

Hip septic arthritis and iliopsoas abscess in pertrocanteric fracture: a case report

Artritis séptica de cadera y absceso del iliopsoas en fractura pertrocantérea: informe de un caso

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ABSTRACT

Introduction: The number of osteoporosis- related fractures would grow to about 6 million and cost \$25.4 billion annually by the year 2050. Hip fracture is one of the main consequences of osteoporosis, with devastating results for the affected patients, including markedly increased subsequent risk of fracture. Septic arthritis of the hip after femoral fracture is a rare complication. There were reports of a few cases of septic arthritis in patients following femoral neck fracture with severe medical comorbidities. Iliopsoas abscess is a rare condition with a varied symptomology and etiology.

Objective: We propose to present a rare case with hip fracture.

Case presentation: A 62-years -old was referred from another hospital with chronic post-traumatic subdural hematoma. After a few days he developed

right hip pain; a plain radiograph showed intertrochanteric fracture of the right femur. At the hospital admission the patient was afebrile and the right hip physical examination showed no signs of inflammation or skin lesion. Microbiological examination of the pus taken from the operation site showed a positivity to *Staphylococcus aureus*. Post-operatively, the patient received vancomycin 1 gr twice a day intravenously and piperacillin and tazobactam 4,5 gr every 8 hours as empirical treatment for four days, later switched to daptomycin 6 mg/kg per day intravenously and continuing vancomycin according to the antibiogram results. Conclusion. Patient refused further surgical treatments.

Keywords: hip fracture; iliopsoas abscess; complications.

RESUMEN

Introducción: Se estima que las cifras de fracturas relacionadas con la osteoporosis pudieran aumentar en alrededor de 6 millones y pudieran costar 25 400 millones de dólares anualmente para el 2050. La fractura de cadera constituye una de las principales consecuencias de la osteoporosis, con resultados devastadores para los pacientes afectados, lo que representa un mayor riesgo de fractura posteriormente. La artritis séptica de la cadera después de una fractura femoral es una complicación rara. Hubo informes de algunos casos de artritis séptica en pacientes después de sufrir una fractura del cuello femoral con graves comorbilidades médicas. El absceso del iliopsoas se considera una afección rara con sintomatología y etiología variadas.

Objetivo: Presentar un raro caso de fractura de cadera.

Presentación del caso: Se presenta el caso de un hombre de 62 años, remitido desde otro hospital con hematoma subdural postraumático crónico. Después de unos días, el paciente desarrolló dolor en la cadera derecha. Una radiografía simple mostró una fractura intertrocantérea del fémur derecho. Al ingreso hospitalario el paciente se encontraba afebril y durante el examen físico de la cadera derecha no se observaron signos de inflamación ni lesión cutánea. El examen microbiológico del pus extraído del lugar de la operación mostró positividad para *Staphylococcus aureus*. En el posoperatorio el paciente recibió 1 gramo de vancomicina dos veces al día por vía intravenosa, y piperacilina y tazobactam 4,5 gramos cada ocho horas como tratamiento empírico durante

cuatro días; posteriormente se cambió a daptomicina (6 mg/kg) diaria por vía intravenosa y continuó con vancomicina, según los resultados del antibiograma.

Conclusiones: El paciente rechazó tratamientos quirúrgicos adicionales.

Palabras clave: fractura de cadera; absceso del psoas iliaco; complicaciones.

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Introduction

Due to the increase of the elderly population, increasing life expectancy, and light labor lifestyle, the number of patients with osteoporosis and osteoporotic fractures has increased, and brought a high economic burden and nursing management challenges to patients, medical staff, and society.^(1,2) The number of osteoporosis-related fractures would grow to about 6 million and cost \$25.4 billion annually by the year 2050.⁽¹⁾ Hip fracture is one of the main consequences of osteoporosis, with devastating results for the affected patients, including markedly increased subsequent fracture risk.⁽³⁾ The mortality and morbidity of hip fracture are high with one-year mortality rates that range 14-36 %.⁽⁴⁾

Surgery is the treatment of choice if there is no medical contraindication for surgery such as recent myocardial infarction or recent stroke. Non-operative treatment with bed rest is associated with problems of immobilization, such as pressure sore, pneumonia, and urinary tract infections, which increase the mortality 3.8 times in comparison with the operative group.⁽⁵⁾ Septic arthritis of the hip after femoral fracture is a rare complication. There were reports of a few cases of septic arthritis in patients following femoral neck fracture with severe medical comorbidities.^(6,7)

