

# Only Spondylodiscitis? A Clinical Case of Multiple Septic Embolization

Rita Aguiar<sup>1</sup>, Manuel Ferreira Gomes<sup>2</sup>, Elisabete Bento Guerreiro<sup>2</sup>, Tiago Marques<sup>3</sup>, Carla Santos<sup>3</sup>

<sup>1</sup>Department of Immunoallergology, Hospital de Santa Maria, Centro Hospitalar Lisboa Norte, Lisbon, Portugal

<sup>2</sup>Department of Internal Medicine, Hospital de Santa Maria, Centro Hospitalar Lisboa Norte, Lisbon, Portugal

<sup>3</sup>Department of Infectious Diseases, Hospital de Santa Maria, Centro Hospitalar Lisboa Norte, Lisbon, Portugal

Email: [aguiar2016@gmail.com](mailto:aguiar2016@gmail.com)

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## Abstract

**Background:** Spondylodiscitis and spinal epidural abscesses are rare pathologic entities, but increasing in incidence. Group G beta hemolytic Streptococcus has been recently described associated with human infections. They often present clinically in a non-specific fashion, a fact which can lead to diagnostic delay, with serious consequences for the patient. **Case Report:** An 80-year-old man was admitted to the hospital with complaints of fever for three days, dysuria, hematuria, and back pain. Both septic embolizations and spondylodiscitis due to Group G beta hemolytic Streptococcus were detected. The patient was successfully treated with intravenous penicillin G for eight weeks, followed by oral amoxicillin for five months. **Discussion:** In all patients with spondylodiscitis, infective endocarditis should be considered, particularly in patients with heart valve disease history, since spondylodiscitis may be the presenting sign of an infective endocarditis. A high level of suspicion is therefore necessary in order correctly diagnose such entities as quickly as possible. The present case illustrates the pathogenic potential of group G streptococci in spondylodiscitis and native valve endocarditis.

## Keywords

Spondylodiscitis, Group G Beta Hemolytic Streptococcus, Epidural Abscess, Embolization

## 1. Introduction

The group G  $\beta$ -hemolytic streptococci (GGS) consist of *Streptococcus dysgalactiae* subspecies *equisimilis*, *S. canis*, and *S. intestinalis* which are significant human pathogens inhabitants of the skin and mucous membranes. Although cutaneous infections

and pharyngitis are most often encountered, a wide variety of infections—including potentially life-threatening ones, such as sepsis, endocarditis and septic arthritis—have been described [1].

Asymptomatic pharyngeal carriage of GGS occurs in up to 23% of humans [2]. Symptoms of pharyngitis range from a mild upper respiratory tract infection to exudative pharyngitis.

Infective endocarditis (IE) occurs in older group who has prosthetic valves or structural heart diseases. Few of them have underlying rheumatic valve disease. *Staphylococcus aureus* and viridans streptococci are the most common causes of native valve infective endocarditis. Usually, more than 50% of causes of IE are caused by viridans streptococci.

Less than 4% of patients with endocarditis actually have concomitant spondylodiscitis [3].

Spondylodiscitis is a prolonged inflammation of two adjacent vertebral bodies and the disc between them. As a result of the avascular nature of the intervertebral disc space in adults, spondylodiscitis is rarely observed. 80% of spondylodiscitis was hematogenous, and 20% developed after spinal surgery [4]. Sources of hematogenous or contiguous spread of infection include the genitourinary tract, skin, infected catheters, endocarditis and dental infections.

Nevertheless, the primary site of infection cannot be identified in most of cases. Less common causes include infected native or prosthetic valves [5]. The insidious course with non-specific symptoms can affect the treatment.

Until this report, there has been no previous report of spondylodiscitis and native valve endocarditis due to G group *Streptococcus* in the literature.

## 2. Case Report

An 80-year-old man was admitted to the emergency room due to dysuria, pollakiuria, hematuria and transient episodes of urinary incontinence for one week. Increasing lower back pain, functional impairment of the lower limbs and fever up to 40°C in the previous three days were reported.

The patient had a past history of coronary heart disease and aortic regurgitation and type 2 diabetes. The patient denied any recent medical or dental/surgical procedure.

On admission, he was febrile (38.3°C) and the blood pressure was normal (136/63 mmHg).

Cardiac auscultation revealed diastolic murmur in the aortic area and systolic murmur in the left sternal border and apex. Herpes labialis, hemorrhagic macular lesions in the fingerspulp, polyarthritis, pain in passive mobilization of the left elbow, knees and wrists were documented.

Neurological examination revealed paraparesis, hypoesthesia of the lower limbs with L4-L5 root distribution.

Blood tests showed a normochromic normocytic anemia (Hb 9.5 g/dL), thrombocytopenia (51,000/mcL), elevated white blood cell count ( $12.4 \times 10^9$  cells·l<sup>-1</sup>) with neutro-

philia (85%), elevated C-reactive protein (35.4 mg/dL) and erythrocyte sedimentation rate (80 mm·h<sup>-1</sup>), a diminished creatinine clearance (0.43 ml·m<sup>-1</sup>), a positive RA test (29 UI/ml), hypoxemia (pO<sub>2</sub> 55.7 mmHg) and erythrocyturia. Chestradiography revealed inferior lobes diffuse infiltrates.

