Case Report

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Group B streptococcal sacroilitis in an illicit drug abuser

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Introduction: Group B *Streptococcus* (GBS) is a usual neonatal pathogen, but the incidence in adult populations has risen recently. Pregnant women are at a higher risk of developing this infection. Invasive GBS is increasingly being recognized as one of the major pathogens in periprosthetic joint infections, but native joint infections are still rare. Serious invasive GBS disease can occur in adults with significant underlying medical conditions such as human immunodeficiency virus and active intravenous illicit drug use, as seen in our patient.

Case presentation: We report the case of a 31-year-old man who presented with pain and decreased mobility of the right hip joint. He was human immunodeficiency virus positive and was actively abusing illicit drugs via the intravenous route. He was directly injecting into the groin, which contributed to setting up a focus of infection in the immediate vicinity, resulting in the development of bacteraemia and seeding the region by haematogenous spread. Magnetic resonance imaging revealed severe right-sided sacroilitis and an iliopsoas abscess from direct contiguous spread. Culture of blood and pus from the iliopsoas abscess revealed GBS. The iliopsoas abscess was drained, and the patient was started on penicillin G therapy. The patient's symptoms improved dramatically after just 2 weeks of therapy.

Conclusion: We present this unusual clinical setting and site of infection, to highlight the increasing incidence of GBS native joint infections in susceptible non-pregnant adults. The focus of GBS infection in this patient was unique and atypical, probably representing a contiguous spread of infection from the site of illicit drug injections. With an increasing incidence of GBS infections in non-pregnant adults, it must be considered among the differential diagnoses of patients presenting with septic arthritis. Early recognition of GBS septic arthritis and prompt institution of treatment might prevent long-term and often debilitating sequelae.

Keywords: Group B streptococcal sacroilitis; GBS; intravenous drug abuser; septic arthritis.

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Introduction

Group B *Streptococcus* (GBS) is a usual neonatal pathogen, but the incidence in adult populations has increased recently. Pregnant women are at a higher risk of developing this infection. However, there has been a doubling of the number of GBS infections in the adult non-pregnant population from 3.6 cases per 100 000 persons during 1990 to 7.3 cases per 100 000 persons during 2007 ($P < 0.001$; Skoff *et al.*, 2009). Common clinical presentations in non-pregnant adults for GBS infections include skin, soft-tissue and bone infections (36 %; cellulitis, fasciitis, soft-tissue abscesses, native and periprosthetic joint sepsis, and osteomyelitis), bacteraemia

without an identifiable focus (34 %), community-acquired pneumonia (11 %), endocarditis (9 %) and rarely arthritis (9 %) (Edwards & Baker, 2005; Schwartz *et al.*, 1991). Invasive GBS is increasingly being recognized as one of the major pathogens in periprosthetic joint infections (Duggan *et al.*, 2001; Sendi *et al.*, 2011) but native joint infections are still rare, albeit occurring at an increasing frequency (Nolla *et al.*, 2003). Isolates are susceptible to benzylpenicillin but serious infections often require surgical debridement (Jenkins *et al.*, 2010). GBS joint sepsis often occurs in older patients with other underlying medical co-morbidities such as diabetes and malignancy (Schattner & Vosti, 1998) presenting with involvement of multiple joints and bacteraemia. This type of presentation has a significant case-fatality rate and risk of relapses (Nolla *et al.*, 2003; Zeller *et al.*, 2009). Prompt initiation of antibiotics is necessary to prevent long-term sequelae due to severe joint

Abbreviations: CAT, computerized axial tomography; GBS, group B *Streptococcus*; MRI, magnetic resonance imaging

damage (Corominas *et al.*, 2001; Zeller *et al.*, 2009). Here, we present the case of a young male with monoarticular GBS infection involving the sacroiliac joint.

