Septic Arthritis Due to Meningococcus. Report of an Atypical Case Presentation

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We have observed the case of a 73-years-old man with a septic monoarthritis affecting the left knee due to *Neisseria meningitidis* serogroup B, without previous traumatism, fever, headache, or meningeal symptoms. The patient didn´t present risk factors of meningococcal infection. The infection was resolved satisfactorily with parentheral ceftriaxone during 2 weeks and oral ciprofloxacin during 1 month.

Key words: *Neisseria meningitidis*. Septic artritis. Meningococcus.

Artritis séptica por meningococo. Comunicación de un caso de presentación atípica

Presentamos el caso de un paciente de 73 años con monoartritis séptica de rodilla izquierda por *Neisseria meningitidis* serogrupo B, sin traumatismo previo, fiebre, cefalea ni síntomas meníngeos. El paciente no presentaba factores de riesgo de infección meningocócica. El proceso se resolvió satisfactoriamente y sin secuelas con ceftriaxona vía parenteral durante 2 semanas y, posteriormente, ciprofloxacino vía oral durante un mes.

Palabras clave: *Neisseria meningitidis.* Artritis séptica. Meningococo.

Introduction

Septic arthritis due to meningococcus is a rare manifestation of meningococcal infection. It predominates in children due to the low titer of antibodies present during their first 2 years of life. In the absence of meningococcus or meningococcemia it is infrequent, being isolated in 1% of synovial fluids of septic arthritis.[1] Response to adequate antibiotic treatment is slow but satisfactory. In this article, the case of a 73-year-old patient with septic monoarthritis of the left knee due to meningococcus; what is relevant in this case is that this etiology is rare in patients of this age group as well as its atypical presentation and its good progression with outpatient treatment.

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Manuscript received January 12, 2007; accepted for publication April 25, 2007.

Case Report

A 73-year-old male, without any history of interest, showed up at the outpatient rheumatology clinic due to bilateral, inflammatory knee pain that had started 3 months prior, without a history of preceding trauma. Before coming to the rheumatology clinic, the patient had been treated with non-steroidal anti-inflammatory drugs and low-dose steroids, without any improvement. He did not present fever, headache, or photophobia. There were no important findings upon examination, except genu varo and a minimal effusion on the left knee. He did not have any skin lesions or lymphadenopathy. Neurologic examination was normal. An arthrocenthesis of the left knee was performed, extracting 3 mL of inflammatory fluid that was sent for culture.

Blood analysis revealed: ESR, 108; CRP, 101.6; normochromic, normocytic anemia with 10.1 g/dL hemoglobin; 535 000 platelets; and 10 300 leukocytes. The rest of the analysis (blood chemistry, urine, complement, coagulation, proteins, RF, anti-CCP, immunoglobulins, TSH, ANA, anti-DNA, NEA, cardiolipin, and ANCA) was normal or negative.

The x-ray showed an increase in the soft tissue of the left knee, without any bone or joint lesions.

The synovial fluid culture was positive for serogroup B *Neisseria meningitidis*, which was sensitive to ceftriaxone and ciprofloxacyn.

Outpatient treatment was started by request of the patient, with parentheral ceftriaxone at a dose of 2 g/12 h for 2 weeks, 2 g a day for 2 weeks, followed by oral ciprofloxacyn 750 mg/12 h for 1 month, with a complete clinical resolution and normalization of acute phase reactants.

Discussion

Neisseria meningitidis is a gramnegative aerobic, non-motile, non-sporulating, usually encapsulated bacterium with fimbriae, of a great pathogenicity and virulence. There are 13 serogroups depending on the immunologic reactivity of its capsular polysaccharide. Serogroups that more frequently cause septic arthritis are C (36%), B (30%), W135 (13%), and rarely A.

Transmission is produced by the exposure to a sick person or to a healthy carrier that disseminates the bacteria through the nasopharynx, by way of droplets of oropharyngeal and respiratory secretions that contain meningococcus and, occasionally, directly through saliva.

The factors of transmission that have been identified are active or passive smoking, upper respiratory tract viral infections, and drought or living in close quarters.

Pathogenic factors include lesions to the nasopharyngeal mucosa of carriers, virulent strains with the formation of capsule, absence of bactericidal antibodies, and complement system deficiencies. The pathogenic mechanisms of arthritis due to meningococcus can be synovial fluid direct bacterial invasion, hypersensitivity reactions due to immune complex deposition, hemarthrosis due to disseminated intravascular coagulation that appears in fulminant meningococcemia, and due to iatrogenic causes.[1-4]

Predisposing factors for meningococcal disease include splenectomy or functional asplenia, properdin deficiency[5] as well as deficiency of the terminal component of complement and probably, infection due to the human immunodeficiency virus.[6]

Meningococcus can produce 2 types of arthritis:

1. Sterile acute arthritis, in 10% of systemic meningococcal disease, with an autoimmune component directed against the bacterial capsule polysaccharide, forming non-soluble immune complexes.[7] They are associated to rash, joint pain, and negative cultures.[8-10]

2. A septic arthritis due to meningococcus that appears in 1.6%-16% of cases as a manifestation of meningococcal infection. It is more frequent in children (50%) than in adults (11%)[8,10-12] due to the low titer of antibodies against the meningococcus in the first 2 year of life. In the absence of meningitis or meningococcemia it is infrequent, being isolated in synovial fluid in 1% of septic arthritis.[1] This primary meningococcal arthritis is accompanied by upper respiratory tract infection in 50% of cases, 30% has maculopapular rash, 30% presents polyarthritis, and 50% has monoarthritis. It affects large joints (knee in 60% of cases, as the case described above).[1,13] The synovial fluid culture is positive in 90% of cases, blood cultures in 40%, and pharyngeal cultures in 30%.[4] Response to treatment is slow but it has a good prognosis, though without antibiotic therapy and joint drainage, the infection can rapidly lead to joint destruction.[14] In this case, due to the excellent response to treatment and, probably, to the low virulence of this strain, no surgical drainage or lavage was required.

Conclusions

Septic arthritis is a rare manifestation of meningococcal disease, in the absence of meningitis or meningococcemia, and an unusual cause of septic arthritis. In this case we emphasized the absence of fever and clinical signs of meningeal affection, had an unusual age at onset, had no risk factors for meningococcal infection and presented an excellent response to antibiotic treatment, which was carried out on an outpatient basis by request of the patient who, in spite of the diagnostic delay (3 months), recovered with no clinical or radiologic complications, leading us to think that it was a poorly virulent strain of germ.

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