

Human toxocariasis: A rare parasitosis (about 16 cases)

A Babay^{1*}; R Abid¹; S Hannachi¹; B Arfaoui²; W Elleuch¹; N Ben Abdelhafidh²; L Mtibaa³; B Jemli³; B Louzir²; R Battikh¹

¹Department of Infectious Diseases, Main Military Hospital of Instruction of Tunisia.

²Department of Internal Medicine, Main Military Hospital of Instruction of Tunisia.

³Department of Parasitology-Mycolology, Main Military Hospital of Instruction of Tunisia.

Received Date : Feb 23, 2022
Accepted Date : Mar 29, 2022
Published Date : Apr 08, 2022
Archived : www.jcmimagescasereports.org
Copyright : © A Babay 2022

***Corresponding Author:** A Babay, Department of Infectious Diseases, Main Military Hospital of Instruction of Tunisia.
Email: amirababay91@gmail.com

Abstract

Introduction: Toxocariasis is a helminthozoonosis with cosmopolitan distribution, due to the presence in the human body of larvae of a nematode of the genus *Toxocara*. (*T.*)Spp. Two nematodes are responsible for human toxocariasis: *T. canis* and *T. cati*. The objective of our study is to describe the epidemiological, clinical, diagnostic, therapeutic and evolutionary characteristics of human toxocariasis.

Materials and methods: This is a retrospective study of cases of human toxocarosis collected in the internal medicine department of the Military Hospital of Tunis over a period of 7 years (from 2013 to 2010).

Results: We collected 16 patients, divided into 10 men and 6 women. The average age was 54.1 years (14–81 years). Six patients were of rural origin, the other 10 were of urban origin. Twelve patients had contact with cats and dogs. There was a family context of toxocariasis in two patients. Toxocarosis was evoked in front of: hypereosinophilia (11 cases), panuveitis (4 cases) and unilateral acute lymphedema (1 case). We noted 4 cases of ocular toxocarosis revealed by a decrease in visual acuity. There were 3 cases of unilateral panuveitis with a focus of chorioretinitis in two patients, retinal vasculitis with macular edema in the other and one case of bilateral granulomatous panuveitis with macular edema. The exhaustive etiological assessment of the uveitis was negative. Hypereosinophilia was found in 11 patients. In addition, serology for toxocariasis was positive (Elisa and Western Blot technique) in all cases. Patients with ocular toxocarosis received corticosteroid therapy associated with albendazole with regression of uveitis and improvement in visual acuity. Eleven patients, presenting with common toxocariasis, were treated with albendazole alone and one case of visceral toxocariasis treated with albendazole 400 mg*2/d for one month with a good clinical and biological evolution. We noted a death of a patient in a sepsis table.

Conclusion: Common toxocariasis is a common parasitosis whose diagnosis is sometimes difficult because of extremely different clinical manifestations. Serology remains the essential element to confirm the diagnosis. Ocular toxocariasis can be serious, hence the need for rapid treatment.

Keywords: Toxocariasis; toxocara spp; panuveitis; hypereosinophilia.

Introduction

Toxocariasis is a helminthozoonosis with cosmopolitan distribution, due to the penetration and survival in humans of larvae of *Toxocara* sp. roundworms of the Ascarid family. Only two species, *Toxocara canis* and *Toxocara cati*, have been recognized as causative agents of human disease. The adults of both species are parasites of the digestive tract of their respective definitive hosts, the canids [1]. Humans mainly be-

come infected by ingesting embryonated eggs present on the soil of their environment or on the fur of animals [2]. Young adults are the most affected. The most common clinical form is common toxocariasis made up of dragging asthenia, digestive pain and various allergic manifestations. Neurological, ocular and cardiac manifestations have been described but are rare [3]. We report in this study 16 cases of toxocariasis. We analyzed their clinical, biological and evolutionary profile.

Citation: A Babay. Human toxocariasis: A rare parasitosis (about 16 cases). J Clin Med Img Case Rep. 2022; 2(2): 1115.

Materials and Methods

This is a retrospective study of cases of human toxocariasis collected in the internal medicine department of the Military Hospital of Tunis over a period of 7 years (from 2013 to 2020).

Results

We collected 16 patients, divided into 10 men and 6 women. The mean age was 54.1 years (14–81 years). Six patients were of rural origin, the other 10 were of urban origin. Twelve patients had contact with cats and dogs. There was a family context of toxocariasis in two patients. The reasons for hospitalization were very varied: 7 patients hospitalized for exploration of hypereosinophilia, 4 others for etiological investigation of panuveitis, one patient for unilateral acute lymphedema, 3 patients were hospitalized for other pathologies with fortuitous discovery of hyper eosinophilia associated with non-specific clinical signs. The functional signs reported by the patients were: asthenia (n = 6), fever (n = 6), diffuse myalgia (n = 4), diarrhea and abdominal pain (n = 2), generalized pruritus (n = 2). There were 4 cases of ocular toxocariasis revealed by a decrease in visual acuity. There were 3 cases of unilateral panuveitis with focal chorioretinitis in two patients, retinal vasculitis with macular edema in the other and one case of bilateral granulomatous panuveitis with macular edema (**Figure 1**).