Case report

A 31-year-old African-American man, who was human immunodeficiency virus positive, presented with right hip pain for 1 week. This was the patient's chief complaint and was predominantly present in the lateral and posterior aspects of the hip joint. The patient admitted to actively using illicit drugs intravenously prior to the onset of the symptoms. The patient also reported injecting the drugs into the groin on a regular basis. A physical examination exhibited a limited range of motion in the right hip and tenderness mostly with external rotation of the hip. Laboratory studies were unremarkable except for leukocytosis. Initial differential diagnoses included septic arthritis and avascular necrosis. Magnetic resonance imaging (MRI) of the right hip joint revealed a right iliopsoas abscess with right sacroiliac septic arthritis (Fig. 1). He underwent computerized axial tomography (CAT)-guided pigtail catheter drainage of the abscess. Cultures of blood and pus drained from the abscess grew haemolytic GBS. The patient was started on penicillin G therapy at 3×10^6 U every 4 h. He showed a remarkable clinical improvement in terms of mobility and pain within a couple of weeks. A repeat MRI was done at the end of 2 weeks after initiation of the therapy, which showed resolution of the iliopsoas abscess but worsening of the right sacroiliac septic arthritis with evidence of right sacroiliac osteomyelitis (Fig. 2). However, it was deemed to be secondary to a lag in the improvement of radiological picture in comparison with

clinical signs and symptoms. The patient received a total of 4 weeks of intravenous antibiotics in the hospital and was discharged home upon complete resolution of symptoms. He was advised to return to the hospital in a month for a repeat MRI as this has the advantage of combining a good visualization of the complicated anatomy of the sacroiliac joint with the ability to localize different degrees of inflammation and oedema; however, the patient was lost for follow-up.

Discussion

Serious invasive GBS disease usually occurs in adults with significant underlying medical conditions such as cirrhosis, diabetes mellitus, stroke, breast cancer, decubitus ulcer, neurogenic bladder, human immunodeficiency virus infection and active intravenous illicit drug use (Edwards & Baker, 2005). Another pertinent factor that might have played a role in the unusual monoarticular joint involvement in our patient is the site of illicit drug injections: the groin. Although the patient presented with bacteraemia, there were no signs of polyarticular involvement, only GBS sacroilitis, which probably resulted from the contiguous spread of infection from the site of illicit drug injection. The iliopsoas abscess was a direct result of spread of infection from the pyogenic sacroilitis. It has been reported in the literature that patients injecting illicit drugs into the groin probably miss the femoral vein and inject the drug into extravascular tissues (Yang & Lee, 2008). Hypodermic needles, which are often non-sterile and are used on skin that has not been cleaned prior to injection, aid in seeding the usual skin commensals into deeper soft

Fig. 1. Transverse and coronal T-1 weighted MRI of the right hip joint revealing right iliopsoas multiloculated abscess (white arrow) and enhancement involving the right sacroiliac joint region consistent with septic arthritis (black arrow).

Fig. 2. Coronal T-1 weighted MRI of the right hip joint revealing resolving right iliopsoas abscess after CAT-guided pigtail drainage.

tissues. Pyogenic sacroiliitis in our patient was diagnosed with an MRI. However, it has been reported in the literature that a CAT scan and MRI are insensitive in early stages of disease and that imaging modalities such as a fluorine-18 fluorodeoxyglucose positron emission tomography/computed tomography scan can be used to localize and treat such infections (Ho *et al.*, 2010). Late institution of therapy results in long-term and often debilitating sequelae such as joint contractures, stiffness and instability with joint subluxation or dislocation. This patient improved significantly with penicillin therapy, but it has to be considered that it is often ineffective in eradicating carriage of GBS (Paredes *et al.*, 1976). The patient did have a chance of relapse, most likely attributable to colonization of skin and other mucosal surfaces or deep-seated reservoirs (usually other apparently non-infected bones and endocardial tissue, although no such abnormalities were found on a bone scan and echocardiogram) that might have been missed during the initial presentation.

Conclusion

The focus of GBS infection in this patient was unusual and atypical in that it probably represented a contiguous spread of infection from the site of illicit drug injection. With the

increased incidence of GBS infection in non-pregnant adults, it must be considered among the differential diagnoses of patients presenting with septic arthritis.

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