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Case report

Chronic polyarthritis as isolated manifestation of toxocariasis

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ABSTRACT

Human toxocariasis is a parasitic zoonosis mainly caused by *Toxocara canis* or *Toxocara cati* and is acquired by ingestion of the parasite's embryonated eggs. Arthralgia and/or arthritis were reported in up to 17% of the cases, generally with acute duration (less than 6 weeks). However, to our knowledge, chronic polyarthritis, as the isolated presentation of *Toxocara* infection, was not reported. One of the 5809 patients that was followed up at our service (0.017%) had chronic polyarthritis as the single manifestation of toxocariasis and was described herein. A 3-year-old girl was referred to our service with severe painful chronic polyarthritis for a period longer than 10 weeks and morning stiffness of 30 min. Dog contact exposure history in the recreational areas of neighborhood was reported. Her exams showed high levels of eosinophils in peripheral blood (29%), bone marrow aspirate revealed marked eosinophilia (32%) and *Toxocara* enzyme-linked immunosorbent assay (Elisa) was positive (1:1280). She was treated with paracetamol (40 mg/kg/day) and thiabendazole (25 mg/kg/day) for 10 days, and all manifestations reduced. After eight months of follow-up, she was on clinical and laboratorial remission. In conclusion, we described a case of chronic polyarthritis, as isolated manifestation of toxocariasis, mimicking juvenile idiopathic arthritis and leukemia. Importantly, this zoonosis should be considered in patients with arthritis and eosinophilia.

Poliartrite crônica como manifestação isolada da toxocaríase

Palavras-chave:
Artrite crônica

RESUMO

A toxocaríase é uma zoonose parasitária causada principalmente pelo *Toxocara canis* ou pelo *T. cati*. É adquirida pela ingestão de ovos embrionados do parasita. A artralgia e/ou artrite foram relatadas em até 17% dos casos, geralmente com duração aguda (menos de seis

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semanas). No entanto, que se tem conhecimento, a poliartrite crônica como manifestação isolada da infecção por *Toxocara* ainda não foi descrita na literatura. Um dos 5.809 pacientes acompanhados em nosso serviço (0,017%) exibiu poliartrite crônica como manifestação única da toxocaríase e foi descrito neste estudo. Uma menina de três anos foi encaminhada ao nosso serviço com poliartrite crônica dolorosa grave por um período superior a 10 semanas e rigidez matinal diária de 30 minutos. Foi relatada história de exposição a contato com cão nas áreas de lazer do bairro. Seus exames revelaram níveis elevados de eosinófilos no sangue periférico (29%), o aspirado de medula óssea revelou eosinofilia acentuada (32%) e o ensaio imunoenzimático ligado a enzima (Elisa) para *Toxocara* foi positivo (1:1.280). A criança foi tratada com paracetamol (40 mg/kg/dia) e tiabendazol (25 mg/kg/dia) durante 10 dias e houve regressão de todas as manifestações. Depois de oito meses de seguimento, a pequena paciente estava em remissão clínica e laboratorial. Em conclusão, descreve-se um caso de poliartrite crônica como manifestação isolada da toxocaríase, que mimetizou uma artrite idiopática juvenil e leucemia. É importante ressaltar que essa zoonose deve ser considerada em pacientes com artrite e eosinofilia.

Introduction

Human toxocariasis is a parasitic zoonosis caused mainly by *Toxocara canis* or *Toxocara cati* and is acquired by ingestion of the embryonated eggs of the parasite.[1,2] The clinical forms are systemic (visceral larva migrans), localized (ocular and neurological), asymptomatic and covert.[2–4]

Of note, the covert form presents non-specific symptoms, such as lymphadenopathy, dermatological disorders, asthma and joint manifestations.[2–4] Arthralgia and/or arthritis were reported in up to 17% of the cases,[2] generally with acute duration (less than 6 weeks). In Brazil, the prevalence of toxocariasis in urban areas ranged from 3.6% to 24.7%.[5,6] However, to our knowledge, severe and painful chronic polyarthritis, as the isolated presentation of *Toxocara* infection, was not reported.

From January 1983 to November 2013, we revised the charts of patients followed up at the Pediatric Rheumatology Unit of the Children's Institute of Hospital das Clínicas da Faculdade de Medicina Universidade de São Paulo. Only one of the 5809 patients (0.017%) had chronic polyarthritis as the single manifestation of toxocariasis and was described herein.