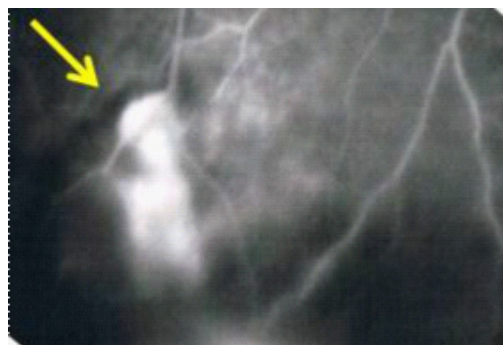


Figure 1: (A) Retinal fluorescein angiography of the left eye showing a peripheral hyperfluorescent focus with posterior pole capillaritis, papillitis, and macular scatters.

The exhaustive etiological assessment of the uveitis was negative. Hypereosinophilia was found in 11 patients. In addition, serology for toxocariasis was positive (Elisa and Western Blot technique) in all cases. Patients with ocular toxocariasis received corticosteroid therapy associated with albendazole with regression of uveitis: the evolution was marked by restoration of visual acuity to 10/10, regression of inflammation and disappearance capillaritis. Eleven patients, presenting with common toxocariasis, were treated with albendazole alone.

A case of hepatic and pulmonary visceral toxocariasis was described: This was a 59-year-old patient, with no significant pathological history, who consulted for fever, myalgia and dry cough evolving for two weeks. The examination was without abnormalities, the pulmonary auscultation was normal and there was no sensitivity of the right hypochondrium. The blood test showed hyperleukocytosis at 21,200 elements/

mm³, hypereosinophilia at 10,000 elements/mm³, CRP at 14 mg/l, LDH at 2 times normal, blood sugar levels, liver function tests and renal function were normal. The thoraco-abdomino-pelvic computed tomography showed multiple parenchymal condensations and dense nodules in both lung fields, showing the Halo sign (**Figure 2**), the liver was of normal size, with multiple subcentimetric hypodense nodular lesions showing the appearance of “hepatic miliary” (**Figure 3**).



Figure 2: Multiple parenchymal condensations and bilateral nodules.

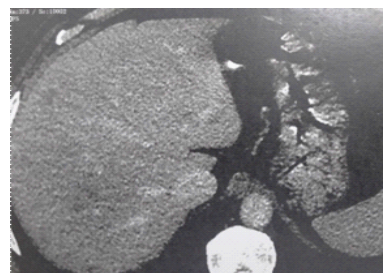


Figure 3: Multiple subcentimetric hypodense nodular lesions of the liver.

The patient received two courses of albendazole per os (400mg x2/d) one month apart. The evolution was favorable with disappearance of cough and hypereosinophilia. The follow-up CT scan after the 1st course of albendazole had objectified a disappearance of the hepatic nodules and a regression of the pulmonary nodules. In addition, the evolution was favorable for the majority of cases (n=15). We noted a death of a patient in a sepsis table.

Discussion

Toxocariasis is a cosmopolitan affection linked to the tissue presence of ascarid larvae evolving naturally in dogs or cats. These larvae are in a parasitic impasse in humans. *Toxocara canis*, a dog nematode, is the most frequently involved. It may also be *Toxocara cati*, a cat nematode, or more rarely, wild animal larvae causing clinically similar syndromes. The definitive host of this parasite is the cat or the dog. The adult form of the parasite lives in the small intestine of these animals. Contamination of animals can occur by ingestion of the viable form of the parasite, its embryonic form or even an infection in utero (trans-placental) [4]. In dogs, contamination can occur by ingesting embryonated eggs present in food soiled by parasitized excrement resulting in the formation of mature adults in the lumen of the small intestine in 3 to 4 weeks. The eggs produced by these adults, up to 200,000 per day, will be dissemi-

