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A Case of Mistaken Ingestion of Calcium Oxide Desiccant and Review of the Literature

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BACKGROUND: Calcium oxide (CaO) is widely used as a food desiccant in Japan. If CaO is accidentally ingested, the heat of the reaction and the generated calcium hydroxide can cause gastrointestinal mucosal injury.

CASE: A 95-year-old man with dementia accidentally swallowed CaO instead of a medicine. The family immediately forced him to exhale the CaO, but he complained of throat and mouth discomfort and was transported to hospital by ambulance. Gastrointestinal endoscopy showed no obvious corrosive esophagitis or gastritis, only mild swelling and redness of the oral cavity. Oral and throat discomfort was alleviated with gargles.

DISCUSSION: From 1987 to 2017, 19 cases of accidental ingestion of CaO were reported in Japan. Of these, 47% had dementia and 16% had vision impairment. As a measure to prevent CaO aspiration, Japanese industry groups have established strength standards of packaging materials for CaO. However, these standards were established in response to frequent accidental ingestions by infants in the 1970s and not aimed at the elderly and adults. In fact, of the 19 cases reported in Japan, 7 were chewed together with the packaging material and 4 were accidentally ingested when opening the packaging. In this study we obtained 20 kinds of CaO desiccants from 8 companies. When a 27-year-old female doctor manually tested these CaO packaging materials, all were easily torn and opened.

CONCLUSIONS: In the future, further measures should be taken to prevent CaO aspiration, such as further strengthening of CaO packaging material, reducing the amount of CaO used, and using alternative desiccants.