Case Report

Polyarteritis nodosa in a young man, a ten-year Delay in diagnosis

M.B. ANDRÉSDÓTTIR, R. SUKHAI*, A.J.G. SWAAK

Summary We present a case history of a patient with polyarteritis nodosa (PAN). The first disease symptoms started when the patient was 6 years old and concerned mainly musculoskeletal complaints. The disease persisted into adulthood when, 10 years later, the diagnosis of PAN could be confirmed by histopathological examination.

Key words Polyarteritis Nodosa, Childhood.

INTRODUCTION

Polyarteritis nodosa (PAN), a prototype of systemic necrotizing vasculitis, was first described in 1866 by Kussmaul and Maier (1). The clinical manifestations are diverse and complex: from a relatively benign cutaneous form which may resolve without treatment to a severe disseminated form which is usually fatal (2). Histopathologically, it is characterized in the acute stage by intimal swelling and fibrinoid necrosis of small and medium-sized muscular arteries with an intense transmural infiltration that is pleomorphic with an admixture of lymphomononuclear cells and variable numbers of neutrophils and eosinophils (3,4). Polyarteritis nodosa is a very uncommon disease in children. Its variable clinical presentation makes diagnosis difficult.

We describe a 16-year-old boy who was thought to have a systemic onset of juvenile rheumatoid arthritis, diagnosed when the patient was 6 years old. The clinical presentation was marked by fever, myalgia, headache and vanishing rash. Joint involvement was minimal with no radiographical changes. The disease pursued a chronic course despite treatment with acetylsalicycic acid and corticosteroids, leading to numerous hospital admissions. The illness persisted into adulthood, when the patient was presented to our department of rheumatology. Attention was attracted by calf pain. Histopathological examination of a calf muscle biopsy revealed the diagnosis of polyarteritis nodosa. Because of the long delay in diagnosis and the rarity of PAN in childhood, the course of the disease in our patient is described.

CASE REPORT

The patient was sixteen years of age when he was referred to our clinic in 1992 because of high fever and muscle pain which did not respond to corticosteroids. He was earlier diagnosed as having Still's disease. In 1976 he underwent adenoidectomy and in 1978 tonsillectomy. In 1981, at the age of 6, he was admitted to a pediatric unit because of meningoencephalitis. Spinal fluid analysis revealed a high protein count and cells, mainly consisting of lymphocytes and monocytes. There was a rising titer of influenza B found in spinal fluid and blood. On this admission, the patient also developed an aseptic arthritis of the left hip joint. X-rays were normal and rheumafactors were absent. Blood analysis revealed a normocytic anaemia and an elevated ESR. A diagnosis of meningoencephalitis caused by influenza B was made. A couple of weeks later he was readmitted because of high fever, headache and abdominal pain. The patient had at that time no sign of joint involvement. All cultures were negative and no virus was isolated. Rheumafactors were still negative. The temperature dropped spontaneously in fourteen days. A few months later he had high spiking fever with low back pain. There were no skin changes and no further joint involvement. The spleen was enlarged. The ESR was moderately high, the white blood count was normal and there was anaemia. The patient was diag-
nosed as having Still’s disease and therapy was started with acetylsalicylic acid.

In January 1982 he was admitted again with high spiking fever, headache and generalized muscle pain. Physical examination revealed pain on movement of the left hip, neck rigidity and conjunctivitis. Blood analysis showed anaemia, high white blood count and a high C reactive protein. There was a passing thrombocytopenia. C4 was moderately lowered and the other components were normal. ANA was negative. Spinal fluid analysis revealed high protein count and cells, mainly lymphocytes, a few monocytes and some large histiocytes. No infectious agent was isolated. He also developed rash on arms, legs and thorax. Before admission, corticosteroid therapy was already started, because of poor reaction the dose was doubled and 40 mg prednisolon was given daily.

Between 1982 and 1984 the patient continued on low dose corticosteroids and acetylsalicylic acid. Then the corticosteroid therapy was discontinued. During this period he experienced three febrile episodes and complained about occasional stiffness and joint pain accompanied by disturbed gait. In 1985 he was admitted for the fifth time because of a febrile episode. During the next two years he suffered periodically from stiffness, fever and calf pain; the blood analysis, however, showed no abnormalities and the patient continued his NSAID therapy.

