to the selection effect of prolonged ofloxacin therapy. During temporary interruption of aerosol therapy in case 1, *P. aeruginosa* pneumonia was documented, but no relapse occurred in either patient during aerosol therapy. In contrast with a study of patients in an intensive care unit [7], aerosolized colistin did not have a selection effect on multiresistant *P. aeruginosa* or other gram-negative species. Importantly, efficient prophylaxis was associated in the long term with improvement of quality of life and weight gain.

The good tolerability and durable efficacy of aerosolized colistin for preventing relapses of respiratory infection due to *Pseudomonas* in patients with AIDS should be confirmed by a controlled trial.

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**Intervertebral Diskitis Caused by Propionibacterium acnes: A Report of Four Cases**

*Propionibacterium acnes* is the most common anaerobe found on the skin [1]. It rarely causes clinical infection because of its low pathogenicity. Bone and joint infections due to *P. acnes* are relatively uncommon, even following traumatic injury. A few cases of septic arthritis and osteomyelitis and one case of intervertebral diskitis caused by *P. acnes* have been previously reported [2–5]. We describe four patients with well-documented infections of the intervertebral disks, which were due to *P. acnes*. All of these patients were seen in our practice within the past 6 years. The salient features of the four cases are summarized in table 1. The following is the detailed case history of one patient (patient 4).

A 46-year-old male developed lower back pain secondary to disk protrusion of the L5–S1 disk space with resultant nerve compression. The patient underwent L5–S1 diskectomy uneventfully and was treated perioperatively with two doses of vancomycin and gentamicin. Three weeks after surgery, the lower back pain recurred in association with intermittent low-grade chills and night sweats without fevers.

The erythrocyte sedimentation rate (ESR; Westergren Method) was elevated at 50 mm/h. An MRI with gadolinium contrast revealed minimal inflammatory changes in the L5–S1 disk space that were compatible with postoperative changes. CT-guided aspiration of the disk space yielded slightly bloody material that on gram staining showed numerous WBCs and gram-positive bacilli. Anaerobic culture of the material yielded *P. acnes*, which was susceptible to vancomycin, penicillin, tetracycline, and clindamycin.

The patient was treated with high-dose penicillin (3 million units iv piggyback every 6 hours). The back pain gradually resolved after a 2 to 3-week course of treatment. The ESR returned to a normal level after a total of 6 weeks of treatment with penicillin.

Infection of the intervertebral disk is uncommon. Most of the reported cases of diskitis are caused by more-virulent organisms such as *Staphylococcus aureus* and *Streptococcus milleri* [6, 7], as the result of either hematogenous seeding or local inoculation at the time of disk manipulation. Infection due to less-virulent organisms such as *P. acnes* is less likely to result from hematogenous spread. All four of our patients had undergone prior invasive manipulation of the involved areas. Our patients were not significantly febrile, and one patient had a normal ESR on admission to the hospital. Furthermore, the long incubation periods in these postoperative cases vs. those in the cases caused by *S. aureus* are consistent with the low virulence of *P. acnes*.

It is of interest that a benign procedure such as lumbar spinal anesthesia, which patient 2 underwent, can be a significant risk factor for infection; this finding confirms one prior observation of post–spinal anesthesia diskitis caused by *P. acnes* [5]. It is also important to note that MRI of the involved disk could not clearly differentiate postoperative changes from an established infection of the disk space. The diagnosis could be made only after the organism was isolated and the patient responded to appropriate antibiotic therapy. All of the patients were successfully treated with a 5 to 6-week course of intravenous penicillin and/or clindamycin; none of the patients relapsed or required surgical drainage or debridement.

*P. acnes* can cause significant diskitis when it is inoculated into the intervertebral disk space. Tissue trauma with a concomitant change in oxidation and reduction potential and the presence of sequestered residual blood can promote further growth of these anaerobic bacteria, even when prophylactic antibiotics such as cefazolin or vancomycin (both of which have activity against *P. acnes*) were administered perioperatively to three of the four patients but did not prevent infection.

Furthermore, iodophor, which was used as a preoperative skin disinfectant for three of the four patients, has good antibacterial activity but is often quickly inactivated by body fluid. Since *P. acnes* is a resident bacteria found in high concentrations around hair follicles, it is not surprising that inadequate surgical scrub

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**References**


may increase the chance for postoperative infection. Isolation of this organism in pure culture and in significant quantity from patients with a history compatible with an indolent postoperative infection for inclusion in their review [1]. We report the second case in which *M. gordonae* was isolated from the blood of an HIV-infected patient, and we review seven other cases of *M. gordonae* infection in HIV-infected patients [2-6]. Clarithromycin, an agent shown to be effective against most atypical mycobacteria, must be considered for the treatment of *M. gordonae* infections.