nated by the feces of the animals in the external environment, where they will become infective. Human infestation starts from the digestive tract towards the portal vein, then the larvae migrate into the pulmonary veins and are disseminated in the tissues, in particular the liver, lungs, muscles, eyes and nerves [5]. Eosinophilic granulomas are formed around the larva and then an antigenic inflammatory reaction occurs. Humans become contaminated by absorbing embryonated eggs or larvae [3], humans can, in turn, be contaminated by the faecal-oral route. Children are also more exposed to this disease due to more contact with the outside environment and more frequent hand-to-mouth carriage. Reviewing the literature, there are two forms of toxocariasis in adults, the asymptomatic form resulting from a minimal infestation, the diagnosis of which is made on the occasion of hypereosinophilia, and the minor form due to a moderate infestation, associating non-specific signs: abdominal pain, persistent asthenia, rheumatological, pulmonary and skin involvement [4, 5] Ocular, cardiac and neurological manifestations have been described [6]. Definitive diagnosis is based on serology. The techniques used are mainly of the immunoenzymatic type (Elisa) with a sensitivity estimated at 90%. Their specificity is not perfect because there are often cross-reacts with other parasites such as nematodes, especially in patients residing in tropical areas. The Western blot technique can detect IgG directed against specific antigens and therefore confirm the results obtained by ELISA [7]. In our study, toxocariasis was discovered during recent hypereosinophilia in 7 cases. We found the notion of dog breeding in the majority of cases. The notion of consumption of forest herbs during several hikes and the presence of pet dogs and cats from a young age was revealed during the interrogation in the case of pulmonary toxocariasis and hepatic. The diagnosis was confirmed by serology, which was positive by the ELISA technique and Western blot [8]. In our country, the prevalence of ocular toxocarosis is not well known: Clinically, this parasitosis can manifest itself by a granuloma of the posterior pole, a peripheral granuloma, chronic endophthalmitis, by posterior uveitis or panuveitis. It represents a rare etiology of posterior uveitis in adults. There is a predilection for young adults because of their frequent contact with animals. It is most often a unilateral posterior uveitis, but bilateral forms have been described [9], with the presence of a deep granuloma of the posterior pole or the periphery. In adults, the focus of chorioretinitis is often more peripheral, typically associated with significant vitreoretinal traction which can be complicated by retinal detachment [10, 11].

Conclusion

Common toxocariasis is an infrequent parasitosis whose diagnosis is sometimes difficult because of the extremely different clinical manifestations. It must be evoked in the face of a polymorphic clinical picture associated with blood hypereosinophilia in subjects at risk, in contact with animals [12]. Serology remains the essential element to confirm the diagnosis. The biological diagnosis of human toxocariasis is based on the association of ELISA and WB which is optimal in terms of sensitivity and specificity. Ocular toxocariasis can be serious, hence the need of rapid support. Adequate curative treatment associated with strict preventive measures is necessary to eradicate this zoonosis.

References

1. Fisher M. *Toxocara cati*: an underestimated zoonotic agent. *Trends Parasitol.* 2003; 19(4):167-70.
2. Roddie G, Stafford P, Holland C and al. Contamination of dog hair with eggs of *Toxocara canis*. *Vet Parasitol.* 2008; 152(1-2):85-93.
3. Syndrome de Larva migrans. Association Française des Enseignants de Parasitologie et Mycologie (ANOFEL). 1c UMFV -Université Médicale Virtuelle Francophone. 2014; 1-9.
4. Luty T. Prevalence of species of *Toxocara* in dogs, cats and red foxes from Poznan region, Poland. *J Helminthol.* 2001; 75(2):153-6.
5. Degouy A, Menat C, Aubin F, et al. La toxocarose. *Presse Med.* 2001; 30(39-40 Pt 1):1933-8.
6. Despommier D. Toxocariasis: clinical aspects, epidemiology, medical ecology, and molecular aspects. *Clin Microbiol Rev.* 2003; 16(2):265-72.
7. De Visser L, Rothova A, De Boer JH et al. Diagnosis of ocular toxocariasis by establishing intraocular antibody production. *Am J Ophthalmol.* 2008; 145(2):369-74.
8. Jacquier P, Gottstein B, Stingelin Y and al. Immunodiagnosis of toxocarosis in humans: evaluation of a new enzyme-linked immunosorbent assay kit. *J Clin Microbiol.* 1991; 29(9):1831-5.
9. Rubensky-Elefant G, Hirata CE, Yamamoto JH, Ferreira MU. Human toxocariasis: diagnosis, worldwide seroprevalence and clinical expression of the systemic and ocular forms. *Ann Trop Med Parasitol.* 2010; 104(1):3-23.
10. Iajmi M, Boussetta N, Sayhi S et al. Une parasitose rare : la toxocarose (à propos de 5 cas). *La Revue de Médecine Interne.* 2015; 36:A118.
11. Wilder HC. Nematode endophthalmitis. *Trans Am Acad Ophthalmol Otolaryngol.* 1951; 55:99-109.
12. Dureault A, Valdes CP, Weber L et al. Toxocarose: une maladie négligée en Suisse? *Rev Med Suisse.* 2017; 13(558):815-819.