

Ascites as a Rare Presentation of Eosinophilic Enteritis in a Pollinic Patient

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This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as doi: 10.18176/jiaci.0697

Palabras clave: Enteritis eosinofílica. Ascitis eosinofílica. Polinosis. Panalérgeno. Ole e7.

Key words: Eosinophilic enteritis. Eosinophilic ascites. Pollinosis. Panallergen. Ole e7.

Eosinophilic gastrointestinal diseases (EGIDs) are chronic inflammatory disorders, whose diagnosis is confirmed by infiltration of eosinophils in the digestive tract wall in the absence of other causes of eosinophilia [1]. This infiltration varies based on the part of the digestive tract involved. Although its aetiology is unknown, it has been shown to be associated with allergy and involved in immunologic responses to different types of food and aeroallergens [2-6]. Eosinophilic Enteritis (EE) is a rare disease, which is classified into three subtypes according to the layer of the digestive tract wall involved (mucosal, muscular and subserosa). The stomach and duodenum are the most frequently affected areas, and clinical manifestations depend on the location, extension and depth of inflammatory infiltrates, with ascites being the rarest presentation due to involvement of the intestinal serosa [1]. Treatment is difficult, with a high relapse rate that decreases patients' quality of life [7].

We present a case of EE with repeated seasonal ascites in a 36-year-old woman with a history of rhinoconjunctivitis and bronchial asthma since childhood due to pollen sensitization. The patient was referred to the Allergology service for further assessment, because in recent years, and coinciding with the spring months, she had five episodes of abdominal distension and oliguria preceded by colic pain and diarrhea. In the first two episodes, which were the most intense, she had to be hospitalized in an Internal Medicine ward (in April and May of two consecutive years). Most outbreaks coincided with nasal conjunctival and bronchial symptoms. During both hospitalizations, findings

were similar: free abdominal fluid was detected by ultrasound and computed axial tomography. Paracentesis revealed clear ascitic fluid, with 95% polymorphonuclear eosinophils and negative cultures. Eosinophil count in peripheral blood was higher than 23% (2.200 m/L). Gastroscopy with biopsy sampling at different levels revealed normal oesophagus and gastric mucosa, bulbitis and eosinophilic infiltration in the lamina propria of the duodenum (40 eosinophils per high power field). Colonoscopy, general biochemistry, chest and abdomen X-rays, and echocardiograms were normal, and haemocultures, tumour markers and serologies were negative. Total serum IgE was higher than 390 kU/L.

In the intercritical periods, outside the spring, she had intermittent, milder abdominal discomfort, with colic pain, flatulence and/or diarrhea, which he attributed to "poor digestion" and which she eventually associated with foods such as salads, nuts, fruit or legumes. They appeared about 60 minutes after ingestion and sometimes persisted for up to 2-3 days.

The most severe episodes of pain and abdominal distension were effectively treated with oral corticosteroids. Milder episodes were only treated with a bland diet of cooked or grilled food.

In the allergy study, prick tests were positive for mites, cat and dog epithelia, pollens (grass, olive, *Parietaria*, *Artemisia*, *Plantago*, *Platanus*, palm tree) and polcalcin; and they were negative for commercial foods, latex, peach lipid transfer protein (LTP) (Pru p3) and profilin (ALK-Abelló). The prick-by-prick test with natural foods (fruits, vegetables, cereals, legumes, nuts, milk) was positive for orange, banana and tomato, and serum-specific IgE (*ImmunoCAP™*, *Thermo Fisher Scientific*) for food and Pru p3 was negative (values below 0.10 KU/l). The results of the ISAC™ (Immuno Solid-phase Allergen Chip) are shown in the table.

After these results were obtained, since the patient was positive to vegetal panallergen Ole e7, LTP from olive tree pollen (pathogenesis-related protein PR-14), she was prescribed a diet restrictive of the food for which she had reported abdominal discomfort (corn, nuts, legumes, fruits and various vegetables) with good clinical evolution. She continued eating potatoes, sweet potatoes, carrots, onions, broccoli, courgette, pumpkin, rice and wheat, with good tolerance. She has stopped eating fruit because of abdominal pain and/or oral pruritus (although tests were positive only with natural banana and orange -prick by prick-).

Despite following the exclusion diet, she had two subsequent episodes of pain and abdominal distension with diarrhea in the spring that were consistent with a higher concentration of environmental pollen in our region, especially *Olea europaea*.

In summary, this was a case of repeated ascites in a young atopic woman in which, after ruling out other causes of ascites, EE seemed to be the most likely diagnosis due to the presence of peripheral blood eosinophilia, eosinophils in ascitic fluid and the duodenum, and good response to oral corticosteroids. Although ascites is the rarest presentation of EE, our patient had several episodes, two of which were confirmed and required hospitalization.

In this case, sensitization to olive pollen and its LTP Ole e7, responsible for cross-reactivity between pollen and plant foods [8], could explain the digestive symptoms, both by swallowing environmental pollen in spring and by ingesting plant foods rich in LTP at any time of the year [3,4].

In the literature, we have only found one case of EE with seasonal clinical changes in a patient from Central Europe associated with sensitization to PR-10 proteins (equivalent

to the main allergen in birch pollen (Bet v1), which are responsible for cross-reactivity between vegetables and birch pollen in said geographical area [9]. Worsening of inflammation and gastrointestinal symptoms was associated with consumption of vegetables and a higher concentration of environmental birch pollen. Pollen-specific immunotherapy prevented any relapses. On the other hand, in eosinophilic esophagitis—the most prevalent EGID—, although seasonality is still controversial, some studies have described an increase in the number of diagnosed cases and worsening of symptoms in the spring as a result of an increase in aeroallergens [3].

EE treatment poses a challenge and, although response to oral corticosteroids is usually good, 50% of patients suffer relapses and chronification of the disease, with a significant decrease in quality of life [7]. In patients with proven sensitization to food, targeted diets may be an option, since there is not enough information in the literature to recommend elemental or empirical elimination diets[1]. In our case, based on the results obtained, immunotherapy with an allergen extract of Ole e7 and Ole e1 could improve both digestive and respiratory conditions, and probably allow less restrictive diets, also leading to better quality of life. The patient's desire to become pregnant, and her twin gestation have made it difficult to implement this specific treatment at the moment.

In conclusion, this was a case of relapsing EE of rare presentation, in which the per-component allergy study, absent in most cases described in the literature, revealed sensitisation to vegetal panallergen Ole e7 (negative to Pru p3, the most prevalent LTP in the Mediterranean area), which could explain the patient's digestive condition. This case reveals that the molecular study of EE [10] may help find potential relapse triggers and implement more specific treatments, such as targeted exclusion diets or specific immunotherapy, to prevent disease chronicity and its complications and help improve patients' quality of life.

Funding

This study received funding from Allergy Therapeutics Iberica SL, Barcelona, Spain, for medical writing and editorial assistance services.

Conflicts of interest

The authors declare that they have no conflicts of interest.

Acknowledgments

The authors would like to thank i2e3 Biomedical Research Institute for providing medical writing and editorial assistance on behalf of Allergy Therapeutics Iberica SL, Barcelona, Spain.

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Table**Table 1:** Results of the ImmunoCAP™ ISACT™

Allergen Components	ISU-E
Ole e7	44
Ole e1	27
Ole e9	7.8
Bet v4	24
Phl p7	19
Phl p5	16
Der p2	18
Der f 2	12
Fel d1	11

ISAC: Immuno Solid-phase Allergen Chip; ISU-E: ISAC standardized units for specific IgE.