \(^11\), \(^13\), \(^16\). Although, in Brazil, a previous infection is the main predisposing factor for SEA (58.3%), furunculosis is identified as the probable origin of infection in only 8.3% of patients \(^1\). Methicillin-sensitive Staphylococcus aureus (MSSA) has been the most frequently causative organism for SEA.\(^3\), \(^16\). In the present report, the patient referred a recent history of furunculosis and culture of the purulent material obtained at the time of surgery yielded MSSA as the causative agent.

The typical features of SEA are recognizable clinical and radiologically. The two most frequent clinical manifestations are fever and back pain, however less common signs and symptoms can be verified, such as muscle weakness, bowel/bladder incontinence, sensory deficits, paraparesis/paraplegia or tetraparesis/tetraplegia\(^3\), \(^4\), \(^6\), \(^9\), \(^11\)-\(^14\), \(^16\). Heusner (1948)\(^7\) described various stages of SEA using clinical findings to assess the severity of the disease. Following the initial state of back pain, fever and tenderness in the area of the spinal column, the second stage is dominated by signs of spinal irritation, such as Lasègue’s, Kernig’s, and Lhermitte’s signs, Brudzinski’s reflex, and neck stiffness \(^3\), \(^8\). In Heusner’s third stage, initial neurologic deficits are verified such as weakness of voluntary muscles, sensory deficits or fecal or urinary incontinency. In the fourth stage, muscle weakness progresses to paralysis. In our case, the patient was staged in Heusner’s third stage since fever and back pain were associated with initial neurologic deficits, but not paralysis.

MRI has been described as the mainstay method for SEA diagnosis\(^3\), \(^4\), \(^6\), \(^9\), \(^11\), \(^12\), \(^14\), \(^17\). It typically demonstrates heterogeneous- ly enhancing epidural collections. The epidural mass may be isointense/hypointense on T1-weighted images and hyperintense on T2-weighted images, which is reinforced by contrast media injection\(^3\), \(^4\), \(^6\), \(^9\), \(^11\), \(^14\). According to Reithaus et al (2000)\(^13\), in a meta-analysis with 915 patients, the thoracic spine was the most common localization of SEA. In the present case, MRI showed an epidural mass compressing two thoracic vertebrae, from T4 to T5.

Therapeutic approach of SEA consists of solely conservative treatment, combined surgical and conservative treatment, laminectomy/hemilaminectomy, anterior decompression, percutaneous abscess drainage, laminotomy or spondylodesis\(^13\), \(^15\). However, urgent surgical decompression with systemic antibiotics has been the treatment of choice for SEA\(^3\), \(^3\). Drainage of the epidural abscess allows immediate decompression of neural elements and also access to a sample for ‘bacteriological culture’. In the present case, a combined approach of urgent surgical decompression and intravenous antibiotics to treat the epidural abscess was performed and the patient evolved without permanent neurologic deficits.

In conclusion, this report highlights the importance of heightened clinical awareness in patients presenting febrile back pain and initial neurologic deficits with known risk factor for SEA to timely diagnosis. Aggressive treatment with surgical decompression and systemic antibiotics seems to be an appropriate approach to prevent permanent neurologic deficits.

Note: The authors have read and approved the entire manuscript and also assume the responsibility for its contents. On the other hand, we declare that the manuscript has not been submitted to other journal and there is no potential conflict of interest. We also transfer all rights to this journal.

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