In 1987 he was admitted twice with febrile episodes. There were no new findings. Shortly thereafter he developed progressive illness with high temperature, generalized pain, erythema, with accompanying anaemia and high ESR. Then 40 mg prednisolon was given. The corticosteroids were tapered and treatment was continued with NSAID’s. In 1990 the patient relapsed with an episode of fever and responded well to 40 mg prednisonol daily.

In October 1991 he developed fever and sinusitis. Antibiotics were given with no effect on the fever and corticosteroids were added. This gave favourable results. The steroids were tapered rapidly and stopped, resulting in progressive illness. Therapy was started with 40 mg prednisolon every other day and NSAID’s given in high doses. The patient was referred to our clinic two weeks later. At that time he had high spiking fever, headache, stiffness and muscle pain. He complained of low back pain and neck pain. There was anorexia and nausea. On physical examination we saw a sixteen-year-old boy with rectal temperature of 37.8°C, blood pressure was 110/60 mmHg, pulse 92/min regular. There was conjunctivitis bilateral and nasal constipation. No signs of pharyngitis. Chest examination was normal. No abnormalities on abdominal examination. Arterial pulsation was symmetrical. There was no sign of synovitis and no joint pain, there was full joint movement. Neck and shoulder musculature was painful on palpation. There was no skin rash. Laboratory analysis showed an elevated ESR of 52 mm/hr and a raised C-reactive protein; 129 mg/l. There was a mild anaemia with a haemoglobin 7.2 mmol/l and a slight increase in white blood count 13×10^9/l, with 82% granulocytes, 10% lymphocytes en 7% monocytes, thrombocytes where 360×10^9/l.

Hb electrophoresis was normal, haptoglobin 3.6 g/l. Immunoelectrophoresis was normal. Sodium 136 mmol/l, potassium 3.7 mmol/l, calcium 2.22 mmol/l, ureum 4.4 mmol/l creatinine 86 mmol/l, albumin 35 g/l, bilirubine 13 microm/l, all normal. Alkaline phosphatase was slightly raised; 107 E/l, gamma-GT 41 U/l ASAT 16 U/l ALAT 17 U/l LDH 332 U/l creatinekinase 2 U/l, aldolase 3 U/l, both normal. Serum glucose level was 8.1 mmol/l, monos-ticon neg, HBsAg neg. Serum ferritine was within the normal range. Urine analysis was normal. Anticytoplasmic antibodies neg, C1q 2011E/ml (81-128), C3 112 IE/ml (73-132) C4 131 IE/ml (57-140) C5 125 IE/ml (67-125) CHS0 149% (68-133%), AP50 133% (67-128%), IgG1 5.5 g/l, IgG2 3.03 g/l, IgG3 0.28 g/l IgG4 0.21 g/l (normal). Antistreptolysine titer 56 E/L (<250), ANF neg, Waaler-Rose test neg, IgM rheumafactors (ELISA) neg, antiDNA neg. Throat swab, blood and urine cultures, were all sterile. Viral titers were normal. Borrelia burgdorferii serology was negative. Radiological examination showed no abnormalities of chest, spine and sacroiliac joints. Spleen was enlarged by ultrasonar examination. Echocardiogram and electrocardiography were both normal.

In summary, all investigation revealed only an elevated ESR and C-reactive protein, an anaemia, a moderately raised white blood count and a slightly elevated LDH and alkaline phosphatase.

We decided to taper the corticosteroids and to stop the NSAID’s and observe the patient without medication. The fever persisted with a spiking character to 39°C. He also developed a striking muscle pain, localized mainly in distal extremities, causing a highly abnormal gait. There was a period with purpura-like lesions around ankles and arms. The extreme muscle pain persisted and we decided to take a biopsy from the painful calf muscle. The histopathological examination revealed medium-sized arteries infiltrated transmurally by mainly granulocytes. Fibrinoid necrosis was found with obliteration of the lumina, accompanied by an intense infiltration around the medium-sized vessels, consisting of lymphocytes, granulocytes and histiocytes. These findings are compatible with the diagnosis of PAN.