Residência Pediátrica
Publicação Oficial da Sociedade Brasileira de Pediatria

Submitted on: 08/14/2020
Approved on: 04/13/2021

CASE REPORT

Reactive arthritis after Giardia lamblia infection: a case report

Mariana Bruno Rodrigues[1], Cecilia Pereira Silva[1], Melissa Gershon[1], Gabriela dos Santos Souza[1]

Keywords:
Giardia lamblia,
Reactive Arthritis,
Giardiasis,
Arthritis
Child.

Abstract

Giardia sp. is one of the most common intestinal parasites in humans and ranks as the main cause of intestinal parasitic infection in infants aged two years and younger. Besides enteric symptoms, this parasitic disease may trigger ophthalmic, dermatologic, urinary tract, and musculoskeletal symptoms. These may include arthritis, which, when occurring secondary to enteropathic arthritis or genitourinary conditions, may cause reactive arthritis. However, reports of associations with post-infectious arthritis are relatively scarce and cases of arthropathy secondary to giardiasis may be underdiagnosed. The aim of the present paper is to report a case of synovitis associated with Giardia sp. infection. An 18-month-old female infant with acute synovitis of the right hip was treated with a non-steroidal anti-inflammatory drug for five days, with improvement of symptoms. However, 29 days later she presented similar symptoms in the contralateral joint and was prescribed a non-steroidal anti-inflammatory drug. The patient had an ova and parasite test performed, which came back positive for Giardia lamblia. The patient became asymptomatic five days after the initiation of treatment. Giardiasis should be included in the roster of conditions that may cause reactive arthritis, especially in cases of recurrence, since the clinical presentation of this condition is nonspecific and prevalence is high among young children in developing countries.

[1] University Center of Volta Redonda - UniFOA, Medicine Program - Volta Redonda - Rio de Janeiro - Brazil.

Correspondence to:
Mariana Bruno Rodrigues.
Centro Universitário de Volta Redonda. Av. Dauro Peixoto Aragão, 1325 - Três Poços, Volta Redonda - RJ. Brazil. CEP: 27240-560. E-mail: marianabrunor@gmail.com

DOI: 10.25060/residpediatr-2022.v12n4-440

INTRODUCTION

Giardia sp. is one of the most common intestinal parasites in humans and is the leading cause of intestinal parasitic infections in children aged two years or younger[1]. Giardiasis affects almost 2% of adults and 8% of children in developed countries. Moreover, estimates show that almost 33% of the population in developing countries have been infected by the parasite[2]. In Brazil, prevalence ranges from 12.4% to 50% depending on the study, region, and age group analyzed. The disease is predominantly diagnosed in children between zero and six years of age[3]. The Oswaldo Cruz Institute (IOC/Fiocruz) performed ova and parasite tests in 89 children attending a daycare center in a community in Rio de Janeiro and found that almost 50% were positive for giardia[4].

A notable feature of giardiasis is the spectrum of symptoms that may occur in infected individuals[5], which range from asymptomatic involvement to presentations with chronic or severe diarrhea and chronic post-infection disorders, which typically include watery diarrhea, nausea, epigastric pain, and weight loss[6]. The disease can also cause extraintestinal manifestations. A 2016 cohort study reported that 33.8% of the included patients complained of at least one ophthalmic, dermatologic, urinary tract, or musculoskeletal symptom. Arthritis may also occur, which, when occurring secondary to enteropathic arthritis or genitourinary conditions, is known as reactive arthritis[7].

Reactive arthritis is inflammatory arthritis that manifests within several days or weeks of a gastrointestinal or genitourinary infection. Major diagnostic criteria include: presence of asymmetric mono- or oligoarthritis involving lower extremities with symptoms of enteritis or urethritis preceding the onset of arthritis within a time interval of three days to six weeks[8].

Several organisms have been implicated in the etiology of reactive arthritis, with most cases presenting associations with Chlamydia trachomatis, Shigella, Salmonella, Yersinia and Campylobacter infections[9]. Although they account for a significant portion of enteric infections worldwide, Giardia lamblia infection has been scarcely associated with post-infectious arthritis[10].

Although apparently uncommon, arthropathy secondary to giardiasis may be underdiagnosed. Therefore, the aim of the present study is to report a case of synovitis associated with Giardia sp. infection, in order to contribute to further research on the subject, as well as to aid in the early diagnosis and treatment of the disease.

