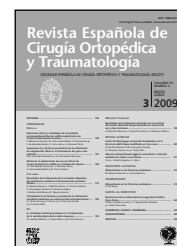




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CASE REPORT

Giant retroperitoneal abscess secondary to prosthetic hip infection: A case report

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KEYWORDS

Prosthetic infection;
Iliac abscess;
Buccodental

Abstract

Introduction: Buccodental infection is a frequent cause for hematogenous infection of a hip prosthesis. Common symptoms in these cases are pain and functional impotence of the hip, occasionally associated to fever and generalized discomfort. Normally the infection evolves towards cutaneous fistulization.

Clinical case: We present the case of a 62-year-old male with a hip prosthesis admitted for atypical lumbar pain irradiated to the thigh. Once spinal injury was ruled out, the pain was found to stem from an abscess in the iliac muscle associated with an infection in the patient's hip prosthesis. The patient had sustained a buccodental infection one month before.

Discussion: Hematogenous infection of a buccodental origin constitutes a frequent cause of late prosthetic infection. Fistulization in the retroperitoneal area is uncommon, as is acute presentation with few infection indicators.

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PALABRAS CLAVE

Infección protésica;
Absceso ilíaco;
Bucodental

Absceso retroperitoneal gigante secundario a infección protésica de cadera: caso clínico

Resumen

Introducción: Las infecciones bucodentales son una causa frecuente de infección hematológica de prótesis de cadera. La clínica habitual de estas infecciones es un cuadro de dolor e impotencia funcional en la cadera que rara vez se asocia a fiebre y a malestar general. Habitualmente, la extensión de esta infección es hacia la fistulización cutánea.

Caso clínico: Varón de 62 años portador de prótesis de cadera que ingresa para estudio por un dolor lumbar atípico irradiado a muslo. Tras descartar una causa raquídea de este dolor, se encuentra como causa del dolor un absceso en el músculo ilíaco en relación con

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una infección protésica de cadera. El sujeto había presentado una infección bucodental un mes antes.

Conclusión: La infección por vía hematogena desde un origen bucodental es una causa frecuente de infección protésica tardía. La fistulización hacia retroperitoneo es excepcional, del mismo modo que su presentación como cuadro agudo con escasos indicadores de infección.

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Introduction

Hematogenous dissemination is the most frequent cause of late infection in hip replacement, and oropharyngeal flora is one of the main sources of bacterial colonization. Up to 6% of late hip infections and up to 11% of knee infections² are caused by dental problems.

The natural evolution of late hip infections is that of local subacute symptoms associated to generalized sepsis. Normally, fistulisation of purulent collections proceeds in the direction of the skin, with internal fistulization towards the retroperitoneum –like the one presented herein –being extremely rare.

Case report

The patient is a 62 year-old male who presented at the Emergency Room of our hospital with acute pain in the lumbar region, in the groin and on the anterior aspect of the left thigh. The pain had started abruptly 3 days before. The subject did not report any traumatic incident.

The patient has an uncemented total hip replacement in his left limb implanted 22 years ago. Four years before the cup had been revised for aseptic loosening (fig. 1).

The patient presents with dilated cardiomyopathy, associated with atrial fibrillation, steatohepatitis and dyslipidemia; 4 years ago he suffered stroke, after which he has received oral anticoagulation therapy.

The subject did not present alterations in his vital signs (temperature, heart rate and blood pressure). Nor is pain elicited on abdomen palpation. He has diffuse lower back pain (somewhat more painful on the left side); no pain is elicited on palpation of vertebral processes and renal fist percussion is negative. Neurological examination of the lower limbs is normal. Lassègue maneuver is negative for both limbs, but pain is experienced in the left lumbar region, which irradiates toward the thigh on performing an inverted Lassègue maneuver.

Blood tests performed in the Emergency Room showed a leukocyte count of $15 \times 10^9/l$ with left shift. Values for serum inflammation markers were high, with C-reactive protein levels of 33.6 mg/ml and a globular sedimentation rate (GSR) of 69 mm/h.

Plain films show incipient signs of spondyloarthritis in the lumbar column but none for the hip.

Given the seriousness of the patient's condition, he was admitted for treatment.

Pain did not improve in the following days, in spite of analgesic and anti-inflammatory treatment. To confirm a



Figure 1 Total hip replacement with 22 years' evolution. Four years ago, the cup was revised for aseptic loosening.

suspicion that lower back pain may be caused by some spinal disorder, a magnetic resonance (MR) scan was performed of the lumbosacral column, which revealed 2 right foraminal hernias (third to fourth lumbar vertebra and fourth to fifth lumbar vertebra) with degenerative changes. The types of symptoms experienced by the patient did not appear to be compatible with the results of the MR.

To confirm suspicions that the symptoms may be caused by hip prosthetic loosening, a bone scan was performed. To rule out abdominal involvement, an ultrasound was carried out which showed an hyperechoic fluid accumulation within the iliac muscle; on this basis, the echographer decided to perform a computerized tomography (CT).

The CT showed a complicated accumulation within the left iliac muscle that extended through the left preperitoneal fat and the left posterior pararenal space. The accumulation ($25 \times 10 \times 7$ cm in size) se extended until the posterior region of the left diaphragmatic dome. Images show that there is

evident communication between the hip prosthesis and the purulent accumulation (fig. 2).

When the patient's anamnesis was taken again, he admitted to having developed a gumboil in the mouth one month before the onset of lumbofemoral pain.

