

# Loeffler Syndrome: Uncommon or Poorly Diagnosed?

Julia Tie Sakurai<sup>1</sup>, Lindsey Mitie Nakakogue<sup>2\*</sup>, Andre Filipe Ribeiro de Castilho<sup>1</sup>, Simone Emi Sakurai<sup>3</sup> and Daniel Ossamu Sakurai<sup>4</sup>

<sup>1</sup>Medical Students at PUCPR Londrina, Brazil

<sup>2</sup>Department of Geriatrics at PUCPR Londrina, Brazil

<sup>3</sup>Department of Pediatrician, Brazil

<sup>4</sup>Department of Geriatrician, Brazil

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**\*Corresponding author:** Lindsey Mitie Nakakogue, Department of Geriatrics at PUCPR Londrina, Brazil

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## Abstract

Loeffler's syndrome, simple pulmonary eosinophilia, is defined by the presence of peripheral blood eosinophilia associated with pulmonary infiltrates. About a quarter of the patients have symptoms of idiopathic origin, although parasitic infections are the commonest etiologic cause. The clinic shows nonspecific signs and symptoms, characterizing as a diagnostic challenge. This study reports a case of Loeffler's syndrome with parasitosis etiology and favorable outcome.

**Keywords:** Eosinophilia; Loeffler's syndrome; Parasitosis

## Introduction

Described by Wilhelm Loeffler in 1932, Loeffler syndrome, also classified as simple pulmonary eosinophilia, was defined as the presence of eosinophilia in peripheral blood associated with pulmonary infiltrations [1-3]. A quarter of patients have no etiological diagnosis; however, the most common etiological cause includes parasites (*Ascaris Lumbricoides* is the most found), fungi, bacterial infections and drug hypersensitivity (acetylsalicylic acid, bleomycin, carbamazepine, melazine) [2]. In its asymptomatic form it is usually a reversible and self-limited disease. When symptomatic or disease in progression, corticosteroids enable effective treatment [2].

## Case Report

Female, 61 years old, retired nursing technician. Admitted to a medical consultation complaining of afternoon fever (measured, 38 °C), anorexia, food aversion, asthenia, palpitations, myalgia, major headache, associated with tinnitus and photophobia, for 60 days. One month before the onset of these symptoms, she noticed the appearance of night sweats, a sign that intensified over the course of the days. Patient sought emergency medical services and Amoxicillin was prescribed for 14 days, without improvement.

Patient denied dyspnea, abdominal pain, chest pain, intestinal habit alteration, cough, and mucoid secretion production. Denied smoking and asthma in childhood, influenza and antipneumococcal vaccines were up at the time. In use as medication continues Omeprazole 40mg/day and Mirtazapine 15mg/day. Clinical findings only presence of atopy.

She was in good general condition, blushing, hydrated, cyanotic. Cardiac and pulmonary auscultations were without alterations. Heart rate of 100 beats per minute (upper limit of normality). Hemoglobin 10.7g/dL; hematocrit 32.7%; leukocytes 13,300 (eosinophils 15%); Urine I without alterations; PCR 12.5; Upper Digestive Endoscopy normal; Chest X-ray: consolidation in the upper lobe of the right lung. In view of the complaints, Moxifloxacin Hydrochloride 400mg/day was prescribed for 10 days. It was requested Computed Tomography of the chest, new blood count and PCR.

After the end of antibiotic therapy, patient reported persistence of symptoms. Laboratory tests: Hemoglobin 10.1g/dL; hematocrit 33.6%; total leukocytes, 10,800 (eosinophils 20%); chest CT: opacity with inflammatory aspect and fibrocatricular pattern in both lungs, predominantly in the right lung, especially in the upper lobe. With the persistence of the clinical

picture and in view of the results of laboratory and imaging tests, Loeffler's syndrome was asked after other differential diagnoses of eosinophilic diseases were excluded. Parasitology was requested-3 samples, and after the end of collection, nitazoxanide 1g/day for 3 days, repeating the drug regimen in one week. Patient showed total improvement of symptoms with the use of Nitazoxanide. Parasitology was negative. Chest X-ray taken one month after treatment showed a normal pattern.

## Discussion

Loeffler syndrome is characterized by transient eosinophilic pneumonitis due to immediate hypersensitivity reaction, caused by fungi, drugs, bacteria, but mainly due to pulmonary migration of parasite larvae (helminths) [2]. Intestinal helminths associated with Loeffler syndrome are present worldwide. However, the prevalence is higher in tropical regions, especially in places with poor sanitary conditions. Infection by *Ascaris lumbricoides* begins with ingestion of worm eggs, present in contaminated foods. Larvae hatch into the intestine, actively penetrate through the mucosa of the cecum, gain venous circulation, and move through the lungs. In the alveolar space the larvae develop, which ascend the bronchial tree to the larynx, where they are reintroduced to the food channel through swallowing of the contaminated sputum. When return to the intestine, they mature in their adult form, starting reproduction and laying eggs, which will contaminate the soil and food, restarting the process [3].

Other parasites, such as *Necator americanus*, *Ancylostoma duodenale* and *Strongyloides stercoralis*, have a cycle similar to *A. lumbricoides*. However, these parasites enter the humans through the skin. Clinical picture presents nonspecific signs and symptoms, characterizing Loeffler Syndrome as a diagnostic challenge. Dry cough, fever, dyspnea, and more rarely myalgia, anorexia, hemoptysis and urticaria [2,3] may be present. Respiratory symptoms may also be absent [2].

Diagnosis can be made through the presence of blood eosinophilia or normal blood count. Pulmonary eosinophilia is also

characteristic of the syndrome, but histological evaluation of lung tissue is not mandatory to complete diagnosis [3]. Parasitology is an important test, but in most cases, it is initially negative, since in the pulmonary phase of the parasitic cycle, the vermin sit in the larval phase and thus do not lay eggs that would be detected on the examination. The duration between the intrapulmonary larva period and the detection of mature eggs in feces is approximately 6 to 8 weeks [2,3].

Increased eosinophil count in sputum and alveolar broncho washes, may also be present [2]. In radiography, alterations are characterized by non-segmental alveolo-interstitial infiltrates of migratory character, located preferentially in periphery, and may be unilateral or bilateral [3]. Treatment is done with anthelmintic drugs, aiming not only at solving the condition, but also in order to avoid complications of parasitosis: diarrhea, malnutrition, intestinal occlusion. To reduce cellular inflammation and eosinophilia, systemic corticosteroids can be employed [3].

## Conclusion

In Brazil and other underdeveloped countries, preventing infection by intestinal parasites is extremely difficult [3]. When parasitic infestations occur with respiratory impairment, a clinical situation less usual and rarely considered as a differential diagnosis, both the detection of the syndrome and its therapy are postponed. It is necessary, therefore, that Loeffler syndrome be considered as a differential diagnosis in cases of fever, associated with the presence or not of respiratory symptoms, pulmonary infiltrations on radiography, eosinophilia in peripheral blood, besides considering endemic areas for parasitic infections [2].

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