

Alpha-Gal Syndrome Case Report: A Mammalian Product Triggered Allergy

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Introduction

- Alpha-gal (galactose- α -1,3-galactose) syndrome is a potentially life threatening delayed immunological response caused by the alpha-gal antigen found in the saliva of lone star ticks and chigger bites.
- An IgE mediated reaction occurs upon re-exposure to the alpha gal antigen i.e. consumption of products such as beef, pork, lamb, veal and dairy.

History

- 63 year old hispanic male presented with hypotension and diffuse urticarial rash.
- Denied any new medications, supplements, detergents, lotions, or foods.
- No previously known allergies.
- A dietary recall revealed ingestion of beef jerky 24 hours prior.
- Patient also walked in tall grass a few weeks prior and reported chigger bites on his legs.

Physical Exam

- Afebrile, stable vitals except for blood pressure: 94/50.
- CVS: + S1, S2. RRR. - ve murmurs, rubs or gallops.
- Lungs: CTA, No wheezing, rales, rhonchi, or crackles.
- Skin: Diffuse erythematous, raised, non-blanchable lesions that were irregular in shape and size. Chigger bite noted on right lower extremity.
- Abdomen: + BS, soft, nontender and no CVA tenderness.
- Neuro: AAOx3, CN II - XII grossly intact.

Differential Diagnoses

- Food, medication and/or tick bite allergy
- Contact dermatitis, urticarial vasculitis
- Alpha gal syndrome



Diagnostic Work-up

- WBC: 14.6 10^3 cells/uL
- Lactic acid: 4.1 mmol/L
- C-reactive protein: 1.27 mg/dL (0.00-0.74)
- Serum IgE: 240 kU/L (\leq 114)
- Serum beef and pork allergen: Positive
- Alpha Gal IgE antibodies: > 100 kU/L (< 0.10)

Management

Initial Management:

- IV Methylprednisolone, diphenhydramine, IV fluids

Long Term Management:

- Avoid ingesting alpha gal protein, i.e., red meat and dairy
- Carry an epinephrine auto-injector

Discussion

- Alpha-gal syndrome has been documented in over twenty countries and mostly affects the northern United States, including New Jersey where ticks and chigger bites are prevalent.
- This case emphasizes the importance of obtaining a thorough history in patients with non-specific rashes, including a full dietary recall and exposure history.
- Due to the slow absorption of the alpha-gal antigen in the gut, symptoms may take hours to manifest, causing delayed treatment.
- The current treatment regimen is to avoid foods and drugs (ie. cetuximab) that contain the alpha-gal antigen.
- Patients should be educated about adherence to dietary restrictions and quickly recognize signs and symptoms.
- More awareness and research is needed about how to identify and provide an early diagnosis to patients with alpha-gal syndrome

References

1. Commins, SP (2020). Diagnosis & management of alpha-gal syndrome: Lessons from 2,500 patients. *Expert Review of Clinical Immunology*, 16(7), 667-677.
2. Platts-Mills, TAE., Li, R., Keshavarz, B., Smith, AR., & Wilson, J.M. (2020). Diagnosis and Management of Patients with the α -Gal Syndrome. *The Journal of Allergy and Clinical Immunology: In Practice*, 8(1), 15-23.
3. Rutkowski, K., Wagner, A., Rutkowski, R., Sowa, P., Pancewicz, S., & Moniuszko-Malinowska, A. (2020). Alpha gal syndrome: An emerging cause of food and drug allergy. *Clinical & Experimental Allergy*, 50(8), 894-903.