Spondylodiscitis and Infectious Endocarditis: A Round-Trip to be Considered

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The association between spondylodiscitis and endocarditis was first reported in 1965 by de Sèze et al. The most common clinical picture of this association is musculoskeletal symptoms preceding endocarditis diagnosis, but we report here a case of spondylodiscitis complicating endocarditis in its late course. A 70-year-old man, with an established diagnosis of mitral valve endocarditis caused by *Streptococcus intermedius*, early submitted to surgical treatment because of heart failure, who had an uneventful recovery up to the 12th day of antibiotic therapy when he presented intensive backache, with tenderness in the two lower lumbar vertebras. Spondylodiscitis was confirmed by a magnetic resonance imaging and the treatment was non-esteroidal anti-inflamatory and analgetics drug, with good results, and prolongation of antibiotic treatment up to 3 months. Appropriate diagnosis of this association has important consequences, as the need of a longer antibiotic therapy course, which can range from 6 weeks to 3 months.

Key-Words: Endocarditis, discitis.

The association between spondylodiscitis and endocarditis was first reported in 1965 by de Sèze et al. [1] and, since then, many case reports and series have been published. The frequency of this association is still controversial, ranging from 0.6%-2.2%, when patients with established spondylodiscitis diagnosis were screened for infectious endocarditis [2,3], to 10%-15%, when patients with endocarditis diagnosis were screened for spondylodiscitis, in retrospective studies [4,5]. Prospective studies for the determination of the frequency of this association are still lacking. The most common clinical picture of this association is musculoskeletal symptoms preceding endocarditis diagnosis [4-8], but we report here another feature of this association: spondylodiscitis complicating endocarditis in its late course.

Case Report

A 70-year-old male physician was admitted to the emergency department of the hospital in acute respiratory failure due to pulmonary edema. The patient had been well until 6 months before admission when anorexia, weight loss, fatigue and episodes of nocturnal sweating developed. A few hours before admission he had developed dyspnea and palpitation. On examination, he had a systolic murmur of severe mitral regurgitation. A transesophageal echocardiography was performed, with evidence of mitral valve prolapse and vegetations in both leaflets, sized 17 and 15mm. There was severe mitral valve regurgitation and the global left ventricular systolic function was normal, with no ventricular dilatation. Three pairs of blood culture were obtained, empirical broad spectrum antibiotic treatment was started and urgent surgical treatment was performed. At surgery, there was an important destruction of the valvar and subvalvar tissue and the mitral valve was replaced by a biological prosthesis. Blood cultures and valvar tissue cultures were positive for *Streptococcus intermedius*. The patient had an uneventful recovery up to the 12th day of hospitalization when he presented intensive backache, with tenderness in the two lower lumbar vertebras. X-ray examination showed important and difuse spondyloarthrotic changes in the lumbar spine. A magnetic resonance imaging (MRI) scan of the lumbar spine showed typical spondylodiscitis findings, and an epidural inflammatory pattern (Figure 1). The bone scintigraphy with technetium 99m pyrophosphate showed hyperconcentration in the 5th lumbar vertebra confirming the spondylodiscitis diagnosis. The orthopedic treatment was non-esteroidal anti-inflamatory and analgetics drug, with good results, and prolongation of antibiotic treatment up to 3 months.

Discussion

The pathogenesis of spondylodiscitis associated to infectious endocarditis is a matter of debate, that relies on haematogenous dissemination of the infection agent or vertebral deposition of arterial emboli which may contain not only bacteria, but also immune complexes [5,9].

Regarding the specific infective agent, there are important differences when comparing patients with spondylodiscitis and endocarditis to patients with spondylodiscitis alone. The latter have a large predominance of *Staphylococcus* sp., while in those patients with associated endocarditis, S*treptococcus* sp. are most frequently isolated. Weber et al. [7] described that among a total of 1.368 patients with non-tuberculous spondylodiscitis (in 85.4% the infective agent was identified) the infective organism identified was a *Staphylococcus* in 48%, a Gram-negative in 38% and a *Streptococcus* in only 10%. In the other hand, Le Moal et al. [4] observed in their study of 92 patients with endocarditis (15% with associated spondylodiscitis) a predominance of *Streptococcus* sp. (48.9%) followed by *Staphylococcus* sp. (41%), with no differences when comparing infective agents of patients with endocarditis alone to infective agents of patients with associated spondylodiscitis.

