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Infection

Postoperative discitis due to *Propionibacterium acnes*: a case report and review of the literature

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Abstract

Background: No previous report has described a progressive, destructive postoperative discitis requiring operative stabilization due to *Propionibacterium acnes*. The clinical and radiographic features and treatment options associated with discitis due to *P acnes* are presented in a retrospective case study, as well as a review of the current literature.

Case Description: Seven weeks after a routine lumbar discectomy, the patient presented with clinical findings and radiographic imaging consistent with discitis. Intraoperative cultures obtained from irrigation and debridement of the disc space revealed *P acnes*, and appropriate intravenous antibiotic treatment was instituted. Approximately 2 months later, the patient showed progression to a destructive osteomyelitis requiring operative stabilization. Nine weeks after stabilization, the patient continued to have lower back pain without radiculopathy. Laboratory values had normalized. Radiographic imaging revealed good instrumentation positioning and adequate fusion. The patient was ambulatory with bilateral articulating ankle foot orthoses and a walker.

Conclusion: The reported case adds to the literature on postoperative discitis due to *P acnes* and demonstrates that this organism can occasionally be the cause of progressive, destructive osteomyelitis. In addition, we review the incidence, risk factors, and clinical course of discitis due to *P acnes*.

Keywords: Discitis; *Propionibacterium acnes*

1. Introduction

Postoperative discitis is a rare but potentially devastating complication of lumbar discectomy. The incidence of postoperative discitis is reported between 0% and 3.0% [10] and between 0.7% and 0.8% with antibiotic prophylaxis [8]. Possible etiologies include hematogenous spread and direct inoculation [13]. Most cases are due to more virulent organisms such as *Staphylococcus aureus* and *Streptococcus milleri* [12]. *Propionibacterium acnes*, a common skin anaerobe, is an exceedingly rare cause of postoperative discitis, with only a few cases reported in the literature. We report a case of postoperative discitis due to *P acnes* in a patient with severe psoriasis.

2. Case report

A 64-year-old male with a history of psoriasis presented with clinical signs and symptoms and imaging studies consistent with a herniated nucleus pulposis at the L5-S1 disc space. His past medical history was also notable for aortic stenosis (status post aortic valve replacement), type II diabetes mellitus, and coronary artery disease. He underwent a routine discectomy. (See Fig. 1 for preoperative magnetic resonance imaging [MRI]), which was complicated by an intraoperative dural tear and a postoperative ileus. Of note, there was a

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Fig. 1. Preoperative MRI showing L5-S1 herniated disc.

psoriasis patch over the incision. His postoperative course was otherwise uncomplicated and he was discharged home after 4 days.

Approximately 7 weeks after discectomy, the patient returned to care with gradual onset of midline lumbosacral pain that was significantly worse when supine. There was minimal radiation of pain to the lower extremities. He denied fever, chills, lower extremity parasthesias, weakness, and incontinence. Neurologic examination revealed full strength in the bilateral lower extremities, intact sensation to light touch, intact reflexes, and a negative Babinski sign. There was a large psoriatic patch over the lumbosacral area including the previous surgical site, but no purulence or overt signs of infection. A gadolinium-enhanced MRI revealed a contrast enhancing epidural mass, as well as enhancement within the disc space and complete collapse of the L5-S1 disc space (see Fig. 2). Laboratory data were as follows: white blood cell count of $8.4 \times 10^3/\mu L$, erythrocyte sedimentation rate (ESR) of 86 mm/h, and C-reactive protein (CRP) of 15.0 mg/dL. Blood cultures were negative. He had no clinical findings to suggest endocarditis, and a transthoracic echocardiogram was negative for vegetations. He was taken back to the operating room for an irrigation and debridement of the disc space, where intraoperative cultures grew *P acnes*. On discharge, the ESR was 85 mm/h and the CRP was 6.0 mg/dL. He was placed on an 8-week course of penicillin-G (20 million units continuous intravenous infusion over 24 hours) based on organism sensitivity.

Over the next 2 months the patient had continued low back pain with progressive neurologic symptoms. Approximately 3 weeks postoperatively, he presented with persistent back pain and bilateral leg pain distal to the knees. In addition, he reported a history of falls secondary to weakness of his left foot. Neurologic examination was nonfocal with the exception of mild weakness of left dorsiflexion and left extensor hallucis longus and mild decreased sensation to light touch in the left L5-S1 dermatome. Laboratory values at this time revealed a WBC of $5.6 \times 10^3/\mu L$, ESR of 60 mm/h, and CRP of 3.1 mg/dL. A repeat MRI showed improvement in the epidural abscess. Approximately 1 month later, he presented with progressive lower extremity weakness requiring the use of a walker. He demonstrated a 30-lb weight loss, progression of his left foot drop as well as the development of a new right foot drop, and decreased proprioception sense in both feet. At this point laboratory data were as follows: WBC of $6.1 \times 10^3/\mu L$, ESR of 29 mm/h, and CRP of <0.6 mg/dL. MRI revealed bony erosion consistent with significant osteomyelitis (see Fig. 3). Because of this progressive, destructive osteomyelitis causing neurologic dysfunction, the patient underwent an anterior lumbar interbody fusion at L5-S1 and

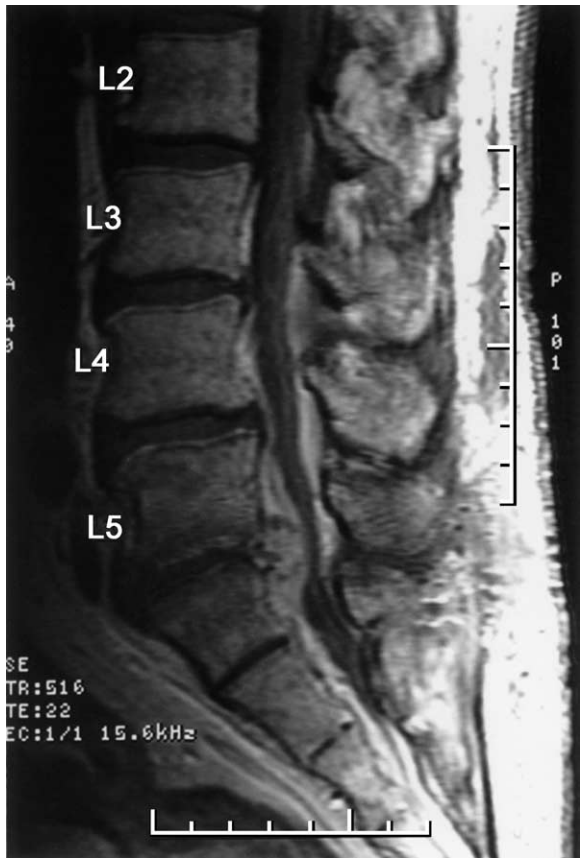

Fig. 2. Sagittal lumbar spine gadolinium-enhanced MRI showing postoperative discitis and complete collapse of the L5-S1 disc space.