Case report

A 3-year-old girl was referred to our service with chronic polyarthritis in knees, wrists, shoulders, elbows and hips, with painful joint effusions in knees and wrists. The total duration of polyarthritis was 10 weeks. At that moment, she refused to walk due to severe pain. She had 30 min of morning stiffness and loss of appetite. Dog contact history in the recreational areas of neighborhood was reported. Laboratory examinations showed hemoglobin 10.1 g/dL, hematocrit 32%, white blood cell (WBC) 17,800 mm^3 (neutrophils 42%, lymphocytes 25%, eosinophils 29%, and monocytes 4%), platelets 464,000 mm^3, erythrocyte sedimentation rate (ESR) 55 mm/1st hour, C-reactive protein (CRP) 42.8 mg/dL, and lactate dehydrogenase (LDH) 879 mg/dL (normal range 117–213). Serologic test for hepatitis A, B and C, human immunodeficiency virus (HIV), cytomegalovirus, rubella, Epstein–Barr virus, toxoplasmosis and antistreptolysin O were negative. Three consecutive stool examinations did not identify any parasite infestation. Immunoglobulin E was 272 μg/L (normal <60 μg/L). Her bone marrow aspirate revealed marked eosinophilia (32%; normal range 0.5–7%) without neoplastic cells. The rheumatoid factor also was negative, and ophthalmological examination was normal. *Toxocara* enzyme-linked immunosorbent assay (ELISA) was 1:1280. She was treated with paracetamol (40 mg/kg/day) and thiabendazole (25 mg/kg/day) for 10 days, and all manifestations reduced. After 2 months, the ESR was 14 mm/1st hour, CRP 0.93 mg/dL and WBC 8200 mm^3 (neutrophils 35%, lymphocytes 53%, eosinophils 6% and monocytes 6%), platelets 224,000 mm^3, and immunoglobulin E was 162 μg/L. After eight months of follow-up, she was on clinical and laboratorial remission.

Discussion

Chronic polyarthritis, mimicking neoplasia and juvenile idiopathic arthritis (JIA), as the main manifestation of toxocariasis, have rarely been observed in our tertiary University Hospital in the last 30 years. The presence of concomitant arthritis and eosinophilia suggests the diagnosis.

Toxocariasis is a very common parasitosis in Brazil, and its prevalence ranged from 3.6% to 24.7%.[5,6] This infection, as a cause of isolated eosinophilic arthritis, is very seldom seen in the literature.[7] Indeed, it was rarely described in arthritis of Henoch-Schönlein purpura.[8–10] The diagnosis of toxocariasis is suspected in patients that presented household contact with dogs[11,12] and it is confirmed by the presence of specific antibodies, detected by ELISA method, with sensitivity of 90–92% and specificity of 90–95%.[1,4] The high levels of eosinophils in peripheral blood was also observed in more than 60% of the patients,[1,4,12] and IgE titers had high levels in children up to 3 years old,[2,4] as observed herein.

Our patient had covert clinical form with chronic arthritis without other clinical manifestations.[2–4] Indeed, lymphadenopathy, dermatological disorders, wheezing, arthralgia and acute arthritis may be associated with this form.[2–4]

However to our knowledge, chronic arthritis in children was not previously reported with this infection.

Importantly, the main differential diagnoses in our patient were acute lymphoblastic leukemia (ALL) and JIA. The presence of concomitant severe articular pain and high LDH levels, even without other systemic manifestations, indicate bone marrow aspiration to exclude this neoplasia, as in our case. Moreover, JIA is the most important cause of chronic arthritis with morning stiffness; however, the exclusion of infections is necessary to confirm this diagnosis.[13]

The treatment of toxocariasis is necessary for symptomatic patients to reduce the number of potentially migratory larvae.[9] The use of thiabendazole (25 mg/kg/day) for a short period therapy is indicated to covert forms, as in the present case.[4]

In conclusion, we described a case of chronic polyarthritis, as isolated manifestation of toxocariasis, mimicking JIA and ALL. This zoonosis should be considered in patients with arthritis and eosinophilia.

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Conflicts of interest

The authors declare no conflicts of interest.

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