2 CASE REPORT

An 18-month-old female infant with claudication and pain in the right hip joint for three days was brought to the pediatric outpatient clinic by her mother. According to her mother, she did not have fever or respiratory symptoms or a medical history of diarrhea, abdominal pain, or previous hospitalization. When asked about social parameters, the mother said that they lived in a house with basic sanitation and drank mine water daily. Fruits and vegetables were sanitized with water and vinegar. No one in the family suffered with gastrointestinal symptoms similar to the ones seen in the infant. On physical examination, the patient was in good general condition, afebrile and without signs of inflammation such as heat, redness or swelling, but remained in an antalgic position when resting, and showed pain as she walked and performed external rotation of the hip joint.

The patient was referred to a pediatric orthopedic surgeon for investigation, and was diagnosed with transient synovitis of the right hip. No laboratory tests were performed.

Twenty-nine days later, the patient presented similar symptoms in the contralateral joint. An ultrasound scan of the affected site showed thickening and bulging of the iliofemoral capsule about 0.4 cm from the femoral neck, and no involvement of the adjacent muscles. In a reevaluation with a pediatric orthopedist, the patient was diagnosed with transient synovitis of the left hip and prescribed ibuprofen again for five days. Her symptoms subsided. Electrocardiogram, echocardiogram, complete blood count, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), mucoprotein, anti-streptolysin O (ASO), antinuclear antibody (ANA), and rheumatoid factor tests had normal results. The HLA-B27 antigen test was negative. The only alteration was found in the ova and parasite test, which was positive for Giardia lamblia in the three samples examined. The patient was prescribed benzoilmetronidazole.

Upon the initiation of drug therapy, the infant's family started to drink filtered water and to sanitize vegetables and fruits with sodium hypochlorite. Eventually, the result of the ova and parasite test was negative for Giardia lamblia. The infant has been asymptomatic for 13 months.

3 DISCUSSION

Goobar[11] was the first to describe the association between Giardiasis and arthralgia in 1977. Since then, a number of case reports and series have demonstrated the association involving young children, travelers, and immunocompromised individuals as high-risk groups[12]. The infant described in this report had bilateral synovitis of the hip as the only clinical manifestation of giardiasis, with symptoms subsiding after the introduction of treatment for the joint condition and giardiasis, thereby emphasizing the importance of considering the etiology of joint involvement.

3.1 SYMPTOMS

Giardiasis has been associated with a 51% increase in cases of arthritis or joint pain[7], mainly of lower extremity joints such as the knee and ankle[10]. Other joints such as the hip, wrist, shoulder, and elbow may also be affected[11,13]. In the case described, the affected joint was the hip - initially on the right and later on the left side.

Intestinal symptoms may or may not be present. It is generally accepted that the maximum interval between infection and arthritis is four weeks[10]. This period could not be defined precisely in the case presented, since the patient had no intestinal symptoms and was diagnosed with giardiasis only after the onset of arthritis.

3.2 DIAGNOSIS

The search for the etiology of reactive arthritis is based on gathering detailed patient medical history, a time consuming and potentially costly endeavor[14]. Most of the causes studied in literature involve viruses and the development of specific symptoms, which facilitates diagnosis in some cases and disregards parasitic infection in others[15]. Therefore, giardiasis should be included in the roster of etiologies in the differential diagnosis of reactive arthritis, since the symptoms of this disease are nonspecific and prevalence is high in young children in developing countries[5].

The diagnostic test for giardiasis is based on the identification of Giardia lamblia cysts and trophozoites in stool[10]. However, this test produces a high percentage of false negative results with the direct search for trophozoites or cysts. Thus, it is important to resort to other diagnostic methods that may not be accessible, such as immunomagnetic separation coupled with immunofluorescence assays (IMS-IFA) or ELISA (enzyme-linked immunosorbent assay), which have greater efficacy compared to ova and parasite tests[3]. Since the protozoan was found in stool in the ova and parasite test, no other diagnostic procedures were required.

Regarding the diagnosis of reactive arthritis, ESR and CRP, for the most part, are normal, while ANA and rheumatoid factor are negative[13,14,16]. The prevalence of HLA-B27 in reactive arthritis is estimated at 30% to 50%; prevalence increases to 60-80% in more severely affected patients[8]. HLA-B27 correlates with severity of disease, but is not a diagnostic test. The patient was negative for HLA-B27 antigen.

