Spontaneous Pneumothorax

Joseph Junewick, MD FACR

01/04/2010

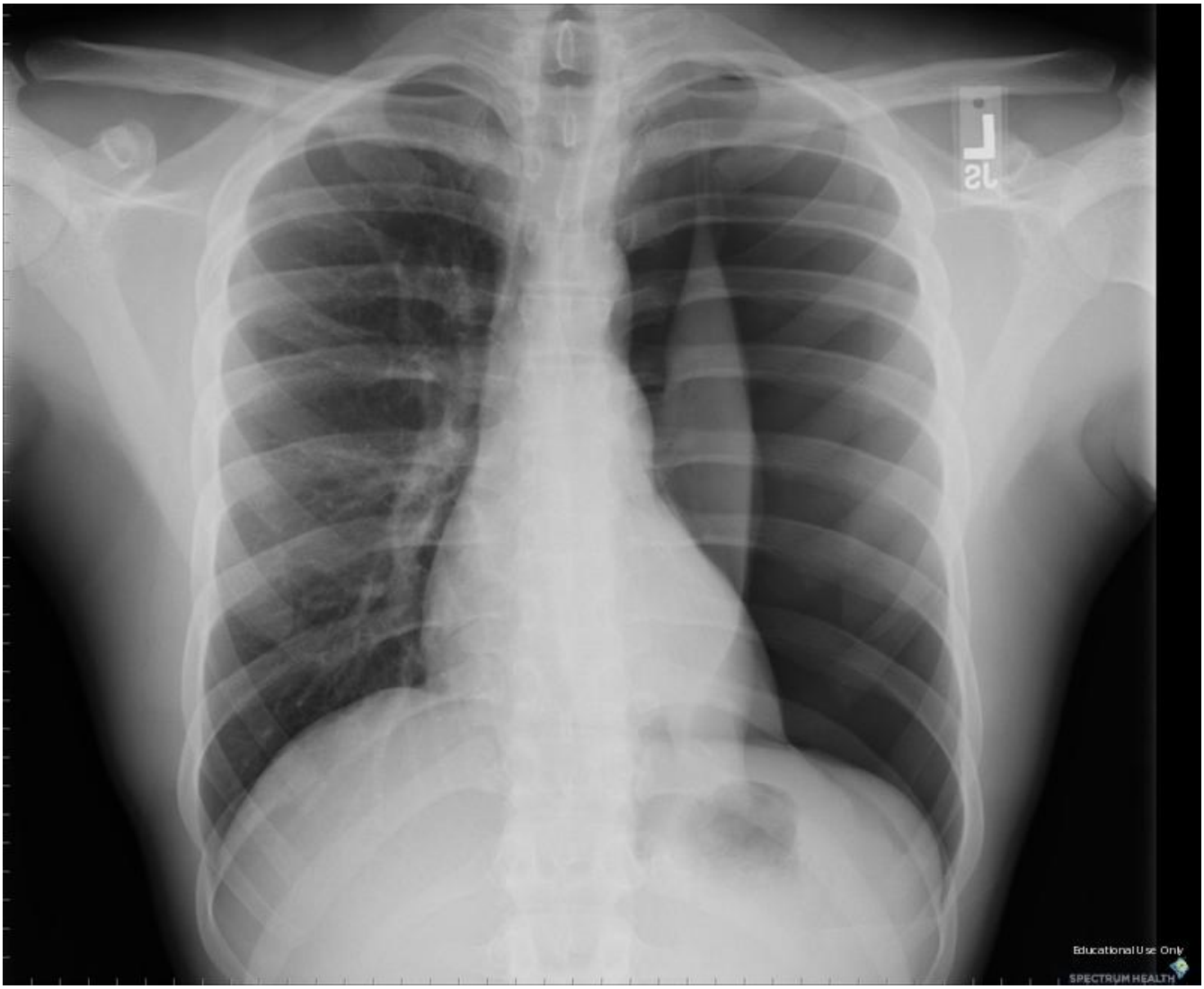
History
17 year old male with minor chest pain and difficulty breathing over last several days.

