Group G Streptococcal Bacteremia and Vertebral Osteomyelitis in a Homosexual Man with Amebic Colitis

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Abstract

We present a case of bacteremia caused by group G streptococci (GGS) and vertebral osteomyelitis in a homosexual man with amebic colitis. The organism likely entered the blood via the inflamed intestinal mucosa resulting from amebiasis. Arthritis of both hands, which probably represented poststreptococcal reactive arthritis, was also observed. We should be aware that diseases caused by GGS appear to be increasing in recent years, and a potential for serious infection exists with regard to GGS as well as group A streptococci.

Key words: group G streptococcus, osteomyelitis, amebiasis, reactive arthritis

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Introduction

Group G streptococci (GGS) usually colonize the skin, nasopharynx, and the genital and gastrointestinal tracts (1). However, they can also cause various community-acquired infections such as soft-tissue infection, pharyngitis, and otitis media, and they occasionally cause more serious diseases including neonatal sepsis, bacteremia, endocarditis, meningitis, peritonitis, and arthritis (1, 2). GGS account for approximately 8-15% of the patients with beta-hemolytic streptococcal bacteremias (2-4) and, more importantly, an increase in the frequency of serious GGS infections has been reported in recent years (3, 5). We describe a case of GGS bacteremia and vertebral osteomyelitis associated with invasive amebiasis. The portal of entry of GGS was suspected to be the intestinal tract that was involved by amebic colitis, although to our knowledge, such an entry has never been reported to date.

Case Report

A 57-year-old Japanese man was admitted to a hospital because of fever, neck and lower back pain, swelling of the hands, and bloody stools. The patient, a construction worker, had been in his usual state of good health until 3 months earlier when he noted obvious hematochezia. One month before admission, he had a sudden onset of neck pain. He therefore sought consultation with an orthopedist and was radiographically diagnosed with spondylosis deformans. The patient continued to complain of chronic neck pain, despite the use of nonsteroidal anti-inflammatory drugs. One week before admission, he developed pain in the lower back and soon afterwards he noticed swelling and pain around the joints of both hands. At the same time, he frequently experienced fever, chills, and malaise, and he continued to have bloody diarrhea. He therefore returned to the hospital.

His past medical history was unremarkable other than appendectomy at the age of 18. He did not abuse alcohol or illicit drugs and had smoked three-quarters of a pack of cigarettes every day for 10 years until age 30. He reported frequent unprotected homosexual contacts with various partners and had no history of recent foreign travel or dental procedure.

On admission, his temperature was 39.0°C; pulse, 107/min; and blood pressure, 106/70 mmHg. Physical examina-
Figure 1. Endoscopic appearance (A) and biopsy specimen histology (B) of the sigmoid colon. (A) The colonoscopic image reveals multiple discrete irregular-shaped ulcerations covered by white exudates and blood clots. (B) Trophozoites of *Entamoeba histolytica* with granular cytoplasm and a small round nucleus (arrows) are observed within the inflammatory exudates around the ulcer (Hematoxylin and Eosin staining, ×400).

The patient was diagnosed with intestinal amebiasis by the identification of the hematophagous trophozoites of *Entamoeba histolytica* in fresh stool specimens. Motile trophozoites were easily observed in an unstained wet-mount preparation of a stool sample. The diagnosis of amebiasis was also confirmed by positive anti-*E. histolytica* serum antibodies (a titer of 1: 1,600 in an indirect immunofluorescence test) and the presence of trophozoites in histological sections from the rectum (Fig. 1). No liver abscess was detected by CT and ultrasound scans. For intestinal amebiasis, antimicrobial therapy was administered with 750 mg oral metronidazole 3 times daily for 14 days, followed by 500 mg oral paromomycin 3 times a day for 10 days.

On the third hospital day, 1 of the 2 blood cultures obtained on admission yielded large colony-forming group G β-hemolytic streptococci (*Streptococcus dysgalactiae* subsp. *equisimilis*). Cervical spine X-ray examination revealed destructive changes in the C4 and C5 vertebral bodies with collapse of the intervening disc space (Fig. 2). Magnetic resonance imaging (MRI) was consistent with discitis and adjacent osteomyelitis at the C4-C5 and L3-L4 (Fig. 2).