Diagnostic arthrocentesis is sometimes required to rule out septic arthritis[15], but it was not indicated in this case, since the infant had no fever, nor phlogistic signs in the involved joints.

3.3 TREATMENT AND PROPHYLAXIS

Giardiasis is a highly prevalent condition that must be considered in cases of reactive arthritis refractory to non-steroidal anti-inflammatory drugs in patients with extraintestinal symptoms. Antimicrobial treatment leads to recovery free from sequelae[5]. Therapy may include Secnidazole, Tinidazole or Metronidazole. Studies have indicated that Albenzadole is as effective as Metronidazole, causes fewer side effects, and has simpler dosing schemes. However, more studies are needed to define the best course of therapy[3].

Contaminated water and uncooked food are the main sources of Giardia lamblia. Good hand hygiene is required to prevent transmission[12].

4 CONCLUSION

Giardia lamblia is one of the most common intestinal parasites in humans, with a high prevalence in young children in developing countries. However, not all extraintestinal symptoms it causes, such as reactive arthritis, are known. Therefore, giardiasis must be considered in the roster of conditions that cause reactive arthritis, especially in cases of recurrence. Individual hygiene and collective sanitary measures must also be implemented, since infection by giardiasis is facilitated by the ingestion of contaminated water and poorly washed or uncooked food.

REFERENCES

1. Rogawski ET, Bartelt LA, Platts-Mills JA, Seidman JC, Samie A, Havt A, et al. Determinants and Impact of Giardia Infection in the First 2 Years of Life in the MAL-ED Birth Cohort. Journal of the Pediatric Infectious Diseases Society. 2017;6(2):153–60.
2. Dunn N, Juergens AL. Giardiasis. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 [citado 22 de dezembro de 2020]. Disponível em: http://www.ncbi.nlm.nih.gov/books/NBK513239/.
3. Santana LA, Vitorino RR, Antonio VE, Moreira TR, Gomes AP. Atualidades sobre giardíase. 2014;102(1):4.
4. Fantinatti M, Bello AR, Fernandes O, Cruz AM. Identification of Giardia lamblia Assemblage E in Humans Points to a New Anthropozoonotic Cycle. J Infect Dis. 2016;214(8):1256–9.
5. Marie CM, Halliez A, Buret G. Extra-intestinal and long term consequences of Giardia duodenalis infections. World Journal of Gastroenterology. 2013;19(47):8974–85.
6. Einarsson E, Ma'ayeh S, Svärd SG. An up-date on Giardia and giardiasis. Current Opinion in Microbiology. 2016;34:47–52
7. Painter JE, Collier SA, Gargano JW. Association between Giardia and arthritis or joint pain in a large health insurance cohort: could it be reactive arthritis? Epidemiology & Infection. 2017;145(3):471–7.
8. Cheeti A, Chakraborty RK, Ramphul K. Reactive Arthritis. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 [citado 8 de janeiro de 2021]. Disponível em: http://www.ncbi.nlm.nih.gov/books/NBK499831/
9. Carlson DW, Finger DR. Beaver Fever Arthritis. JCR: Journal of Clinical Rheumatology. 2004;10(2):86–88.
10. Hill Gaston JS, Lillicrap MS. Arthritis associated with enteric infection. Best Practice & Research Clinical Rheumatology. 2003;17(2):219–39.
11. Goobar JP. Joint symptoms in giardiasis. Lancet. 1977;1010–1.

12. Krol A. Giardia lamblia as a rare cause of reactive arthritis. Ugeskr Laeg. 2013;175(49A):V05130347.
13. Meza-Ortíz F. Giardiasis-Associated Arthralgia in Children. Archives of Medical Research. 2001;32(3):248–50.
14. Borman P, Seçkin U, Ozoran K. Beaver fever - a rare cause of reactive arthritis. J Rheumatol. 2001;28(3):683.
15. Weiss PF, Colbert RA. Reactive and Post infectious Arthritis. In: Robert Kliegman R, St. Geme J. (eds). Nelson Textbook of Pediatrics. 21.ed. Philadelphia: Elsevier; 2019. p.1272-3.
16. Arman MI. Arthritis in lambliasis intestinalis (giardiasis) in the adult. Z Rheumatol. 1991;50(4):216–8.