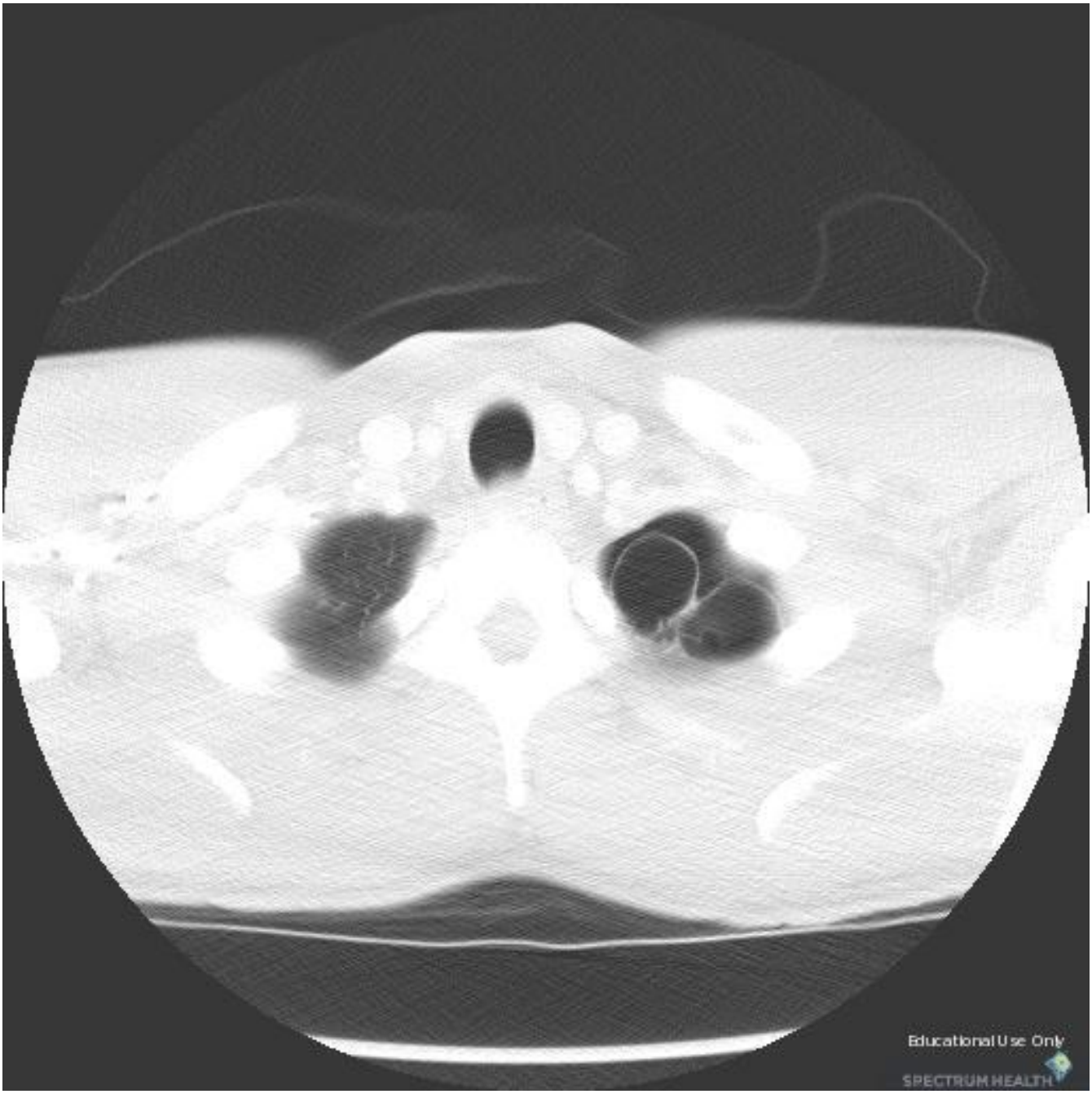
Diagnosis
Spontaneous Pneumothorax

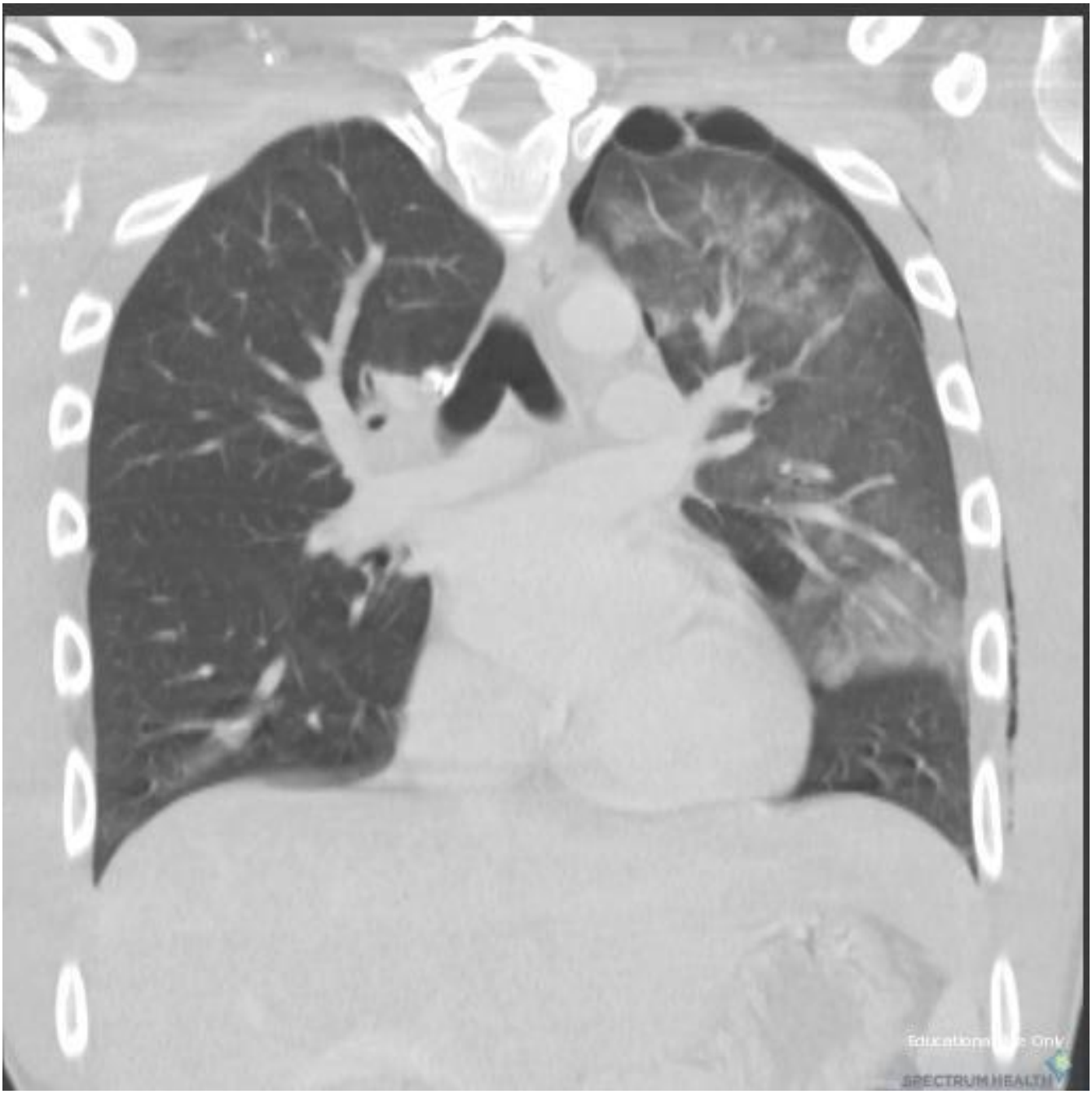
Additional Clinical
Persitent pneumothorax after chest tube placement.

Discussion
Spontaneous pneumothorax is most often related to rupture of subpleural apical blebs. Symptoms include chest pain and shortness of breath but symptoms are usually mild; approximately 10% of patients are asymptomatic. Spontaneous pneumothorax occurs in upto 18 per 100,000 but is less common in females. A family history is elicited in 10%. Changes in atmospheric pressure and exposure to loud music have also been implicated.
The etiology of apical subpleural blebs is unknown but could be related to more negative pleural pressure at the apices which may cause a traction-effect on the adjacent lung. This pressure difference is more marked in taller patients. Smoking and other chronic lung disease (e.g., cystic fibrosis) lead to secondary damage and predispose to spontaneous pnumothorax. Shear stresses are increased at the apices which may also contribute to disruption of the subpleural blebs.
The main physiologic impact of pneumothorax is decrease in vital capacity and decrease in partial pressure of oxygen, both of which are well tolerated in young and otherwise healthy individuals. Delay in treatment of pneumothorax often results in reexpansion pulmonary edema (the hazy opacities in the left lung on this CT is likely related to reexpasion pulmonary edema).

Findings
CR-Large left pneumothorax without tension.
CT-Two apical blebs. Note the small residual pneumothorax and hazy and confluent pulmonary opacities.


Educational Use Only
SPECTRUM HEALTH


Educational Use Only
SPECTRUM HEALTH


SPECTRUM HEALTH

Sponsored By

Disclaimer
This teaching site is partially funded by an educational grant from GE Healthcare and Advanced Radiology Services, PC. The material on this site is independently controlled by Advanced Radiology Services, PC, and GE Healthcare and Spectrum Health have no influence over the content of this site
Content Download Agreement
The cases and images on this website are owned by Spectrum Health. Permission is granted (for nonprofit educational purposes) to download and print materials to distribute for the purpose of facilitating the education of health professionals. The authors retain all rights to the material and users are requested to acknowledge the source of the material.
Site Disclaimer
This site is developed to reach healthcare professionals and medical students. Nothing this site should be considered medical advice.
Only your own doctor can help you make decisions about your medical care. If you have a specific medical question or are seeking medical care, please contact your physician.
The information in this website is provided for general medical education purposes only and is not meant to substitute for the independent medical judgment of a physician relative to diagnostic and treatment options of a specific medical condition.
The viewpoints expressed in these cases are those of the authors. They do not represent an endorsement. In no event will Advanced Radiology Associates, PC, Spectrum Health Hospitals (Helen Devos Children's Hospital) or GE Healthcare be liable for any decision made or action taken in reliance upon the information provided through this website.