

All that glitters is not gold: A case of lanthanum carbonate aspiration

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Abstract

Introduction: Foreign body aspiration is a significant cause of morbidity and mortality in elderly hospitalized patients. These are typically small items that patients have access to, including small coins.

Case presentation: This is a case report of a 75-year-old man recently bedridden from a large hemispheric stroke with sudden onset of hoarseness, cough and dysphagia. A chest X-ray was obtained which showed a radiopaque coin-shaped foreign body, presumably a coin in his aerodigestive tract. He was promptly taken to the endoscopy suite for upper endoscopy. During endoscopy, it was determined that the foreign body was a radiopaque medication that he had been given. It was easily and safely able to be crushed and lavaged down into his stomach and later determined to be lanthanum carbonate, a commonly used phosphate binder. Following endoscopy, the patient's cough, hoarseness and dysphagia resolved with no long-term complications.

Discussion: Lanthanum carbonate is a phosphate-binding medication used in the management and treatment of hyperphosphatemia commonly seen in patients with end-stage renal disease, which is radiopaque. There are few published reports and images of radiopaque fragments of medication in the gastrointestinal tract but none causing aspiration by masquerading as a coin-like density in the aerodigestive tract as we present here.

Keywords

Gastroenterology/hepatology, neurology, pharmacoepidemiology/drug safety

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Introduction

Aspiration is a major risk to elderly and debilitated patients in the hospital setting and accounts for a significant cause of morbidity and mortality. Foreign body aspiration is most commonly seen in the pediatric population under 3 years of age,¹ but adult patients with various psychiatric and neurologic conditions such as stroke are at an increased risk.²

Case presentation

Our patient is a 75-year-old man with a history of stage 5 chronic kidney disease, hypertension and pre-diabetes. He was recently bedridden from a large hemispheric stroke and hospitalized at a large rural center for ongoing care. He was discovered during morning rounds to have had sudden onset of hoarseness, cough and dysphagia. On physical examination, his vital signs were within normal limits; however, he appears to be in a mild amount of distress. A chest X-ray was obtained (Figure 1) which showed a radiopaque coin-shaped foreign body, presumably a coin in his posterior oropharynx. This was

unable to be fully evaluated and addressed at the bedside, as the object could not be seen on visual inspection. An additional lateral chest X-ray (Figure 2) was obtained and the patient was taken promptly for upper endoscopy. During endoscopy, it was determined that the foreign body was a pill (Figure 3) that he had been given that morning. The pill was easily and safely able to be crushed and lavaged down into his stomach. Upon review of his recent medications, the pill was determined to be lanthanum carbonate (LC), a phosphate binder used in the management and treatment of hyperphosphatemia in patients with chronic kidney disease. Following endoscopy, the patient's

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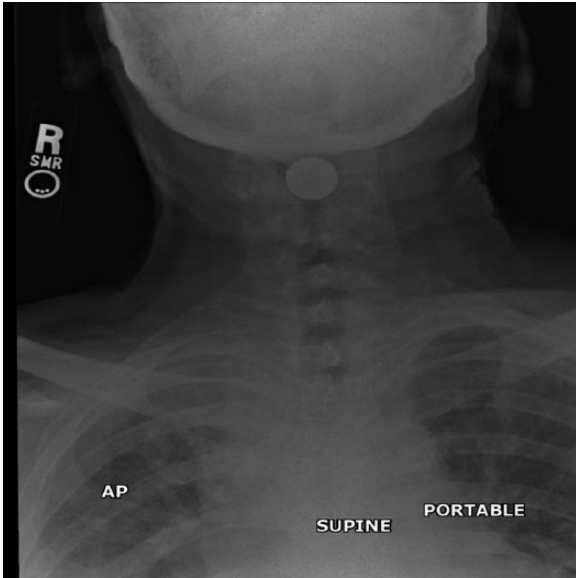


Figure 1. AP chest xray showing coin-shaped foreign body.



Figure 2. Lateral neck xray depicting coin-shaped foreign body.

cough, hoarseness and dysphagia resolved with no long-term complications. The patient was eventually discharged to rehab with no long-term sequela of this event.

Discussion

LC is a non-aluminum non-calcium phosphate-binding medication that is very commonly used to help lower serum phosphate levels in patients with advanced renal disease.³ It is sold under the trade name *Fosrenol* by the pharmaceutical company Shire Pharmaceuticals. LC has been indicated for the management of hyperphosphatemia in patients with end-stage renal disease (ESRD) in the United States since 2005.⁴

Several observational studies have shown that the treatment of hyperphosphatemia with phosphate-binding agents reduces the risk of mortality compared with no treatment in patients with ESRD.⁵⁻⁸ Because of this, clinicians often

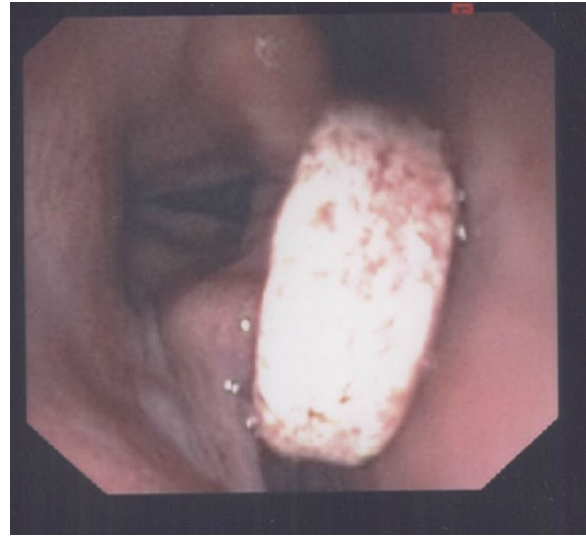


Figure 3. Endoscopic view of foreign body in oropharynx.

prescribe these medications to patients and like many medications may not pay much attention to specific features such as size or texture of the pill or tablet.

Due to the large size of LC (1000mg tablet is 2.2 cm in diameter), it may be possible to choke on the tablet if it is not properly chewed or crushed. There are also possible risks associated with build-up of aluminum-like particles and long-term toxicity that are beyond the scope of this article, reported in the literature.³

This medication has recently been found to be radiopaque on advanced forms of imaging within the gastrointestinal tract.^{9,10} There is a dearth of published literature discussing the topic of aspiration of radiopaque medications; however, recent published reports of LC fragments causing artifact on computed tomography causing diagnostic confusion, being indistinguishable from foreign bodies, has been reported.⁹

Conclusion

Large pills are often difficult for elderly patients to swallow, particularly those with a history of stroke or other neurocognitive disorders. The differential diagnosis for aspiration is often broad and should not only include a history and physical examination, but a detailed review and knowledge of a patient's medication list. Not all coin-like densities on imaging are coins. LC is not only radiopaque but should be crushed prior to being given according to its package insert. Failure to do so and without prompt diagnosis and intervention can lead to significant morbidity and possibly even mortality.

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Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Ethical approval

Our institution does not require ethical approval for reporting individual cases or case series when anonymized information is used.

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Informed consent

Verbal informed consent was obtained from the patient(s) for their anonymized information to be published in this article. Written and verbal informed consent were also obtained by the patients POA due to patient's history of stroke and inability to sign documents.

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