However, there are no reports of this complication in patients without severe medical conditions and there is no consensus on the method of treatment of

this condition. Iliopsoas abscess is a rare condition with a reported incidence of 0.4/100,000 in the UK.⁽⁸⁾

It may present with a varied symptomology referable to any acute medical problems, due to the relative rarity and often non-specific features of Iliopsoas abscess there are frequently delays in the diagnosis and effective management of the condition. It can be classified as primary or secondary. Primary iliopsoas abscess occurs to the hematogenous or lymphatic spread of a causative organism from a distant site. Secondary iliopsoas abscess occurs as a result of the direct expansion of a nearby infectious or inflammatory process into the iliopsoas.^(9,10,11,12) Primary iliopsoas abscess makes up approximately 30 % of all cases seen. It is more common in children where it can be mistaken for septic arthritis of the hip. Secondary iliopsoas abscess accounts for the majority of cases seen and most commonly arises from intra-abdominal inflammatory processes particularly those of intestinal origin. Other causes include spinal and other skeletal pathology.^(8,10,11) Vertebral osteomyelitis and hip septic arthritis particularly in the context of hip arthroplasty have been shown to be causes of secondary iliopsoas abscess.⁽¹³⁾

Case presentation

A 62 years old was referred from another hospital with chronic post-traumatic subdural hematoma. After a few days he developed right hip pain; a plain radiograph showed intertrochanteric fracture of the right femoral (fig. 1). Upon admission the patient was afebrile and the right hip physical examination showed no signs of inflammation or skin lesion. The results of the initial serum workup were white blood cell count $10 \times 10^6/\text{ml}$, hematocrit 24.2 %, hemoglobin 8.9 g/dl, polymorphonuclear neutrophils (PMN) 76.7 %, lymphocytes 14.0 %, eosinophils 0.2 %, monocytes 8.9 %, and platelets $132 \times 10^6/\text{ml}$. The gamma glutamine transferase was more than 167 U/L (normal value 5-50 U/L).

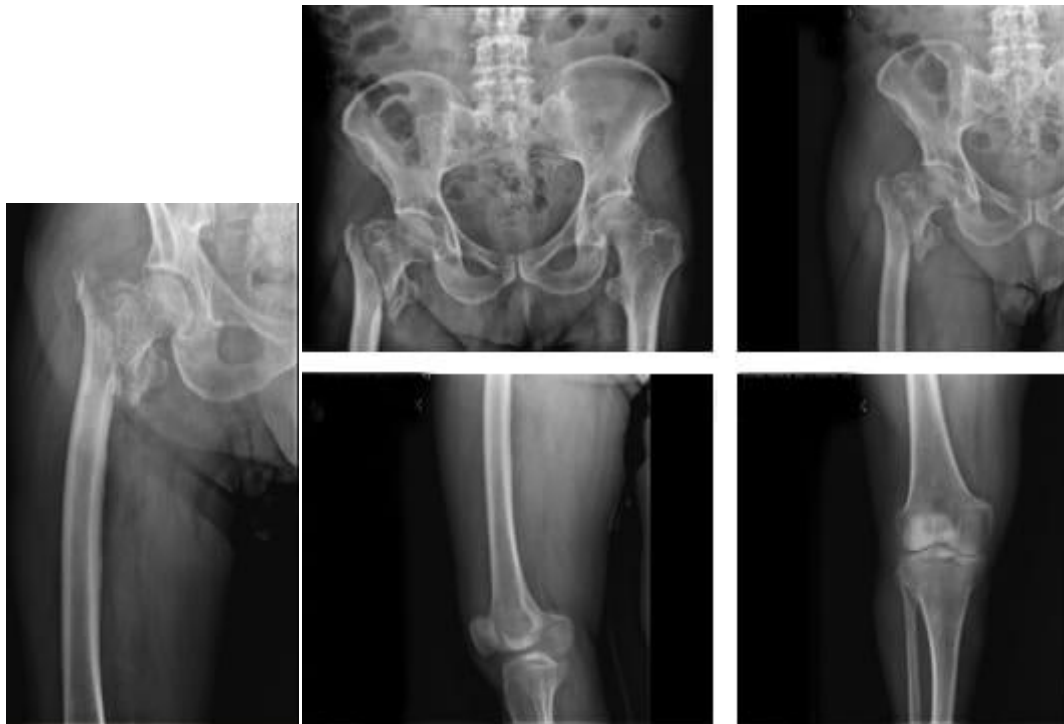


Fig. 1 - Preoperative conventional radiographies.

