A 58-year-old man with progressive idiopathic pulmonary fibrosis underwent a preoperative transthoracic echocardiogram for lung transplantation, which identified a 3.5×7-cm oval-shaped echolucent retrocardiac mass compressing the left atrium (Figure A; Movie S1). Color Doppler evaluation of the mass was unrevealing. Administration of a carbonated beverage demonstrated increased compression of the left atrium as the esophagus became more dilated following ingestion of the carbonated beverage. Chest computed tomography revealed a dilated esophagus with an air-fluid level at the level of the left atrium. This corresponds to the findings on transthoracic echocardiography. Subsequent barium swallow esophagography showed a significantly dilated esophagus with a classic bird’s beak deformity characteristic of achalasia.

**Figure.** Key diagnostic images. (A) Parasternal long axis view demonstrated a large 3.5×7-cm oval-shaped echolucent structure posterior to the left atrium (arrowheads). Mild left atrial compression is noted. (B) Following use of an oral carbonated beverage as a contrast medium, opacification of the previously noted structure is observed, confirming the underlying gastroesophageal pathology. Increased compression of the left atrium is also noted as the esophagus becomes even more dilated following ingestion of the carbonated beverage. (C) Chest computed tomography revealed a dilated esophagus with an air-fluid level (asterisk) at the level of the left atrium. This corresponds to the findings on transthoracic echocardiography. (D) Subsequent barium swallow esophagography showed a significantly dilated esophagus with a classic bird’s beak deformity characteristic of achalasia.
tion of an oral carbonated beverage with the patient in a semi-recumbent position demonstrated contrast bubbles within this structure, outlining the gastroesophageal luminal pathology (Figure B; Movie S2). Subsequent chest computed tomography corroborated the presence of a dilated esophagus (Figure C) with an air-fluid level. Barium esophagogram showed a dilated esophagus with a classic bird’s beak deformity, characteristic of achalasia (Figure D).

In 1985, Nishimura et al first described the use of transthoracic echocardiography in assessing hiatal hernia as an etiology for incidentally found retrocardiac masses, as well as the use of oral carbonated beverage in outlining gastric pathology. This method, however, is still under-utilized despite subsequent reports on its use in the diagnosis of masses encroaching on the left atrium. Although hiatal hernia is the most commonly identified retrocardiac enteric finding, the present case demonstrates that a patulous esophagus, as seen in achalasia, can also be identified in this manner.

In summary, retrocardiac compression of the heart is frequently a sign of a gastroesophageal pathology such as a hiatal hernia or achalasia. Such structures can be easily outlined on transthoracic echocardiography with the use of an oral carbonated beverage. Intravenous contrast has been shown to augment the diagnostic value of transthoracic echocardiography in a variety of settings. However, oral contrast remains an under-utilized, non-invasive, inexpensive, and readily available contrast method to differentiate gastroesophageal pathologies from other cardiac masses, such as atrial myxoma, or extra-cardiac masses such as pulmonary neoplasms, lymphoma, or aortic aneurysms.

Disclosures
The authors report no potential conflict of interest in regards to the content of this manuscript.

References

Supplementary Files

Supplementary File 1
Movie S1. Presenting transthoracic echocardiogram. Parasternal long axis video demonstrating a 3.5×7-cm oval-shaped echolucent structure posterior to the left atrium and anterior of the descending aorta.

Supplementary File 2
Movie S2. Transthoracic echocardiography with oral carbonated beverage as a contrast medium on parasternal long axis view with the patient in the semi-recumbent position. Contrast bubbles are seen within the previously described structure, suggestive of a significantly dilated esophagus. Note the appearance of contrast bubbles corresponding to 2 swallows of the carbonated beverage.