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CMV Ag, cytomegalovirus antigenemia assay; CAI, clinical activity index;

By chi-square test, Fisher’s exact test, and Mann-Whitney U-test.

a Overall *P*-value

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**Columns: CASE REPORT**

**Erdheim chester – A rare disease with unique endoscopic feature**

Ben-yaakov G *et al.* Erdheim chester – A disease with unique endoscopic features

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**Abstract**

Erdheim chester disease (ECD) is a rare inflammatory syndrome in which systemic infiltration of non Langerhans cell histiocytes occurs in different sites. Both the etiology and pathophysiology of ECD are unknown but CD 68 positive CD 1a/ S100 negative cells are characteristic. The presentation of ECD differs according to the involved organs. This case report describes patient with ECD with gastrointestinal manifestations and unique endoscopic appearance as seen both in gastroscopy and colonoscopy with histological proof of histiocytes infiltration of the lamina propria. In this unique case, we dealt with clinical and endoscopic findings that to our knowledge were never described before. The features of the GI involvement in this disease and the endoscopic findings were never described elsewhere.

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**Key words:** Erdheim chester; Histiocytes; Lamina propria; Colon; Stomach

**Core tip:** This case report describes patient with Erdheim chester disease with gastrointestinal manifestations and unique endoscopic appearance as seen both in gastroscopy and colonoscopy with histological proof of histiocytes infiltration of the lamina propria. In this unique case, we dealt with clinical and endoscopic findings that to our knowledge were never described before. The features of the GI involvement in this disease and the endoscopic findings were never described elsewhere.

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**INTRODUCTION**

Erdheim chester disease (ECD) is a rare inflammatory disease in which systemic infiltration of non Langerhans cells histiocytes occurs in different sites. Both the etiology and the pathophysiology of ECD are unknown but CD 68 positive CD 1a/ S100 negative cells are characteristic[1]. The presentation of ECD differs according to the involved organs. In most cases lesions of long bones are present, but CNS[2-4], heart[5] and lung[6,7] manifestations were previously described as part of this disease as well. Gastrointestinal involvement in ECD seems to be extremely rare[8], unlike other histiocytoses[9], and to the best of our knowledge there are only 3 case reports published describing hepatic billiary and pancreatic manifestations[8,10,11] of this disease.

Here we describe a case of a 36-year-old female patient who presented to the ER with prolonged diarrhea polyuria, fatigue and weight loss.

**CASE REPORT**

A 36-year-old female, previously healthy with the exception of an anxiety disorder, previously treated with Fluoxetine, was admitted to the medical department due to diarrhea, weight loss, nausea and vomiting, prolonged fever and weakness for the last 3 mo. She reports significant weight loss of more than 10 kg in the last year with increased thirst and polyuria. The patient denied any cardiac, respiratory or bone pain but did complain of joint pain with no evidence of arthritis. On presentation the patient's fever was 38.3 but other vital signs were normal. She had BMI of 19, On physical examination there was notable cachexia with palpable groin lymph nodes.

The patients lab showed anemia with hemoglobin level of 9. Her hemoglobin was at a normal range 6 mo prior to that blood count. White cell count was normal with no deviation in differentiation. The blood chemistry was normal besides mild elevation of transaminases. Alanine aminotransferase was 68, and aspartate aminotransferase was 164 - Both were documented at a normal range two months before. Serum lactate dehydrogenase was 2200 (normal range 230-480), serum iron was 21 (normal range 40-145) with transferrin level of 148 (normal range 200-360). Albumin was 3.3 (normal range 3.5-5.2) and C reactive protein was increased to 3.43 mg% (normal range up to 0.5), Antinuclear Ab, Rheumatoid factor, DNA Ab celiac screen and ANCA's were negative as well as serology for viral hepatitis.

As part of our evaluation a Computerized tomography of chest, abdomen and pelvis was performed showing mildly enlarged axillary and retroperitoneal lymph nodes, mild splenomegaly, few small hypodense hepatic lesions and sclerotic lesions in both sternum and iliac.

A month prior to the current admission, she was evaluated at another medical center where bone marrow was aspirated arising suspicion of histiocytosis. An axillary lymph node was surgically obtained, and showed almost complete replacement of lymph node by a monotonous population of CD 68 positive , CD1a and S-100 protein negative histiocytes. PAS was negative, as was polymerase chain reaction for different mycobacteria. Bone marrow showed hypercellularity with the presence of non necrotizing epithelial granulomas. The pathologist's conclusion was that the picture is probably consistent with adult form of ECD.

Due to the weight loss, prolonged diarrhea and recurrent vomiting, and in the light of the pathologist's conclusion, an endoscopic evaluation of the upper gastrointestinal tract was performed by gastroscopy as well as colonic evaluation by colonoscopy with intubation of the ileocecal valve and examination of the terminal ileum.

The gastroscopy showed a cobblestone-like raised nodular gastritis of the entire stomach as shown in Figure 1. Pylorus and duodenum were normal. Gastric biopsy showed chronic follicular inflammation associated with patchy infiltration of CD68 positive foamy histiocytes (Figure 2). Colonoscopy was preformed, showing numerous small round hyper pigmented lesion with decreased vascularity in the surrounding mucosa extending from the rectum to the cecum (Figure 3).

The terminal ileum was normal as well. Biopsies subsequently taken showed colonic mucosa with preserved crypt architecture and patchy infiltrates of foamy histiocytes. PAS and Giemsa stains were negative for micro-organisms (Figure 4). The biopsies taken from the terminal ileum were normal. After the diagnosis of ECD was made the patient was offered treatment with interferon which is the current standard of treatment[12]. The patient decided to receive treatment in a different hospital were she began a course of combined vinblastine and prednisone and showed partial response. Unfortunately, no further follow up is available.

