Title: Paraparesis and Bilateral Pulmonary Abscesses Secondary to Pyogenic Spondylodiscitis Caused by Streptococcus Anginosus Group Bacteria

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A 60-year old healthy woman but with a congenital hearing loss was referred to our clinic for an examination of prolonged low backache, difficulty in walking, and dysuria. She had been experiencing low backache for a month and was unable to walk or urinate for 3 days prior to visiting our clinic. Neurological examination of the patient revealed hyperesthesia in the bilateral lower extremities, severe motor weakness (a grade of 2/5) of the iliopsoas and quadriceps femoris muscles, and a reduction of the anal sphincter tone. Consequently, she was hospitalized urgently for a close examination.

Laboratory data revealed a white blood cell count of 31,600/μl, a raised C-reactive protein of 26 mg/dl, and a low serum albumin of 1.9 g/dl, but she was afebrile. Chest radiograph revealed bilateral pleural effusion. In addition, contrast-enhanced computed tomography (Fig. 1) and magnetic resonance imaging (MRI) (Fig. 2) were performed, and finally, she was diagnosed with pulmonary abscess and epidural abscess secondary to spondylodiscitis in the thoracic spine.
Immediately after admission, a chest tube was inserted into the right chest, and an empirical antibiotic (meropenem hydrate 500 mg, IV four times daily) was administered. However, her dyspnea developed on the day after her admission, and percutaneous oxygen (SpO\(_2\)) saturation began to decrease to 75% despite the initiation of oxygen inhalation. Therefore, she underwent right-side thoracotomy to drain empyema, followed by discectomy and noninstrumented fusion at T8/9 to drain epidural abscess. Her dyspnea improved immediately after surgery. Her dysuria had also gradually improved, but the improvement of lower-limb muscle strength was limited. She was instructed to wear a thoracolumbar spinal orthosis after surgery.

Blood and pleural fluid cultures all grew streptococcus anginosus group (SAG) susceptible to penicillin. Use of meropenem hydrate was discontinued, and penicillin G (60,000 U, IV four times daily) was administered for 4 weeks. C-reactive protein was decreased significantly after its administration; however, 4 weeks after the first surgery, MRI revealed that spinal canal stenosis from T6 to T12 was residual. In addition, the weakness in her
lower-limbs muscle strength remained, and the thoracic x-rays showed
instability of the lesion. Therefore, posterior decompression with
instrumented fusion from T6 to T12 was performed. Due to allergy to
penicillin G, clindamycin (600 mg, IV three times daily) was used as a
substitute and administered for 6 weeks, but C-reactive protein became
negative.

On hospital day 83, she was transferred to another hospital for
rehabilitation. Seven months postoperatively, she was able to walk with a
walking frame. One year postoperatively, she was able to go outdoors with a
cane, and radiographic examinations (Fig. 3) revealed stable bony fusion
without any lesions in the thoracic spine.

The SAG bacteria are facultative anaerobic pathogens and widely
detected in the mouth, the upper respiratory tract, the gastrointestinal tract,
and the vagina\(^1\). The SAG bacteria are highly virulent and progress rapidly,
and it is not surprising that they might cross tissue planes\(^2\). Both penicillin
G and cephalosporins are effective for the SAG bacteria, but resistance to
both exists\(^3\). The SAG bacteria account for 13\%-50\% of all cases of pulmonary abscess and/or empyema thoracis\(^4\). Early diagnosis of thoracic SAG is vital given the reported mortality rates between 15\% and 30\%\(^2\).

However, there have been only a small number of English literature on spondylodiscitis caused by SAG bacteria\(^5-8\). Faraj et al.\(^8\) recommended aggressive surgical treatment combined with a prolonged antibiotic regimen.

Although penicillin G was effective for SAG bacteria, early surgical intervention was essential for spondylodiscitis caused by SAG bacteria because they were highly virulent and progress rapidly.
Figure legends

Fig. 1 Preoperative contrast-enhanced chest CT. A prevertebral abscess extending from T8 to T9 (black arrow head) and bilateral empyema (white arrow head) with the right side dominant.

Fig. 2 Preoperative thoracic MRI. Spondylodiscitis at T8/9 and an epidural abscess extending from T6 to T11.

Fig. 3 X-ray (A) and MRI (B) 1 year postoperatively. Stable bony fusion is achieved, and no lesion in the thoracic spine is observed.
References


Fig. 1  Preoperative Contrast-enhanced chest CT. A prevertebral abscess extending from T8 to T9 (black arrow head) and bilateral empyema (white arrow head) with the right side dominant.

54x41mm (300 x 300 DPI)
Fig. 2 Preoperative thoracic MRI. Spondylodiscitis at T8/9 and an epidural abscess extending from T6 to T11.

35x54mm (300 x 300 DPI)
Fig. 3 X-ray (A) and MRI (B) 1 year postoperatively. Stable bony fusion is achieved and there is no lesion in the thoracic spine.

99x82mm (300 x 300 DPI)