Case Report: Examining the Connection Between Alpha-Gal Syndrome and Acute Diverticulitis

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Introduction

- Alpha-Gal Syndrome (AGS) is IgE mediated hypersensitivity reaction caused by tick bites particularly the lone star tick (Amblyomma americanum), specifically reacting to the carbohydrate Galα1-3Galβ1-(3)4GlcNAc-R (α-Gal) found in tick saliva and noncatarrhine mammal tissues.
- Humans do not naturally produce the α-Gal carbohydrate.
- The body's immune response to tick bites can lead to the production of anti-α-Gal IgE antibodies, disrupting the normal oral tolerance to food allergens.
- AGS typically results in delayed anaphylaxis after consuming red meat or certain medications such as cetuximab, and immediate anaphylaxis following tick bites.
- This case report examines a 38-year-old woman, with a known history of AGS, who experienced an acute episode of sigmoid diverticulitis and the development of a left hemi-pelvic abscess.

Discussion

- Alpha-gal syndrome (AGS) typically presents with urticaria and/or anaphylaxis, but isolated gastrointestinal symptoms are increasingly reported.
- There is potential for an association between AGS and the IgE response in the colon leading to inflammation.
- In 3-20% of AGS cases, patients report isolated gastrointestinal symptoms without anaphylaxis.
- Misdiagnosis, such as irritable bowel syndrome, often occurs due to lack of awareness of AGS presenting as isolated gastrointestinal symptoms.
- Up to 3% of the population in the Southeastern United States is considered to have clinical AGS, but many cases remain undiagnosed or are misdiagnosed.
- High suspicion for AGS is crucial, especially in areas with prevalent lone star tick, to reduce risk of misdiagnosis when patients present with gastrointestinal symptoms.

Conclusion

This case report underscores the importance of recognizing and managing AGS in patients presenting with acute conditions such as diverticulitis, rather than the typical symptoms of urticaria and anaphylaxis. Providing awareness about this syndrome and its various clinical presentations can lead to a reduction in misdiagnoses. Further research is needed to better understand the pathophysiology of AGS and its potential link to conditions like diverticulitis.

Tick bites causing anti-α-Gal IgE antibodies production resulting in disruption of oral tolerance to α-Gal containing food antigens leading to anaphylactic reactions. Potential IgE response in the colon leading to Acute Diverticulutis

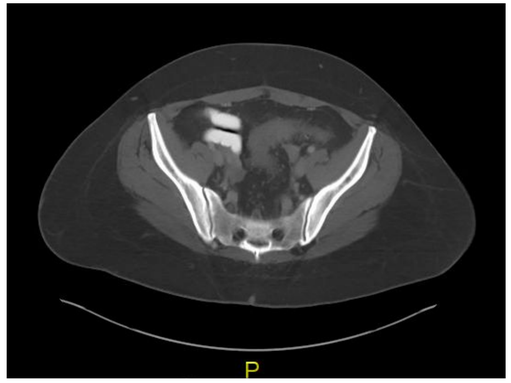

Image 1: CT Abdomen. Acute Sigmoid Diverticulitis. Bowel wall thickening and inflammatory stranding around sigmoid colon. Collection of fluid without well-defined peripheral enhancement compatible with developing abscess

Case presentation

Our patient is a 38-year-old female initially presented with the complaint of intensifying abdominal pain and rectal bleeding. She denied experiencing any symptoms of nausea, vomiting, fever, or chills. Her past medical history includes Alpha-Gal Syndrome following a lone star tick bite in 2020. Additional medical history includes an anxiety disorder, asthma, and a history of infectious colitis in 2013, GERD, and a recent hospitalization due to acute diverticulitis complicated by microperforation. The patient's diet primarily consisted of avoiding pork, eggs, dairy and red meat due to her diagnosis of AGS. She had no memory of consuming any mammalian meat products or any other potential sources of alpha-gal recently.

The patient's presentation deviated from the typical presentation of AGS, as she did not exhibit anaphylaxis, which is the most common manifestation of AGS. Instead, she presented with an episode of diverticulitis. On physical exam was significant for hyperactive bowel sounds with tenderness in the bilateral lower quadrants. CT scan of the abdomen was obtained which revealed an acute inflammatory process in the sigmoid colon, indicative of diverticulitis. Additionally, a fluid collection was noted in the left hemi-pelvis, suggestive of a developing abscess. She was admitted to the general surgery service and Infectious disease was consulted who recommended starting the patient on intravenous antibiotics, including Invanz, Zosyn, Cefepime, and, Metronidazole as an empiric therapy to cover Streptococci, Enterobacteriaceae resistant to third-generation cephalosporins, Pseudomonas aeruginosa, and anaerobes. Pain management was achieved through the administration of analgesics, and antiemetics were administered to manage any potential nausea.

The patient symptoms did not improve over the next few days as she continued to have severe abdominal pain and decision was made to take the patient to the OR for diagnostic laproscopy and washout and possible resection if warranted. Laparoscopy revealed a localized inflammatory process in the sigmoid colon. It was observed that the sigmoid colon was thickened and acutely inflamed without evidence of fecal drainage. There was a loop of small bowel with omentum adherent to one small aspect of the sigmoid colon. At that point it was determined that a resection and colostomy were not warranted. Patient was continued on IV antibiotics and her symptoms did improve over the course of the enxt few days. She was eventually discharged on IV Invanz for 1 more week with a midline. Patient was then seen in the outpatient setting and her symptoms had resolved.

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