**DISCUSSION**

ECD is a systemic type of non Langerhans cell histiocytosis. It was first described by Jacob Erdheim and William Chester in 1930. There were approximately 400 cases reported in literature with extremely rare gastrointestinal involvement.There is no endoscopic description of gastrointestinal features so far.

Here, for the first time, we discuss the endoscopic vision revealed by both gastroscopy and colonoscopy in a patient with gastrointestinal involvement of ECD.

**REFERENCES**

1 **Haroche J**, Arnaud L, Amoura Z. Erdheim-Chester disease. *Curr Opin Rheumatol* 2012; **24**: 53-59 [PMID: 22089098 DOI: 10.1097/BOR.0b013e32834d861d]

2 **Lachenal F**, Cotton F, Desmurs-Clavel H, Haroche J, Taillia H, Magy N, Hamidou M, Salvatierra J, Piette JC, Vital-Durand D, Rousset H. Neurological manifestations and neuroradiological presentation of Erdheim-Chester disease: report of 6 cases and systematic review of the literature. *J Neurol* 2006; **253**: 1267-1277 [PMID: 17063320 DOI: 10.1007/s00415-006-0160-9]

3 **Wright RA**, Hermann RC, Parisi JE. Neurological manifestations of Erdheim-Chester disease. *J Neurol Neurosurg Psychiatry* 1999; **66**: 72-75 [PMID: 9886456 DOI: 10.1136/jnnp.66.1.72]

4 **Mascalchi M**, Nencini P, Nistri M, Sarti C, Santoni R. Failure of radiation therapy for brain involvement in Erdheim Chester disease. *J Neurooncol* 2002; **59**: 169-172 [PMID: 12241111 DOI: 10.1023/A: 1019649201324]

5 **Haroche J**, Amoura Z, Dion E, Wechsler B, Costedoat-Chalumeau N, Cacoub P, Isnard R, Généreau T, Wechsler J, Weber N, Graef C, Cluzel P, Grenier P, Piette JC. Cardiovascular involvement, an overlooked feature of Erdheim-Chester disease: report of 6 new cases and a literature review. *Medicine (Baltimore)* 2004; **83**: 371-392 [PMID: 15525849 DOI: 10.1097/01.md.0000145368.17934.91]

6 **Arnaud L**, Pierre I, Beigelman-Aubry C, Capron F, Brun AL, Rigolet A, Girerd X, Weber N, Piette JC, Grenier PA, Amoura Z, Haroche J. Pulmonary involvement in Erdheim-Chester disease: a single-center study of thirty-four patients and a review of the literature. *Arthritis Rheum* 2010; **62**: 3504-3512 [PMID: 20662053 DOI: 10.1002/art.27672]

7 **Allen TC**, Chevez-Barrios P, Shetlar DJ, Cagle PT. Pulmonary and ophthalmic involvement with Erdheim-Chester disease: a case report and review of the literature. *Arch Pathol Lab Med* 2004; **128**: 1428-1431 [PMID: 15578889]

8 **Pan A**, Doyle T, Schlup M, Lubcke R, Schultz M. Unusual manifestation of Erdheim-Chester disease. *BMC Gastroenterol* 2011; **11**: 77 [PMID: 21693070 DOI: 10.1186/1471-230X-11-77]

9 **Singhi AD**, Montgomery EA. Gastrointestinal tract langerhans cell histiocytosis: A clinicopathologic study of 12 patients. *Am J Surg Pathol* 2011; **35**: 305-310 [PMID: 21263252 DOI: 10.1097/PAS.0b013e31820654e4]

10 **Gundling F**, Nerlich A, Heitland WU, Schepp W. Biliary manifestation of Erdheim-Chester disease mimicking Klatskin's carcinoma. *Am J Gastroenterol* 2007; **102**: 452-454 [PMID: 17037989 DOI: 10.1111/j.1572-0241.2006.00893.x]

11 **Gupta A**, Aman K, Al-Babtain M, Al-Wazzan H, Morouf R. Multisystem Erdheim-Chester disease; a unique presentation with liver and axial skeletal involvement. *Br J Haematol* 2007; **138**: 280 [PMID: 17553060 DOI: 10.1111/j.1365-2141.2007.06642.x]

12 **Arnaud L**, Hervier B, Néel A, Hamidou MA, Kahn JE, Wechsler B, Pérez-Pastor G, Blomberg B, Fuzibet JG, Dubourguet F, Marinho A, Magnette C, Noel V, Pavic M, Casper J, Beucher AB, Costedoat-Chalumeau N, Aaron L, Salvatierra J, Graux C, Cacoub P, Delcey V, Dechant C, Bindi P, Herbaut C, Graziani G, Amoura Z, Haroche J. CNS involvement and treatment with interferon-α are independent prognostic factors in Erdheim-Chester disease: a multicenter survival analysis of 53 patients. *Blood* 2011; **117**: 2778-2782 [PMID: 21239701 DOI: 10.1182/blood-2010-06-294108]

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**Figure 1 Endoscopic appearance of the stomach body.**

**Figure 2 Histological findings in gastric biopsy. A: Lamina propria infiltrated by foamy histiocytes negative for PAS (PAS stain, X200); B: Foamy cells stained positive for CD 68 (CD68 stain, X100).**

**Figure 4 - colonoscopy showing numerous small round hyper pigmented lesion.**

**Figure 4 – histology of colonic mucosa showing histiocytic infiltration of lamina propria (HE stain, X100).**