He was scheduled for intramedullary internal fixation. However, an unexpected intraoperative finding completely changed the surgical plan. His right hip joint was filled with about 40 mL of pus. The surgical treatment was shifted to irrigation and debridement. The wound was then copiously irrigated with 4 liters of normal saline. Microbiological examination of the pus taken from the operation site showed a positivity to *Staphylococcus aureus*. Post-operatively, the patient received vancomycin 1 g twice a day intravenously and piperacillin and tazobactam 4,5 g every 8 hours as empirical treatment for four days and then later switched to daptomycin 6 mg/kg per day intravenously and continuing vancomycin according to the antibiogram results. After 11 days a computed tomography scan revealed an iliopsoas abscess and gluteus medius and minimus (fig. 2).

The intravenously therapy lasted 8 days, then he received oral tetracycline 100 mg twice a day for 45 days and negativization of microbiological exam. Patient refused further surgical treatments.

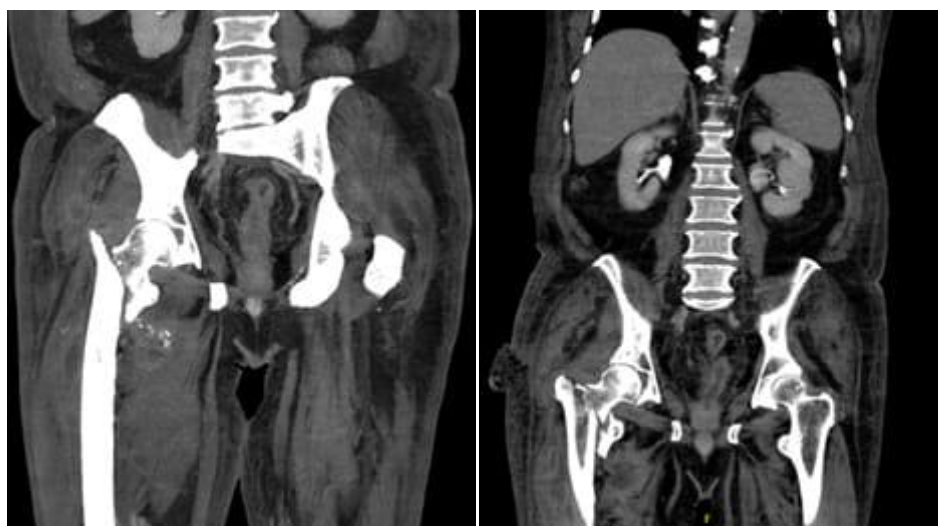


Fig. 2 - Preoperative computed tomography (coronal plane).

Discussion

Femoral neck fracture is a common problem among elderly patients. This fracture is associated with various complications, high morbidity and mortality. Early operative treatment, either with internal fixation or hip replacement to gain early mobilization, can minimize these problems.⁽⁴⁾ Septic arthritis after femoral neck fracture is a very rare complication. At our knowledge, there were reported only twice publications in literature.

Colak et al.⁽⁶⁾ reported three cases and *Hearth et al.*⁽⁷⁾ reported two cases. All cases in both reports were immunocompromised hosts and the ages varied from 48 to 96 years old. The hypothesis of septic arthritis after hip fracture in this case was hemarthrosis in the hip joint after fracture that was the media for microorganism growth and infection.⁽⁷⁾ Local or systemic infection may be identified as the source of the pathogen.

The cases reported by *Hearth et al.*⁽⁷⁾ showed urinary tract infections as the source of infection. However, in our case the source of infection could not be identified. The elevated white blood cell count, increased percentage of PMNs, and the highly elevated inflammatory markers (ESR and CRP) were found in our case and in the cited case reports. The pathogens identified from pus specimens in the previous studies were gram negative, and in most cases the organisms were *Escherichia coli*, *Proteus* species, and *Pseudomonas* species.^(6,7) Only one case in the literature was *Staphylococcus aureus* which

was similar to our case.⁽⁶⁾ There is no specific treatment for this condition because this kind of incident is rare. *Hearth et al.*⁽⁷⁾ performed resection arthroplasty.^(1,2)

Conclusions

Septic arthritis following femoral neck fracture is a complication which requires special attention for diagnosis. In the era of aging populations, femoral neck fracture is a common problem in the elderly. Iliopsoas abscess is a rare condition with a varied symptomology and etiology. Hip septic arthritis has been shown to be causes of secondary iliopsoas abscess. However, there are no reports of this complication in patients without severe medical conditions and there is no consensus on the method of treatment of this condition because this kind of incident is rare.

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Conflict of interest

The authors declare that there is no conflict of interest.