

Case Report

Spinal epidural abscess in a patient with piriformis pyomyositis

Gerald S. Oh, Hussam Abou-Al-Shaar, Gregory D. Arnone, Ashley L. Barks, Ziad A. Hage, Sergey Neckrysh

Department of Neurosurgery, University of Illinois at Chicago, Chicago, Illinois, USA

E-mail: Gerald S. Oh - geraldoh@gmail.com; Hussam Abou-Al-Shaar - aboualshaar.hussam@gmail.com; Gregory D. Arnone - gdarnone@gmail.com; Ashley L. Barks - abarks@uic.edu; Ziad A. Hage - zhage@uic.edu; *Sergey Neckrysh - neckrysh@uic.edu

*Corresponding author

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Abstract**Background:** Spinal epidural abscess resulting from piriformis pyomyositis is extremely rare. Such condition can result in serious morbidity and mortality if not addressed in a timely manner.**Case Description:** The authors describe the case of a 19-year-old male presenting with a 2-week history of fever, low back pain, and nuchal rigidity. When found to have radiographic evidence of a right piriformis pyomyositis, he was transferred to our institution for further evaluation. Because he demonstrated rapid deterioration, cervical, thoracic, and lumbar magnetic resonance imaging scans were emergently performed. They revealed an extensive posterior spinal epidural abscess causing symptomatic spinal cord compression extending from C2 to the sacrum. He underwent emergent decompression and abscess evacuation through a dorsal midline approach. Postoperatively, he markedly improved. Upon discharge, the patient regained 5/5 strength in both upper and lower extremities. Cultures from the epidural abscess grew methicillin-sensitive *Staphylococcus aureus* warranting a 6-week course of intravenous nafcillin.**Conclusion:** A 19-year-old male presented with a holospinal epidural abscess (C2 to sacrum) originating from piriformis pyomyositis. The multilevel cord abscess was emergently decompressed, leading to a marked restoration of neurological function.**Key Words:** Piriformis pyomyositis, spinal epidural abscess, surgical decompression**Access this article online****Website:**www.surgicalneurologyint.com**DOI:**

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Quick Response Code:**INTRODUCTION**

Extensive spinal epidural abscess (SEA) may occur due to direct extension into the epidural space through hematogenous spread, prior spinal procedures, or other etiologies.^[13] SEAs occur in 0.2 to 2 patients per 10000 hospital admissions, and have increased in frequency over the last few years.^[11] Factors contributing to SEA include an immunocompromised state, intravenous drug abuse, endocarditis, and previous spine procedure.^[11] Although patients usually present with back pain, fever, and progressive neurological deficits,

some may be asymptomatic.^[6] Notably, SEA can result in acute/severe neurological deterioration/paralysis if not detected early and promptly treated. This is particularly

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true for cervical SEAs that may present with and result in more devastating and irreversible deficits.^[6] Magnetic resonance imaging (MRI) is useful for diagnosing SEA and evaluating the extent of involvement of the neuraxis. Here, we describe an extensive SEA originating from piriformis pyomyositis, and review the appropriate literature.

CASE REPORT

A healthy 19-year-old male with a 2-week history of low back pain, nuchal rigidity, fever, and chills presented to an outside facility. Diagnostic studies revealed a peripheral white blood cell count of 30000, and on computed tomography (CT) of the abdomen/pelvis, an abnormal heterogeneous fluid collection involving the right piriformis muscle was detected [Figure 1]. Upon arrival to our neurosurgical intensive care unit (ICU), the patient had grade 5/5 strength in all muscle groups, normal sensation throughout, and no signs of myelopathy. MR studies of the cervical, thoracic, and lumbar spine documented a posterior SEA extending from C2 to the sacrum with significant posterior compression of the cord [Figure 2]. Notably, the patient's motor strength worsened rapidly to 2/5 in all extremities and then to just 1/5 in the upper and 0/5 strength in the lower extremities, warranting emergency surgery [Figure 2].

Multiple skip-laminectomies without instrumentation were performed at the C3-7, T11, and L2-4 levels. Cultures were obtained and purulent SEA was washed out at every level and between levels utilizing red rubber catheter that was passed rostrally and caudally in the epidural space; two drains were left in place.

Immediately postoperatively, upper extremity function returned to 4+/5 strength and lower extremity strength to 4/5. Blood cultures and operative wound cultures grew methicillin-sensitive *Staphylococcus aureus* (MSSA), and he

was placed on a long-term nafcillin treatment for a period of 6 weeks. The patient's piriformis abscess did not require drainage and was managed solely with antibiotics. Notably, by postoperative day 10, the patient was neurologically intact with full motor strength in all muscle groups.

