UCLA Health

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Abstract Form

Hospital Affiliation:	Harbor-UCLA Medical Center
Presenter Name (Last, First):	Lewis, Lauren, MD; Leong, Sally, MD
Co-Authors:	Mahboub Noori, MD, MBa, James Yeh, MD
Project Title:	An Excess of Eosinophils: A Rare Case of Eosinophilia as a Side Effect of Immune Checkpoint Inhibitors

Research Category (please check one):

☐	**Original Research**	☒	**Clinical Vignette**	☐	**Quality Improvement**	☐	**Medical Education Innovation**

Abstract

Introduction: Immune checkpoint inhibitors (ICIs) are now a mainstay in the treatment of a growing number of malignancies. Pembrolizumab, a programmed cell death protein 1 (PD-1) antibody, was originally approved in 2014 for the treatment of non-small cell lung cancer and melanoma. Given the relatively short time pembrolizumab has been utilized, side effects of ICIs are still being investigated. Immune related adverse events (irAEs) include a unique spectrum of side effects that are believed to arise from immunologic enhancement. We present a rare case of an immune related adverse event (irAEs) from pembrolizumab resulting in gastrointestinal hypereosinophilic syndrome (HES).

Case Report: A 54-year-old female with metastatic high-grade serous ovarian carcinoma diagnosed three years prior to admission presented with one month of progressive abdominal pain and watery diarrhea. Her symptoms included multiple daily non-bloody, loose stools with persistent abdominal pain, nausea, vomiting, and oral intolerance. Outpatient infectious workup was initiated after multiple emergency department visits for similar symptoms without identifiable etiology. She had progressed after first and second-line chemotherapy. She has since been on both chemotherapy and immunotherapy (cyclophosphamide, bevacizumab, and pembrolizumab), of which she received her fourth cycle of a few weeks prior to presentation. On admission, her laboratory results demonstrated leukocytosis of 14.1 K/cumm with an absolute eosinophil count of 8.7 K/cumm and 62% eosinophilia on the differential. Stool studies were negative for H. pylori and Clostridium difficile infections. Stool ova and parasites testing was negative, and Entamoeba histolytica and Stronglyodies serologies were also negative, suggesting against a parasitic infection. The patient underwent a diagnostic esophagogastroduodenoscopy and flexible sigmoidoscopy with biopsies obtained. Upper endoscopy was normal other than erythema in the second portion of the duodenum. Normal mucosa was observed in the distal sigmoid colon, rectosigmoid junction, and rectum. Biopsies within the gastric antrum and duodenum showed prominent eosinophilic infiltrate consistent with eosinophilic duodenitis and gastritis. No other inflammatory bowel disorders or intestinal malignancy, dysplasia, or metaplasia were identified. Given the absence of any other identifiable cause for gastrointestinal HES, ICI therapy was suspected to be the primary etiology. Pembrolizumab was discontinued and systemic glucocorticoids were initiated to suppress the high immunological response the patient was exhibiting. Complete resolution of symptoms was achieved.

Discussion: Eosinophilic gastrointestinal disorders are rare diseases characterized by eosinophilic infiltration of the GI tract, defined as greater than 25 eosinophils per high power field with associated eosinophilic cryptitis. Etiologies of these GI disorders are often idiopathic or medication-related in addition to a variety of other causes (e.g., IBD, autoimmune vasculitis, parasitic infections). Gastrointestinal HES secondary to ICI is an extremely rare and novel side effect of the therapy. There is little known about the condition, with only a few known case reports published at this time. We believe this is the third case of HES with GI involvement caused by ICI therapy documented in literature. Interestingly enough, retrospective studies have shown eosinophil count as a potential biomarker to predict ICI efficacy. Eosinophil count was shown to be associated with both improved ICI response and a higher likelihood of irAE development. Healthcare providers should be prompted to consider pembrolizumab as an inciting factor when patients on immunotherapy present with gastrointestinal symptoms in the context of hypereosinophilia.