Critical care and emergency medicine physicians increasingly use thoracic ultrasound to assist in the diagnosis of alveolar interstitial syndrome (AIS). This heterogeneous group of conditions is characterized by fluid-thickened lung interstitium and includes cardiogenic and noncardiogenic pulmonary edema, acute respiratory distress syndrome, and interstitial pneumonia. The diagnosis of AIS with ultrasound is made by noting bilateral, diffuse reverberation artifacts termed ultrasound lung rockets (ULRs). These reverberation artifacts result from the repetitive back and forth reflection of the ultrasound beam between the fluid-thickened lung and interlobular septa and the lung edge. Vertical, comet-tail artifacts extending to the distal edge of the ultrasound image result. Single vertical comet-tail artifacts are termed B lines and may be noted in dependent areas of normal lung. When three or more B lines are present within a single scan, the term ULRs is used. Clinicians should distinguish B lines from A lines, the latter being a series of thin, parallel, repeating, horizontal lines appearing at progressive multiple intervals of the skin-pleural distance. These may be found in healthy individuals with normal pulmonary artery occlusion pressure. With increasing lung water, A lines thicken, blur, and disappear whereas B lines predominate.

Standardized surface ultrasound scanning protocols for the diagnosis of AIS have been proposed which involve imaging two anterior and two lateral zones on each side of the chest. However, the use of transesophageal echocardiography (TEE) to visualize ULRs is not well described. Furthermore, intraoperative TEE imaging of the lung is usually limited to dependent segments in the left chest where single B lines may be noted in normal individuals. The presence of multiple B lines, or ULRs, within a single scan raises the possibility of AIS. However, to date, no scanning protocol using TEE has been proposed to aid in the diagnosis of AIS.

A 49-yr-old woman with a history of previous mitral valve repair presented with signs and symptoms of congestive heart failure. Chest roentgenography demonstrated pulmonary venous congestion and interstitial pulmonary edema. A comprehensive TEE examination included a short-axis view of the descending thoracic aorta (Ao) that revealed ULRs (arrows) arising from peripheral lung (arrowheads). Because diagnostic protocols for AIS have not yet been developed for use with TEE imaging planes, the ULRs visualized during this examination cannot be considered solely diagnostic of AIS in this patient. Nonetheless, the presence of ULRs in this case was entirely consistent with the clinical and chest radiograph diagnosis of cardiogenic pulmonary edema. Future studies, similar to those already reported with surface ultrasound, will be required before TEE can be established as a diagnostic test for AIS. However, until such studies are completed, clinicians should consider the potential implications of ULRs noted during TEE examinations rather than simply dismissing them as irrelevant, far-field artifacts.

Competing Interests
The authors declare no competing interests.

Correspondence
Address correspondence to Dr. Rehfeldt: rehfeldt.kent@mayo.edu

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