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Treatment of Psoas abscess related coxarthrosis due to salmonella infection in a patient with chronic renal failure.

A case report

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Treatment of Psoas abscess related coxarthrosis due to salmonella infection in a patient with chronic renal failure. A case report

INTRODUCTION: *The most common microorganisms isolated from septic arthritis are staphylococcus aureus and streptococci. Septic arthritis due to Salmonella spp. is extremely rare.*

PRESENTATION OF CASE: *A 55-year-old man, chronic renal failure, is admitted hip arthritis with newly arised symptoms. The findings were not compatible with primary arthritis. The laboratory findings which include white blood cell count, erythrocyte sedimentation rate (esr) and c-reactive protein (crp) were elevated. In magnetic resonance (mr) imaging there were psoas abscess and septic arthritis of the hip. They were treated by drainage. The culture was confirmed as Salmonella spp. Antibiotic treatment were done.*

DISCUSSION: *Uremia in patients with chronic renal failure is associated with a state of immune dysfunction. In our case, uremia may cause immunosuppressive conditions and hematogenous dissemination of salmonella.*

CONCLUSION: *Salmonella infection in a patient with chronic renal failure may be occured. It must be kept in mind that early diagnosis, administration of appropriate systemic antibiotics and surgical intervention play a pivotal role in successful management.*

KEY WORDS: Arthritis, Failure, Psoas, Salmonella Renal Abscess

Introduction

The genus *Salmonella* consists of a large heterogeneous group of gram negative bacilli. Humans are infected mainly by ingestion of food or water resulting in 4 types of clinical syndromes: enteric fever, septicemia with or without suppurative lesions, gastroenteritis, and carrier state ¹.

Infections due to *Salmonella* spp. are common and their incidence appears to be increasing in many countries. However septic arthritis due to *Salmonella* spp. is extremely rare especially in Turkey. *Salmonella* arthritis

accounts for only 1% of all cases and usually follows gastroenteritis that is caused most often by non-typhoidal *Salmonella* ².

Pyogenic iliopsoas abscess is primarily due to the hematogenous spread of *Staphylococcus aureus* and secondly due to the abscess formation subsequent to infections of the neighboring organs and tissues ³. But, psoas abscess caused by *salmonella* is extremely rare. The diagnosis of iliopsoas abscess is often delayed due to vague initial presentations, lack of its suspicion among physicians, and absense of specific physical signs in this anatomic area as demonstrated in the present case. It is not uncommon for patients to experience symptoms for weeks to months before a proper diagnosis is ultimately made ⁴. A CT scan is probably the most sensitive diagnostic method and optimal treatment probably consists of percutaneous drainage and prolonged antimicrobial therapy.

This case aims to highlight the dangers of *salmonella* arthritis and simultaneous diseases in conditions that par-

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ticipants may not be accustomed. We tackled such problem by addressing both chronic immunosuppressed individuals and simultaneous infections aspect of early diagnosis.

Case Report

A 55-year-old male patient was admitted to the orthopaedic ward with chief complaints of pain, restriction of movements, and difficulty to bear weight on the right hip as a nonambulatory patient with wheelchair. He was admitted to neurosurgical ward one month ago because of back pain. The patient was a known case of chronic renal failure and on treatment of haemodialysis. He was complaining of severe pain at the right hip and a temperature of 38.8 C° that started one day ago. Local examination of the right hip region showed tenderness and the movements were painfully restricted. The laboratory findings were haemoglobin 9.89 g/dl, white blood cell count 20.0 K/uL with neutrophilic leukocytosis, erythrocyte sedimentation rate (ESR) 72 mm/h, c-reactive protein (CRP) 21,48 mg/dl. The radiograph of the right hip showed joint space narrowing and protrusio acetabuli of the femoral head (Fig. 1).

There was psoas abscess, effusion of the right hip and avascular necrosis of the femoral neck on magnetic resonance imaging (MRI) (Figs. 2, 3).

The patient did not report any episode of fever over the preceding months. There was no history of trauma, pri-

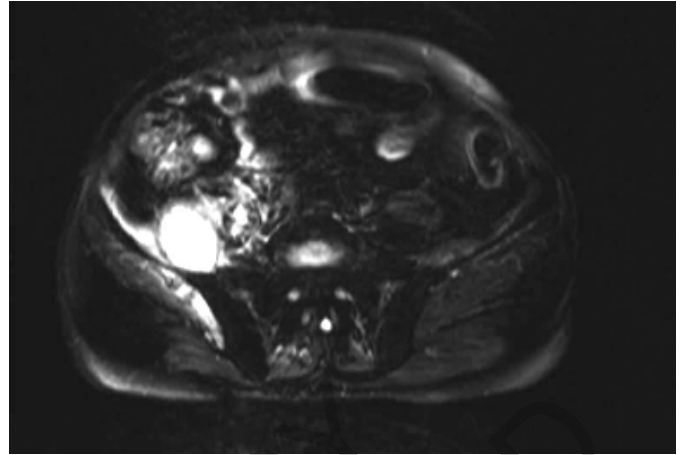


Fig. 2: Psoas abscess of the right side.

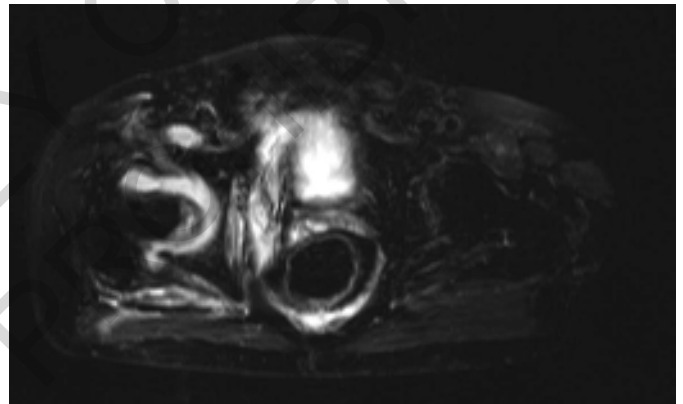


Fig. 3: Effusion of the right hip and avascular necrosis of the femoral neck.



