

ASEPTIC SPONDYLODISCITIS OCCURRING AFTER PERCUTANEOUS LASER DISC DECOMPRESSION

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Abstract

Aseptic spondylodiscitis is rare but can cause severe symptoms. It is often recognized and treated late or incorrect. The diagnosis is rely on indirect (clinical, serologic, radiologic) and direct (anatomopathologic, microbiological) findings. In despite of progresses in the development of diagnostic techniques concerning aseptic spondylodiscitis, we still have aseptic spondylodiscitis with unknown reasons. The management of the disease must be a multidisciplinary issue. If there is a absence in microbiological findings, aseptic spondylodiscitis should be considered.

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Introduction

Pseudodiscitis or aseptic spondylodiscitis is an entity that behaves clinically and radiologically like an infectious discitis, but has a non-infectious etiology. Spinal infections remain a challenge for clinicians because of their variable presentation and complicated course. Common management approaches include conservative administration rather than using aggressive surgical debridement or antibiotic treatment. In this light, aseptic spondylodiscitis in palliative treatment is applied. The diagnosis depends on the clinical and laboratory findings, as well as magnetic resonance imaging (MRI) and microbiology or pathology.¹⁻³ Early recognition and timely intervention are important for successful management of osteomyelitis and spondylodiscitis. Laboratory findings are important for diagnosis. C reactive protein (CRP) and the erythrocyte sedimentation rate (ESR) are

the most sensitive tests^{3,4}, and the sensitivity and specificity of CRP is reported to be 63% and 82%.⁵ It is suggested that infection should be suspected when the ESR is higher than 45 mm/h and the CRP is higher than 2.5 mg/dl on the 5-6th day.⁶ MRI is currently the imaging modality of choice, with a sensitivity of 96% and a specificity of 92%.⁷

A Case Report

The purpose of this case report was to report a rare case of aseptic spondylodiscitis caused by percutaneous laser disc decompression (PLDD). A 46 year-old housewife, was admitted to hospital for the treatment of lower back pain of 6-year duration. Two days after the patient was operated. During the operation the patient was placed prone on a radiolucent frame suitable for fluoroscopy. All procedures were performed under local anesthesia with conscious sedation similar to that used for standard lumbar discography. Under fluoroscopic guidance, the target site was located and the entry site was marked on the skin at a point 8–12 cm from the midline. After sterile preparation, draping, and local anesthesia, a spinal needle was inserted directly into the center of the target disc (Figure 1(A)), then PLDD (Laser was emitted to the disc with an energy of 13.5

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J/sec (total energy 800J)) was applied. Post-operative follow-up was reported serious back pain, tenderness over L5 two weeks after application PLDD. The pain was initially mechanical in nature, but progressively increased in intensity, functional disability. On admission, clinical examination showed no fever, vertebral and paravertebral tenderness from L5. Result of the straight leg raising test were 30° positive, and results of the neurologic examination were normal. A inflammation was not detected; erythrocyte sedimentation rate, 25 mm/h; C-reactive protein, 1.2 mg/dl; no hyperleukocytosis or hypergammaglobulinemia. The identification of the organism by computed tomography –guided needle biopsy of the lumbar spine was performed and specimens were sent for aerobic, anaerobic, and mycobacterial cultures. Organisms were not presented in the culture medium. Magnetic resonance imaging (MRI) of the lumbosacral region on day 21 showed aseptic spondylodiscitis with L5 bone oedema (Figure 1(B)).

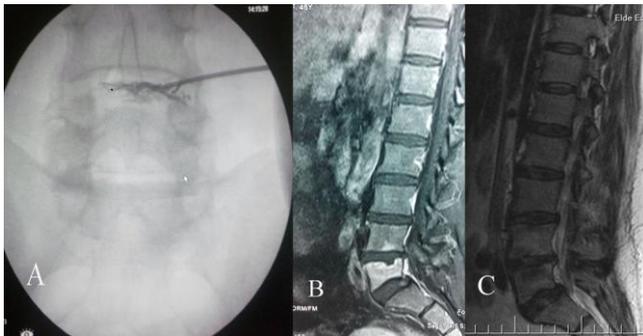


Figure 1A. A spinal needle was inserted directly into the center of the target disc that used for standard lumbar discography

Figure 1B. Initial MRI: T1-weighted post-contrast image illustrating destructive centres throughout the discovertebral junction, bony sclerosis of adjacent vertebral end plates, osteolysis of the L5 vertebral bodies with marked bone oedema, characteristic of aseptic spondylodiscitis

Figure 1C. MRI obtained 6 month later: T2-weighted image illustrating which significantly decreases bone oedema and osteolysis

With treatment consisting of bedrest and ketoprofen (300mg a day) and applying a cold compress on the skin which is sensitive (three times a day, 15 minutes), the pain and tenderness over L5 vertebra and the straight leg raising test disappeared within less than 3 days,

and the patient was discharged. A re-examination 6 months later showed that no relapse had occurred. MRI conducted 6 months after treatment revealed no recurrence of spondylodiscitis (Figure 1(C)).

Discussion

Infectious and (chemical or mechanical or aseptic) spondylodiscitis are two types of discitis. The first type is the most frequent, since the microorganism can be introduced during the operation. It is therefore necessary to seek a possible ethiological microorganism. There have been studies which underline that there are almost no clinical or radiological differences to distinguish between the two groups. The diagnosis is based on analytic data and biopsy of the involved disc. Data in favour of a non-infectious discitis are a normal CRP (ESR is increased during first 2 weeks following surgery), normal fibrinogen, and a histology with fibrotic changes. This type of aseptic discitis has a good prognosis, with a total healing following a few weeks of rest.^{10,11}

Infectious spondylitis was diagnosed on the basis of clinical examinations, including elevated ESR and CRP values, and radiographic and MRI findings. Early diagnosis and treatment of spondylodiscitis is important for the prevention of catastrophic sequelae and huge additional expenses.¹² Spondylodiscitis is a complication of spine surgery that is treated with antibiotics given for a long time of 4-6 months but not for aseptic spondylodiscitis.

Aseptic spondylodiscitis is a rare complication of PLDD defined by radiological abnormalities that included destructive centres throughout the discovertebral junction, bony sclerosis of adjacent vertebral end plates, widening or narrowing disc space, osteolysis of the vertebral bodies.^{8,9}

In PLDD, laser energy is used to reduce intradiscal pressure by vaporizing a small volume of the nucleus pulposus, which reduces the pressure between the nucleus pulposus and the peridiscal tissue, thereby causing retraction of the herniation away from the nerve root.

Complications of PLDD are classified into intraoperative and postoperative complications.¹³⁻²¹ The most frequently described complication is spondylodiscitis.^{16-19,21} which can be either aseptic and septic. The reported frequency of

discitis varies from 0%^{15,20} to 1.2%.¹⁸ Aseptic discitis results from heat damage to either the disc or contiguous vertebral endplates.²² On the side, the use of laser may have an inhibitory effect on bacterial growth.²³ This complication can also be avoided with careful monitoring of patient complaints during the procedure, and appropriate adjustments of the laser power, pulse rate, and/ or pulse interval when heat sensations occur.²⁴⁻²⁵

Aseptic spondylodiscitis is a rare complication after PLDD and should be considered in the risk-benefit analysis of PLDD. This event can mimic an infectious spondylodiscitis clinically and biologically. Although uncommon, if potentially infectious discitis remains inconclusive, it should necessary to bear in mind this possibility.

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