### Table 1. Characteristics of patients with *P. acnes* diskitis.

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age (y)</th>
<th>Sex</th>
<th>Prior surgery or trauma</th>
<th>Onset of symptoms after surgery or injury</th>
<th>Perioperative antibiotic(s)</th>
<th>Fever</th>
<th>Duration of pain</th>
<th>Location of diskitis</th>
<th>Inflammation on CT or MRI</th>
<th>WBC count (mm3)</th>
<th>ESR (mm/h)</th>
<th>Antibiotic therapy (route)</th>
<th>Duration of therapy (w)</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>33/M</td>
<td></td>
<td>Diskectomy</td>
<td>3 w</td>
<td>Cflz</td>
<td>No</td>
<td>2 w</td>
<td>S1</td>
<td>Moderate</td>
<td>8,200</td>
<td>37</td>
<td>Pen (iv)</td>
<td>6</td>
<td>Cured</td>
</tr>
<tr>
<td>2</td>
<td>65/M</td>
<td></td>
<td>TURP, spinal anesthesia</td>
<td>1 mo</td>
<td>Gm</td>
<td>No</td>
<td>2-3 mo</td>
<td>1-1.3</td>
<td>Minimal</td>
<td>4,800</td>
<td>7</td>
<td>Pen (iv)</td>
<td>4</td>
<td>Cured</td>
</tr>
<tr>
<td>3</td>
<td>24/F</td>
<td></td>
<td>Diskectomy</td>
<td>2 mo</td>
<td>Cflz</td>
<td>Low-grade</td>
<td>1/2 w</td>
<td>S1</td>
<td>Minimal</td>
<td>5,700</td>
<td>28</td>
<td>Pen (iv)</td>
<td>2</td>
<td>Cured</td>
</tr>
<tr>
<td>4</td>
<td>46/M</td>
<td></td>
<td>Diskectomy</td>
<td>3 w</td>
<td>Vm, Gm</td>
<td>Low-grade</td>
<td>3 w</td>
<td>S1</td>
<td>Moderate</td>
<td>8,400</td>
<td>50</td>
<td>Pen (iv)</td>
<td>6</td>
<td>Cured</td>
</tr>
</tbody>
</table>

**NOTE.** Cflz = cefazolin; Gm = clindamycin; ESR = erythrocyte sedimentation rate; Gm = gentamicin; Pen = penicillin; TURP = transurethral prostatectomy; Vm = vancomycin.

### Disseminated *Mycobacterium gordonae* Infection in a Patient Infected with Human Immunodeficiency Virus

Infections due to *Mycobacterium gordonae* are rare. Strict criteria must be met for the identification of *M. gordonae*, and its identification must be confirmed by a reference laboratory. In 1992, Weinberger et al. [1] could compile only 24 proven cases of *M. gordonae* infection for inclusion in their review [1]. We report the second case in which *M. gordonae* was isolated from the blood of an HIV-infected patient, and we review seven other cases of *M. gordonae* infection in HIV-infected patients [2-6]. Clarithromycin, an agent shown to be effective against most atypical mycobacteria, must be considered for the treatment of *M. gordonae* infections.

A 30-year-old woman was found to be seropositive for antibodies to HIV in January 1993. Five months later, she developed fever, fatigue, night sweats, chills, and an aegletic syndrome consisting of headache and disseminated bone pain. She had been treated for cerebral toxoplasmosis with pyrimethamine and intravenous clindamycin 6 weeks before presentation.

On admission to the hospital, the patient's drugs included pyrimethamine, oral clindamycin, a monthly dose of aerosolized pentamidine, oral fluconazole, and didanosine. Physical examination revealed abdominal pain in the left hypochondrium. Findings on auscultation were normal, as were other clinical findings. A chest roentgenogram, an ultrasonogram of the abdomen, and CT scans of the abdomen and pelvic bones were normal, as were other clinical findings. A chest roentgenogram, an ultrasonogram of the abdomen, and CT scans of the abdomen and pelvic bones were normal, as were other clinical findings. A chest roentgenogram, an ultrasonogram of the abdomen, and CT scans of the abdomen and pelvic bones were normal, as were other clinical findings. A chest roentgenogram, an ultrasonogram of the abdomen, and CT scans of the abdomen and pelvic bones were normal, as were other clinical findings. A chest roentgenogram, an ultrasonogram of the abdomen, and CT scans of the abdomen and pelvic bones were normal, as were other clinical findings. A chest roentgenogram, an ultrasonogram of the abdomen, and CT scans of the abdomen and pelvic bones were normal, as were other clinical findings. A chest roentgenogram, an ultrasonogram of the abdomen, and CT scans of the abdomen and pelvic bones were normal, as were other clinical findings. A chest roentgenogram, an ultrasonogram of the abdomen, and CT scans of the abdomen and pelvic bones were normal, as were other clinical findings. A chest roentgenogram, an ultrasonogram of the abdomen, and CT scans of the abdomen and pelvic bones were normal, as were other clinical findings. A chest roentgenogram, an ultrasonogram of the abdomen, and CT scans of the abdomen and pelvic bones were normal, as were other clinical findings. A chest roentgenogram, an ultrasonogram of the abdomen, and CT scans of the abdomen and pelvic bones were normal, as were other clinical findings. A chest roentgenogram, an ultrasonogram of the abdomen, and CT scans of the abdomen and pelvic bones were normal, as were other clinical findings. A chest roentgenogram, an ultrasonogram of the abdomen, and CT scans of the abdomen and pelvic bones were normal, as were other clinical findings.

Laboratory studies revealed the following values: leukocyte count, 1,900/mm3 with 64% neutrophils, 19% lymphocytes, and 11% monocytes; CD4 cell count, 6/mm3; hemoglobin level, 9.6 g/dL; platelet count, 143,000/mm3; erythrocyte sedimentation rate, 17 mm/h; C-reactive protein level, 7 mg/L; alanine aminotransferase level, 84 U/L (normal level, <40 U/L); aspartate aminotransferase level, 66 U/L (normal level, <55 U/L); alkaline phosphatase level, 180 U/L (normal level, <125 U/L). Levels of γ-glutamyltransferase, amylase, lipase, and creatinine were normal, as were the results of coagulation studies.

A blood culture performed on BACTEC 13A medium (Becton Dickinson, Sparks, MD) after disinfection of the skin with povidone-iodine yielded 4,000/mm3 with 64% neutrophils, 19% lymphocytes, and 11% monocytes. Levels of γ-glutamyltransferase, amylase, lipase, and creatinine were normal, as were the results of coagulation studies.