

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

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## Introduction

- Alpha-gal (galactose- $\alpha$ -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

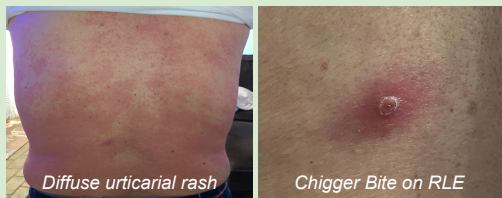
- 63 year old hispanic male presented with hypotension and diffuse urticarial rash.
- Denied any new medications, supplements, detergents, lotions, or foods.
- No previously known allergies.
- A dietary recall revealed ingestion of beef jerky 24 hours prior.
- Patient also walked in tall grass a few 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:  $14.6 \times 10^3$  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

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