A group G beta hemolytic Streptococcus susceptible to penicillin (MIC 0.016) was isolated in blood cultures. Urine culture and renal ultrasound were unremarkable. Skeleton X-ray showed an erosive arthritis and knee arthrocentesis showed a joint purulent fluid (negative bacteriological examination). A cranial and dorso-lumbar computed tomography (CT) had no acute changes but magnetic resonance imaging (MRI) revealed L4-L5 spondylodiscitis with lumbar epidural abscess.

Transthoracic echocardiography revealed a nodule of increased echogenicity in the mitral valve and aortic valvular insufficiency. Six days later he had a transesophageal echocardiography which showed no evidence of vegetation or perivalvular abscesses.

The diagnosis seemed difficult to establish. There was no doubt that there was spondylodiscitis with septic embolizations. Was there too IE? Which was the primary disease?

It was assumed a diagnosis of infective endocarditis by Duke criteria with septic embolization: lumbar spondylodiscitis, peripheral septic arthritis and cutaneous septic embolization.

According to Neurosurgery, the patient should maintain complete rest during eight weeks.

The patient received penicillin G 4 million units every four hours intravenously for eight weeks. Clinical and imagiological improve with lumbar MRI showing marked reduction of disc and epidural infectious component. There was a clinical improvement of low limbs deficits without sensitivity changes. He started physical rehabilitation plan and after recovering he was discharged from hospital. Three grams daily of oral amoxicillin was administrated for five months. Epidural abscess and spondylodiscitis subsequently resolved and the patient became without deficits and pain.

### 3. Discussion

Spondylodiscitis is a rare cause of chronic back pain with an incidence of 0.2 - 2 cases/100,000/year. The majority are male, 50 - 70 years-old and with back pain as an isolated symptom. About 30% of the patients additionally have neurological deficits; about 10% suffer from fever and weight loss [6].

As the special blood supply of the spine, the two vertebrae and the linking intervertebral disc are affected [7].

Spondylodiscitis is rarely observed in association with infective endocarditis. The first was reported by Sèze *et al.* [8]. Le Moal *et al.* [9] reported that the prevalence of spondylodiscitis in patients with IE was of 15%. Spondylodiscitis, has rarely been described, particularly in case reports. Ninet *et al.* [10] found the prevalence of spondylodiscitis in patients with IE to be of 5.9%. Spondylodiscitis does not appear to worsen the prognosis of IE, although the need for cardiac valve replacement seems to be more fre-

quent in IE patients with spondylodiscitis. Symptoms are variable and may delay the diagnosis.

The mean duration of symptoms from onset to diagnosis ranges from two days to six months. A careful review of the patient's history and physical examination, as well as laboratory data and diagnostic imaging studies are necessary. Musculoskeletal symptoms can represent the major sign of the disease, leading to diagnostic difficulties [9]. These similar symptoms also occur in up to 45% of patients with IE and are often misdiagnosed as rheumatic or degenerative joint disease.

Arthralgia is the most common musculoskeletal complaint in patients with IE and involves the shoulder most frequently, followed by the knee, hip, wrist, ankle, and the joints of the hands and feet [11]. Joint aspiration is usually nondiagnostic [11].

Low back pain is second in frequency, affecting almost, 1/3 of patients with IE. Nevertheless, neurologic defects are usually not demonstrable in patients with back pain [11]. Destructive lesions of the sacroiliac joints have also been described in patients with low back pain due to IE leading to pain over the joints. The lumbar region is commonly involved (60%), and thoracic spine can also be affected (26%). Low back pain due to spondylodiscitis is uncommon in patients with IE. Common to all patients with IE, fever and heart murmur can be detected on physical examination and Gram-positive cocci can be isolated from blood cultures.

It is important to remember that no vegetation view in transesophageal echocardiography (under antibiotic therapy directed for 10 days and documented prior embolization) does not exclude the diagnosis of left-sided IE [10] [11], therefore this entity is the probable cause of multiple septic embolization described.

A diagnosis of spondylodiscitis can be confirmed by CT or MRI. Nevertheless, MRI is most sensitive in the acute phase [8].

#### 4. Conclusions

The authors describe a clinical case of spondylodiscitis, where the etiological investigation proved a challenge, having been excluded a nosocomial cause. The combination of clinical and imagiological data contributed to the appropriate treatment with a favorable clinical outcome.

The authors conclude that, in patients with spondylodiscitis, IE should be ruled out, particularly in patients with a history of heart valve disease, since spondylodiscitis may be presenting sign of an IE.

Transesophageal echocardiography and blood cultures should be routinely performed in these patients.

As the taxonomy of the viridans group streptococci becomes better defined, it is likely that novel disease associations will be made with the newly recognized species.

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