Therefore, acute hematogenous vertebral osteomyelitis and discitis probably caused by GGS were diagnosed. A transthoracic echocardiogram did not reveal vegetation on the cardiac valves. Treatment for osteomyelitis was started with 2 g intravenous ampicillin every 6 hours.

Radiographs of the hands showed intact joints and bones with symmetrical soft-tissue swelling around the metacarpophalangeal joints (Fig. 3). Tests for rheumatoid factor and antinuclear antibodies were negative. A provisional diagnosis of poststreptococcal reactive arthritis (PSRA) was made. Joint aspiration was not performed because the patient exhibited rapid clinical improvement after the initiation of antibiotic treatment.

An extensive workup did not reveal any underlying malignancy. The patient was treated with intravenous ampicillin for 4 weeks, followed by a 6-month regimen of oral amoxicillin. Consequently, the osteomyelitis/discitis due to GGS infection was successfully managed without the need for surgical debridement.

Discussion

This is a case of intestinal amebiasis complicating vertebral osteomyelitis due to GGS infection. *E. histolytica* infection usually occurs by the ingestion of cysts present in contaminated food or water but it can be associated with fecal-oral contact, particularly in sexually active homosexuals in developed countries. Men who have sex with men, like the present patient, are thus at high risk for amebic diseases (6). In fact, male homosexuals show higher seropositive rates than women or heterosexual men in Japan (7).

Among patients with GGS bacteremia, the most common types of infection appear to be soft-tissue infection (particularly cellulitis), primary bacteremia, and bone and joint infections (8), although reports of osteomyelitis due to GGS are few (9, 10). A previous report suggests that the portal of entry was suspected to be the skin in 76.0% patients with GGS bacteremia, the gastrointestinal tract in 8.1%, urogenital tract in 5.2%, and unknown in 10.7% (4). Underlying
malignancy has been documented in 21-65% of patients with GGS infection in some series (4, 11), although the reason for the associated malignancy remains unclear. Watsky et al described that 56% of patients with GGS bacteremia with a neoplasm had some sort of skin or gastrointestinal tract disruption, where the bacteria are thought to colonize (11). They thus implied the importance of the impairment of epithelial tissue such as dermis or mucosa, where the local anatomic barriers are breached, in order for the pathogen to establish invasive infection. Auckenthaler et al have also reported 4 cases of GGS bacteremia in which the portal of entry was considered to be the gastrointestinal tract; all the patients possessed impaired intestinal mucosae resulting from ulcerations, colonic anastomosis, perforation, or fistula (4). In the present case, due to the lack of any skin lesion or underlying malignancy, we considered that the GGS bactere-
mia was likely to have developed through the colonic mucosa that was inflamed due to amebiasis.

PSRA is recognized as a sterile, nonmigratory arthritis occurring in association with streptococcal infection that is distinct from acute rheumatic fever (ARF) (12, 13). The condition generally follows group A streptococcal infection (usually pharyngitis) but can occur secondary to antecedent group B, C, or G streptococcal infections (14). Pharyngeal infection with group A streptococcal strains is considered to be a crucial precursor to the development of ARF, although the mechanism of pathogenesis is unknown. In contrast to ARF, antecedent pharyngitis may not always be necessary for PSRA because several cases of reactive arthritis following streptococcal infections other than pharyngitis, such as primary bacteremia or septic arthritis, have also been reported (15-17). The symmetrical, nonmigratory arthritis observed in the present patient was partly consistent with PRSA; however, the rapid improvement of arthritis was unusual because PSRA is generally more severe, prolonged, and resistant to therapy (13).

Several studies suggest that the incidence of invasive GGS infection may be increasing in recent years (3, 5). Moreover, streptococcal toxic shock syndrome or necrotizing fasciitis, the most severe forms of infection that are often associated with group A streptococcal infection, have also been recognized to be caused by GGS. Although the pathogenic factors have not yet been completely clarified, several virulence factors such as the M protein, streptolysin S, and certain exotoxins that are shared by group A streptococci and GGS may facilitate the pathogenesis of the invasive diseases caused by GGS (18, 19). Thus, we should be aware that the potential for serious infections does exist with regard to GGS as well as group A streptococci.

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References


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