A decision was made to subject the patient to surgery in order to remove the purulent fluid accumulation and clear the infected tissues. To do this, the hip was approached



Figure 2 Postoperative pelvic CT-scan showing a large Collection in the iliac muscle.



Figure 3 Cement spacer implanted following removal of the infected prosthesis.

through the same anterolateral approach used previously for implantation of the total hip. After drainage, cleaning and culture-taking, the prosthesis was removed (none of the components was loose) and an antibiotic-impregnated spacer was introduced (fig. 3).

After surgery, empirical antibiotic treatment was administered with piperacillin and tazobactam. This antibiotic treatment was substituted by amoxicillin with intravenous clavulanic acid once it became known that the results of the intraoperative cultures were positive for *Streptococcus constellatus* and *Streptococcus viridans*.

Eight days after surgery, a follow-up CT-scan was performed, which revealed a residual accumulation. This fluid accumulation was punctured under ultrasound control and 280 cc of purulent material was drained.

The patient was discharged on oral antibiotic treatment 64 days after admission and 34 days after intravenous antibiotic treatment was begun. On discharge, x-rays were normal as were all serum inflammation markers except for VSG, which was still high.

The patient was advised to solve his dental problems while the cement-impregnated spacer was implanted, so two procedures were carried out for tooth extraction.

At 7 months from the first operation, the second surgical stage was performed at which an S-Rbm revision prosthesis with an oblong acetabular cup was implanted (fig. 4).

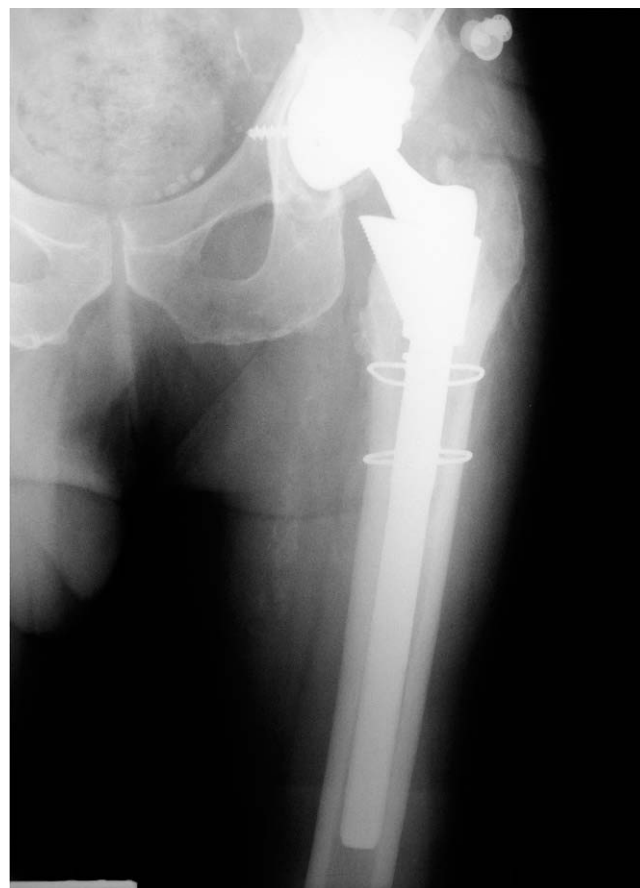


Figure 4 Revision prosthesis implanted at the second surgical stage.



Figure 5 Postoperative pelvic CT-scan showing resolution of the abscess.

All the cultures obtained in the course of this second surgical stage were negative.

Subsequent patient evolution has been satisfactory and at present he is asymptomatic (fig. 5).

Discussion

We have presented a case of late infection of a hip replacement; the infection stemmed from an odontogenic origin, with secondary fistulization of the fluid accumulations toward the inner surface of the iliac bone. This fistulization dissects the iliacus muscle off this surface and ascends up the retroperitoneum until the diaphragm.

The bacteria causing the infection was *S. viridans*, considered the microorganism most frequently involved in prosthetic infections originated in the mouth¹. In the case presented herein, the remote origin of the prosthetic infection and of the secondary abscess was an oral infection that manifested itself clinically one month before the onset of the condition.

Dental manipulations too are frequently associated to late prosthetic infections. According to some authors, the origin of up to 6% of infections appearing 6 months after surgery can be traced back to tooth extractions, treatment of dental roots or periodontic procedures performed without antibiotic prophylaxis¹. These infections arise from the fact that these interventions tend to cause transient bacteremia (around 30 min in duration) that is apt to induce remote seeding of the said microorganisms in the hip³.

Symptoms of these late infections from odontogenic origins tend to be less manifest than in the case presented herein. They usually consist in non-disabling hip pain on weight-bearing and motion. Fever and blood-related alterations indicative of infection (leukocytosis, increased GSR and C-reactive protein) are commonly present.

Fistulization of prosthetic infection toward the inside of the pelvis, i.e. upward infection drainage, as well as development of an abscess inside an intraabdominal muscle belly are rare. We have only found one other similar case in the literature caused by *Escherichia coli*; this case was resolved by (open and percutaneous) drainage of the abscess and antibiotic treatment, with no need to remove the prosthetic material⁴. However, septic hip arthritis secondary to an iliac psoas abscess⁵ or to fistulizations of a pelvic origin^{6,7} are more frequent. These involve a downward drainage of the purulent fluid accumulation (Pott's ossifluent abscess).

To conclude, the authors believe that in order to prevent this kind of infection of joint prostheses, it is necessary to include oral hygiene among the requirements to be observed by patients scheduled for prosthetic joint replacement.

Conflict of interests

The authors of this paper have declared to have no conflict of interests.

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