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Epidural abscess caused by *Mycobacterium abscessus*

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Summary

Background:

Mycobacterium abscessus is a member of the Rapidly Growing Mycobacterium (RGM). The incidence of *Mycobacterium abscessus* infections has steadily been increasing over the last decade. We report the case of an epidural abscess caused by *Mycobacterium abscessus*. RGM's have infrequently been reported as spinal infections and we found no prior cases reporting *M. abscessus* as the definitive etiologic agent of an epidural abscess.

Case Report:

A 50 year old female presented with significant back pain and was found to have an epidural abscess by magnetic resonance imaging. The abscess was drained via needle. Initial cultures were negative for bacterial pathogens, and the patient was discharged to a skilled nursing facility for empiric antibiotic treatment. Eventually the culture grew *Mycobacterium abscessus*. The patient had unfortunately left the nursing facility and was lost to follow up.

Conclusions:

Mycobacterium abscessus is an increasingly recognized pathogen with particular risk factors that physicians should be aware of. Central nervous system infections are rare, but do occur. Treatment is difficult, though multiple antibiotic regimens have been reported successful. Surgical debridement is often needed.

key words:

Mycobacterium abscessus • epidural abscess • osteomyelitis

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BACKGROUND

Mycobacterium abscessus is a member of the Rapidly Growing Mycobacterium (RGM). The incidence of *Mycobacterium abscessus* infections has steadily been increasing over the last decade. We report the case of an epidural abscess caused by *Mycobacterium abscessus*. RGM's have infrequently been reported as spinal infections and we found no prior cases reporting *M. abscessus* as the definitive etiologic agent of an epidural abscess.

CASE REPORT

A 50 year-old female presented to the emergency room with back pain and left leg numbness of four days duration. The patient did not identify any contributing factors but did recall being thrown to the ground during an assault several weeks earlier. No fecal or urinary incontinence, lower extremity weakness or saddle anesthesia was reported. Her past medical history was significant for a lumbar laminectomy several years prior. The patient denied tobacco, alcohol or illicit drug use.

On examination her pulse was 65 beats/minute, respiratory rate 24 breaths/minute, temperature 98.2°F, blood pressure 124/77 mmHg and oxygen saturation of 98% on room air. In general she appeared in mild discomfort. Neurological exam revealed decreased sensation to light touch over the left anterior tibia. The remainder of the physical and neurological exam was unremarkable. Initial laboratory analysis showed a leukocyte count of 11,500 (per mm³) and platelet count of 558,000 (per m³); the hemoglobin, electrolytes and renal function were all within normal limits. Erythrocyte sedimentation rate was 85 mm/Hr and the c-reactive protein was 1.5 nMol/L.

A magnetic resonance imaging study of the lumbar spine revealed enhancing paravertebral soft tissue at L4-L5 concerning for underlying infection (Figure 1). The imaging also revealed a probable epidural abscess with significant canal narrowing to 5.5 mm. A computed tomography guided biopsy revealed reactive fibrosis, neovascularization and degenerative changes with acute and chronic inflammatory cells. The patient was begun on intravenous vancomycin and cefepime for the empiric treatment of vertebral osteomyelitis and an accompanying epidural abscess. A neurosurgical consultation was obtained and deemed there was no need for surgical intervention at that time. Cultures from the biopsy were initially negative and the patient was discharged to a skilled nursing facility to complete a six week course of the aforementioned antibiotics. The day following discharge cultures revealed acid fast bacilli, and several days later a specific identification of *Mycobacterium abscessus* was made. The patient was referred to the county health department tuberculosis clinic but was unfortunately lost to follow up.

DISCUSSION

Mycobacterium abscessus belongs to the family of rapidly growing mycobacterium (RGM). Formerly a subspecies of *Mycobacterium chelonae* [1], the intracellular pathogen *M. abscessus* is most typically associated with infections of skin, soft tissue and lungs in both healthy individuals and those with underlying medical conditions [2–4]. Most pulmonary

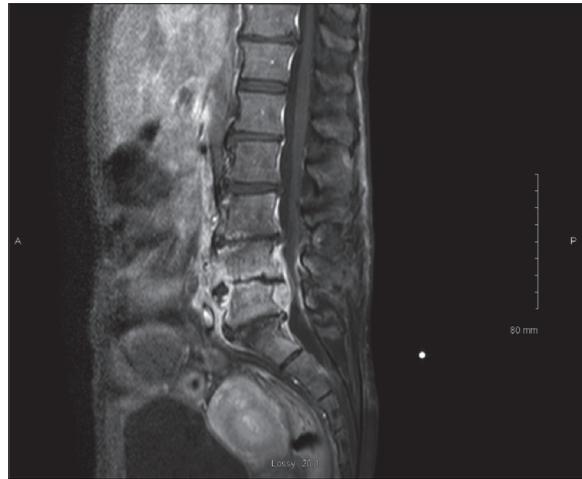


Figure 1. Centered at the L4-5 level is enhancing soft tissue in the ventral epidural space and paraspinal region. There is loss of disc space height and enhancement of the vertebral body endplates. There is mass effect on the thecal sac. These findings are consistent with discitis, osteomyelitis, epidural abscess, and paraspinal abscess.

infections have been reported from the Southeastern United States and other coastal regions with the presumed sources being soil and water [5]. When *M. abscessus* afflicts immunocompromised individuals it often presents as a disseminated infection with accompanying fever and rash [3].

Since the recognition of *M. abscessus* as its own species, there has only been sporadic reporting of central nervous system infections [6,7]. A review of the literature for central nervous system infections caused by *M. abscessus* revealed several reports of vertebral osteomyelitis and infection of a CSF shunt [4,8,9]. A definitive case of *M. abscessus* epidural abscess was not identified. There have been multiple cases of *M. chelonae* epidural abscess and the possibility does exist that cases reported prior to 1992 were actually *M. abscessus* [10,11].

Our patient had no apparent portal of entry at the time of presentation and was not known to be immunocompromised. There is a well-established link between intravenous drug abuse and spinal epidural abscess. Prior cases of *M. chelonae* spinal infections have implicated intravenous injections and drug use as a possible source [11,12]. Although our patient denied the use of illicit drugs, her behavior pattern during the hospitalization raised this possibility.

Treatment of patients with *M. abscessus* has historically been difficult. Clarithromycin has been the mainstay of treatment both as monotherapy and in multidrug regimens, though multiple other drugs have been used with reported success. Often times, surgical debridement is necessary, with or without the combination of antimicrobial therapy, in order to obtain complete eradication.

CONCLUSIONS

Mycobacterium abscessus is an increasingly recognized pathogen with particular risk factors that physicians should be aware of. Central nervous system infections are rare, but do

occur. In patients with CNS infection and no clear source of entry intravenous drug use should be considered. Treatment is difficult, though multiple antibiotic regimens have been reported successful. Surgical debridement is also often needed. Failure to quickly and correctly identify such cases may lead to prolonged course of infection and increased difficulty of treatment for the patient.

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