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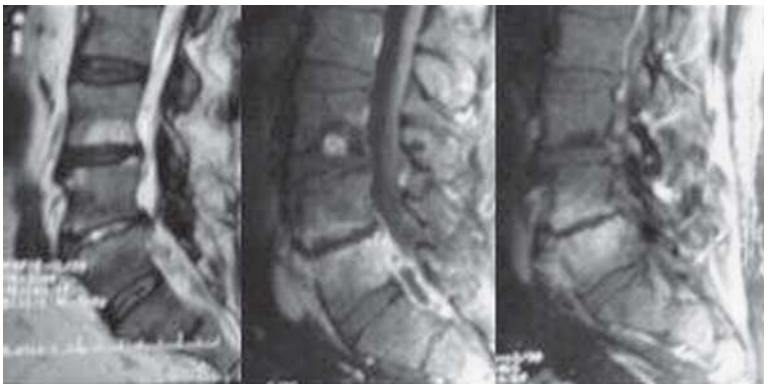
Figure1. Magnetic resonance imaging of the vertebral spine with typical signs of spondylodiscitis: hypodensity of the intervertebral disc between the 5th lumbar and the first sacral vertebra with osteolytic vertebral areas, and nonhomogeneous contrast enhancement of the disc.



Although the prognosis of the patient depends mainly on the valvular disease, appropriate determination of this association has important consequences, e.g. need of a longer antibiotic therapy course, which can range from 6 weeks to 3 months [4,10], and a correct interpretation and target investigation of persistent elevated inflammatory markers. Spondylodiscitis diagnosis can be confirmed by bone scintigraphy, computed tomography scan or MRI, which is the most sensitive technique in the acute phase [11].

We conclude that the association of spondylodiscitis and infectious endocarditis should always be considered, irrespective of the primary diagnosis, so that patients with spondylodiscitis and abnormal cardiac auscultation or risk factors for infectious endocarditis must be early submitted to echocardiography, mainly when the infective organism is a *Streptococcus* sp. Conversely, patients with well established infectious endocarditis diagnosis who present with backache, or those who are assymptomatic from a musculoeskeletal point of view, but undergo screening for methasthatic infection because of persistent elevated inflammatory markers or fever, must have their vertebral spine evaluated.

References

1. Sèze S. de, Ryckewaert A., Kahn M.F., et al. L'endocardite d'Osler em rhumatologie. Rev Rhum Mal Ostéoartic **1965**;32:739-44.
2. Meys E., Deprez X., Hautefeuille P., et al. Place des spondylodiscites iatrogènes parmi lês spondylodiscites à germes banals. Rev Rhum Mal Ostéoartic **1991**;58:839-46.
3. Hacène A., Flipo R.M., Deprez X., et al. Endocardites et spondylodiscites infectieuses. Rev Rhum [Ed Fr] **1996**;63:742.
4. Le Moal G., Roblot F., Paccalin M., et al. Clinical and laboratory characteristics of infective endocarditis when associated with spondylodiscitis. Eur J Clin Microbiol Infect Dis **2002**;21:671-5.
5. Morelli S., Carmenini E., Caporossi A., et al. Spondylodiscitis and infective endocarditis: case studies and review of the literature. Spine **2001**;26:499-500.
6. Calderaro D., Galvão T.F., Bagnatori R.S., Caramelli B. Spondilodiscitis as a clinical manifestation of infective endocarditis. Arq Bras Cardiol **2003**;81(5):526-7.
7. Weber M., Gubler J., Fahrer H., et al. Spondylodiscitis caused by viridans *streptococci*: three cases and a review of the literature. Clin Rheumatol **1999**;18(5):417-21.
8. Genta P.R., Carneiro L., Genta E.N. *Spreptococcus bovis* bacteremia: unusual complications. South Med J **1998**;91(12):1167-8.
9. Ninet J., Gayet H.L., Etienne J., et al. Bacterial endocarditis presenting as acute vertebral osteomyelitis: 14 cases. Eur Heart J **1984**;5(suppl C9):101-5.
10. McHenry M.C., Easley K.A., Locker G.A. Vertebral osteomyelitis: long term outcome for 253 patients from 7 Cleveland-area hospitals. Clin Infect Dis **2002**;34:1342-50.
11. Cusmano F., Calabrese G., Bassi S., et al. Radiologic diagnosis of spondylodiscitis: role of magnetic resonance. Radiol med(Torino) **2000**;100(3):112-9.