Fig. 1: The radiograph of the right hip showed joint space narrowing and protrusio acetabuli of the femoral head.

or surgery, or abdominal discomfort. There was no history of illness suggestive of typhoid fever in any of his family members. We consulted the patient with general surgery and interventional radiology department. CT guided aspiration and culture performed from the psoas muscle abscess and drainage continued for about one week. Surgical intervention was done by open drainage of the hip. The culture was confirmed as *Salmonella spp.* Further identification of *Salmonella spp.* could not be performed due to lack of required laboratory conditions. It was sensitive to ampicillin, trimethoprim-sulphamethoxazole, ciprofloxacin, ceftazidime, ertapenem and ceftriaxone. The blood culture was sterile. The patient was treated with intravenous ciprofloxacin. He became afebrile in three days. The oral antibiotics were continued for six weeks, at the end of which clinical and laboratory findings and culture became normal except for limping.

At follow up period patient was pain free but he was limping because of secondary coxarthrosis. CRP values never became to normal levels because of chronic renal failure. White blood cell count was normal. We made three recurrent aspirations from the hip monthly after antibiotherapy and cultures were negative. The patient was consulted with internal medicine and infectious disease departments due to high CRP values. Abdomen ultrasonography and computerised tomography didn't show another pathology except chronic renal failure. After one year the patient is operated due to secondary coxarthrosis. We made total hip replacement because of avascular necrosis. Histopathological examination of the biopsy specimen from the femoral neck and head showed necrotic bone consistent with avascular necrosis. The patient showed satisfactory functional gain without any postoperative complications at two year follow-up visit.

Discussion

Septic arthritis is a rare consequence of non-typhoid salmonella bacteraemia and occurs more often in patients with underlying medical conditions such as sickle cell disease, systemic lupus erythematosus and diabetes mellitus^{5,6}.

Avascular necrosis is the most common predisposing factor for Salmonella septic arthritis and the hip joint is most frequently involved⁵. Permanent joint damage develops in half of the cases and mortality rate is 10-15%^{7,8}.

Iliopsoas abscess was a well-recognized complication of mycobacterial infection of the spine or sacroiliac joints before effective modern treatment of tuberculosis⁹. Kim et al reported a case, in which the psoas abscess occurred secondary to iatrogenic infections of the spine¹⁰.

However, psoas abscess caused by salmonella is particularly rare. The physicians must be careful about this condition in patients with underlying diseases such as diabetes, cancer, human immunodeficiency virus (HIV) infection, reticuloendothelial blockade (e.g. malaria, sickle cell disease, or bartonellosis), and suppressed immunity of all kinds in endemic areas¹¹.

Uremia in patients with chronic renal failure is associated with a state of immune dysfunction¹². In our case, uremia may cause immunosuppressive conditions and hematogenous dissemination of salmonella. After treatment of acute conditions caused by infective organism leukocyte level became to normal but CRP level was still high. Due to high CRP levels we couldn't decide to do operation immediately. Because of negative control cultures high CRP level was thought to be associated with chronic renal disease¹³. As a result we treated hip arthrosis by total hip arthroplasty. During 2 year follow up period there was no complaint of the patient about his hips.

Conclusion

Pyogenic joint infections caused by *Salmonella spp.* are rare reported for now in Turkey. We paid attention to definitive early diagnosis of the infection and reported to highlight the unusual presentation of Salmonella. Conventional diagnostic methods as Widal and blood culture may not be useful for diagnosis. In chronic immunosuppressed individuals, symptoms can be change and the second disease may be simultaneous. Isolation of *Salmonella spp.* from the joint remains the gold standard. Physicians should be aware of the rare infections and early diagnosis can minimize the damage to the affected joint.

In this case report, we describe reconstructive surgery of coxarthrosis due to salmonella infection in a patient with chronic renal failure and taking treatment of haemodialysis with secondary. It must be kept in mind that early diagnosis, administration of appropriate systemic antibiotics and surgical intervention play a pivotal role in successful management.

Riassunto

I microrganismi più comuni isolati dall'artrite settica sono lo stafilococco aureo e gli streptococchi, mentre l'artrite settica da *Salmonella spp.* è estremamente rara.

Viene presentato il caso di un uomo di 55 anni, affetto da insufficienza renale cronica, ricoverato per con artrite dell'anca con nuovi sintomi insorti di recente ed i risultati delle indagini non erano compatibili con l'artrite primaria. I risultati di laboratorio, conta dei globuli bianchi, velocità di eritrosedimentazione e proteina c-reattiva erano tutti elevati. Nell'imaging a risonanza magnetica (MR) risultavano ascessi dello psoas e artrite settica dell'anca. Tali lesioni sono state trattate con drenaggio, e la coltura ha dimostrato la presenza della *Salmonella spp.* È stato effettuato il trattamento antibiotico.

L'uremia nei pazienti con insufficienza renale cronica è associata a uno stato di disfunzione immunitaria. Nel nostro caso, l'uremia può causare condizioni immunosoppressive e diffusione ematogena della salmonella. In conclusione può verificarsi un'infezione da *Salmonella* in un paziente con insufficienza renale cronica. Va tenuto presente che la diagnosi precoce, la somministrazione di antibiotici sistemici appropriati e l'intervento chirurgico svolgono un ruolo fondamentale per un trattamento efficace.

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