DISCUSSION

Location and etiology of spinal epidural abscess

The case uniquely presents a C2-sacrum SEA that originated from a spontaneous piriformis abscess. Piriformis pyomyositis due to *Staphylococcus*, *Streptococcus*, and *Brucella* spp. occurs particularly in patients with Crohn's disease (i.e., fistula formation) but may also occur spontaneously. In addition, previous case reports have described an association between piriformis pyomyositis and sciatic nerve irritation.^[1-3,5,7] In this case, however, the SEA resulted from direct extension of an abscess from the piriformis muscle into the spinal canal via a sacral foramen abscess [Figure 3].^[12]

Treatment options

Although treatment options for SEA can include medical management alone with appropriate antibiotic therapy, those presenting with acute neurological compromise and extensive SEA should undergo early decompression/surgery with/without stabilization.^[11,8] Surgical techniques for SEA include laminectomy (multilevel vs. limited skip decompressions) alone, or laminectomy with immediate or delayed stabilization.^[13,8,4,9,10] In very extensive SEA, skip laminectomies are performed to preserve intervening laminae and mitigate the need for stabilization; catheter irrigation then facilitates SEA evacuation between levels (e.g., silicon catheter of ventriculoperitoneal shunting, pediatric nasogastric, and pediatric urinary catheters).^[13,8,9] This 19-year-old patient whose original motor grade was 1/5 in the upper and 0/5 in the lower extremities successfully underwent C3-7, T11, and L2-4 laminectomy with intervening SEA catheter debridement. Fortunately, the patient was neurologically intact within 10 postoperative

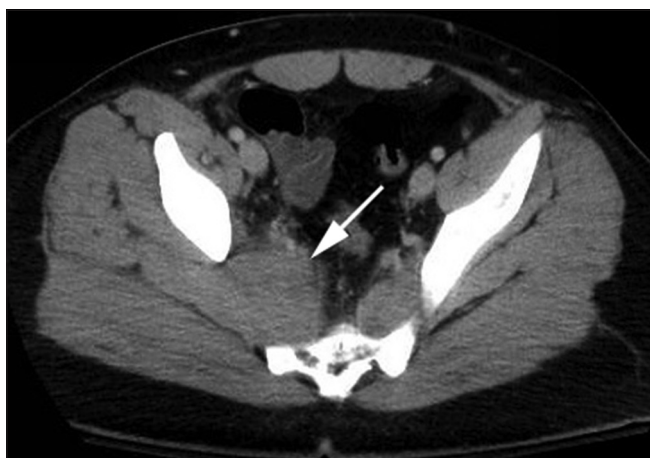


Figure 1: Computed tomography abdomen/pelvis with intravenous contrast showing a 5.2 × 4.2 cm amorphous, heterogeneously isodense lesion involving the right piriformis muscle at the level of the right greater sciatic foramen (arrow)

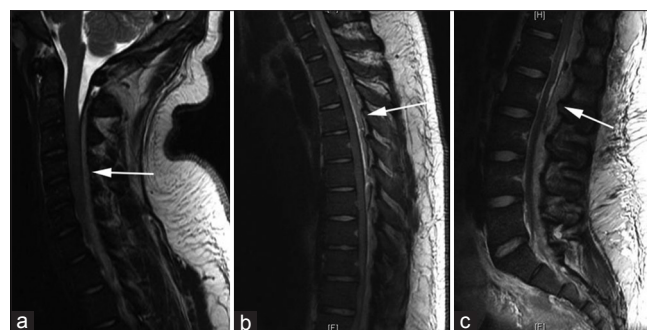


Figure 2: Sagittal T2-weighted magnetic resonance imaging (MRI) scan depicting spinal epidural abscess compressing the cervical cord posteriorly with blockage of cerebrospinal fluid flow (a). Sagittal T2-weighted MRI scan demonstrating spinal epidural abscess extending down the thoracic (b), and lumbar (c) vertebrae compressing the cord posteriorly

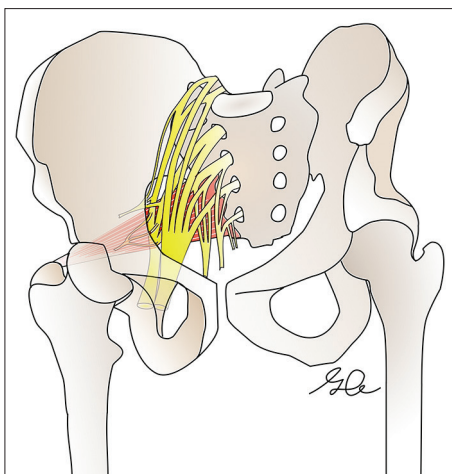


Figure 3: Drawing showing the relationship of the piriformis muscle to the sacral nerve roots and sacral foramina. The piriformis pyomyositis gained access to the epidural space through the sacral foramina, causing a panspinal epidural abscess

days and his MSSA was appropriately managed with long-term nafcillin treatment for a period of 6 weeks.

CONCLUSION

Extensive SEA due to a piriformis muscle abscess is rare. Prompt surgical decompression for SEA is often indicated to avoid irreversible neurological deficits. In this case, the C2-sacrum SEA was successfully evacuated utilizing multiple skip laminectomies accompanied by posterior epidural catheter irrigation between levels with significant neurologic improvement noted postoperatively.

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Conflicts of interest

There are no conflicts of interest.

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