

HISTORY TO THE RESCUE: “DRY-SCOOPING” ODYNOPHAGIA AND ESOPHAGEAL ULCERS

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Introduction

Esophageal ulcers cause upper gastrointestinal symptoms including odynophagia, nausea, vomiting and bleeding. Well established causes of ulceration, include GERD, medications, caustic ingestions, Candidiasis, CMV, HSV, HIV, Crohn's disease, neoplasms and radiation therapy.

We report the practice of “dry-scooping,” a Tik Tok trend promoting the intake of pre-workout powder in the absence of adequate water as a diluent, as the etiology of extensive esophageal ulcerations in this case.

Case Report

A 22-year-old male with no medical history presented with:

- 4-day history of fevers and odynophagia which progressively prevented intake of solids and liquids.
- Associated shortness of breath with pleuritic chest pain.
- A fever of 101°F and was tachycardic at 110 bpm. The rest of the exam was unremarkable.
- Labs revealed a creatinine of 1.5 mg/dl and a D-dimer of 595. Chest CT angiogram showed no evidence of pulmonary embolism but noted circumferential distal esophageal thickening. An EGD revealed severe esophagitis with punctate and linear esophageal ulcerations, and gastric erosions. HIV, EBV, CMV and HSV tested negative. Fevers, tachycardia and AKI resolved with IV hydration.

Further history revealed:

- Patient was a competitive weightlifter who regularly ingested caffeine rich pre-workout supplement powder fully diluted in water and ingested prior to weightlifting.
- He opted to try “**dry-scooping**” by swallowing an 8 gram scoop of dry powder with a sip of water. He did this thirty minutes before exercising 3-4 times/week for two weeks prior to admission. The powder he used contained caffeine, L-citrulline, Beta-alanine, malic acid, sodium citrate, citric acid, and tartaric acid.

Imaging

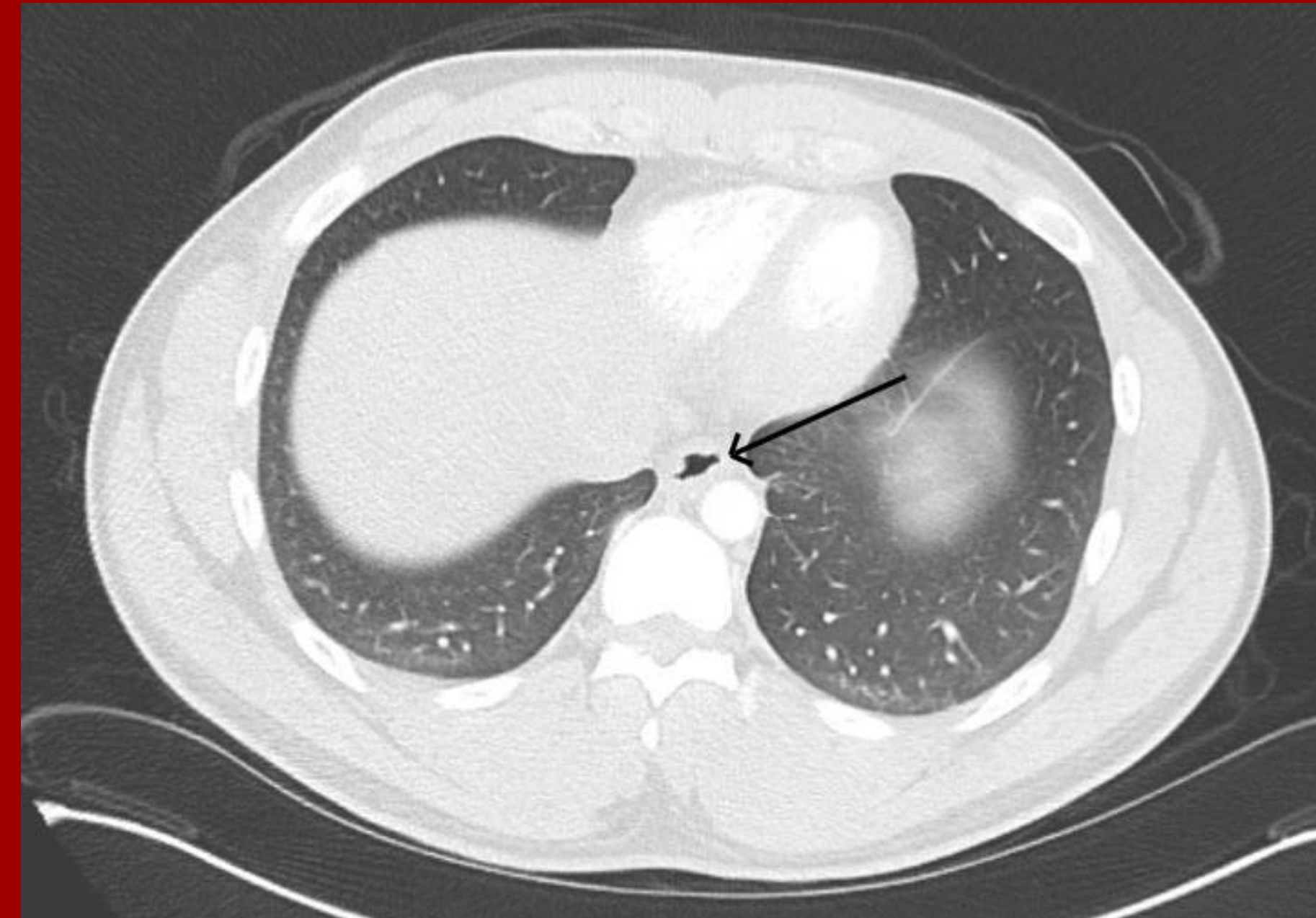


Fig 1. Axial view of CT angiogram of chest showing distal esophageal thickening as indicated by arrow.



Fig 2a. (left) Multiple columns of linear esophageal ulcerations appreciated in the distal esophagus. Fig 2b. (right) Deeper ulcerations visualized as the endoscope advanced distally toward the GE junction.

Pathology

The pathology report described:

- Basal cell hyperplasia
- Focally increased intraepithelial eosinophils (up to 15 cells/hpf)
- Superficial erosions with fibrinous exudate on the surface
- No goblet cells were reported in the sample

Outcome

“Dry-scooping” causing caustic mucosal injury leading to esophageal ulcers is the most plausible etiology in this case. Counseling against this practice was provided. A proton pump inhibitor was initiated with improvement in symptoms at the 4 weeks follow up visit.

Discussion

- “Dry-scooping” of pre-workout supplements has gained traction on social media platforms such as TikTok.
- These products are poorly regulated in the US and may contain toxic ingredients.
- Pre-workout powder is a supplement used by athletes, body builders and fitness enthusiasts that is rich in caffeine and other ingredients to increase energy and performance of the user.
- There are numerous news reports of adverse reactions from dry scooping, most describing effects linked to caffeine content.
- There is very little scientific literature published about the harmful effects of dry scooping and none describing dry scooping as a cause of caustic esophageal ulceration.

Conclusion

“Dry-scooping”, is a cause of odynophagia and esophageal ulcerations. Effort should be taken to combat the popular trend on the internet and to educate our patients on the dangers of “dry-scooping”. Providers should consider inquiring about “dry-scooping” when faced with unexplained cases of esophagitis or related symptoms.

The patient consented to presenting the case for purposes of scientific dissemination



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