

IMAGE

Open Access



Hemithorax white-out due to massive pleural effusion

Shreya Kolluri¹, Rohan K. Mangal², Thor S. Stead³ and Latha Ganti^{4*}

Abstract

This is a clinical image submission depicting hemithorax white-out due to massive pleural effusion.

Keywords Pleural effusion, Recurrent, Thoracentesis, Congestive heart failure, Chronic kidney disease

A 79-year-old female was sent from the acute rehab facility where she was recovering from pneumonia due to decreased breath sounds on the left. The patient had mild shortness of breath, but otherwise did not have complaints. Her medical history was significant for dementia, atrial fibrillation, hypertension, chronic kidney disease, and congestive heart failure. Imaging revealed a complete opacification of the left hemithorax consistent with a large pleural effusion (Figs. 1, 2, and 3).

About 1.5 million Americans experience pleural effusions annually [1]. Pleural effusion is the accumulation of excess fluid in the membrane around the lungs. The

pressure of the fluid on the lungs can result in chest pain, dry cough, dyspnea, and orthopnea, while it can also present with little to no symptoms.

It is often diagnosed with chest radiographs and computed tomography (CT) scans. Chest CT can detect pleural fluid as little as 2 mL as well as underlying abnormalities, such as pneumonia, abscess, or malignant masses [2–4]. Pleural effusion on radiographs appears as opacity because of fluid accumulation between the lower lung and diaphragm [5]. Additionally, thoracic ultrasonography and pleural fluid analysis can be performed to distinguish between transudative and exudative causes as determined by Light's criteria.

*Correspondence:

Latha Ganti

Latha.ganti@ucf.edu

¹ Central Magnet School, Murfreesboro, TN, USA

² University of Miami Miller School of Medicine, Miami, FL, USA

³ The Warren Alpert Medical School, Brown University, Providence, RI, USA

⁴ University of Central Florida College of Medicine, Orlando, FL 32827, USA



© The Author(s) 2023. **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.



Fig. 1 AP chest radiograph, and axial and saggital views of chest CT demonstrating left lung white out

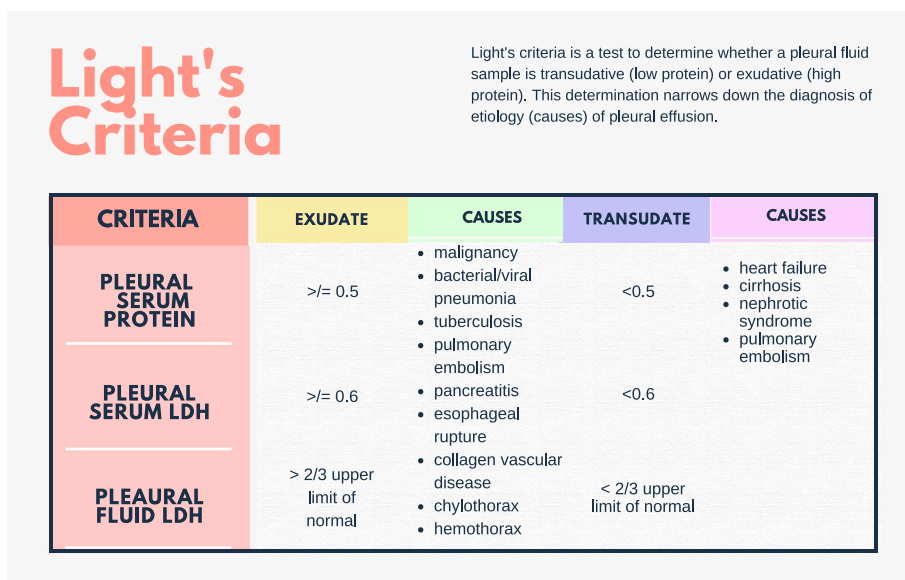


Fig. 2 Infographic depicting Light's Criteria explanation of distinguishing transudate and exudate pleural fluid. Designed by Shreya Kolluri on [canva.com](https://www.canva.com)

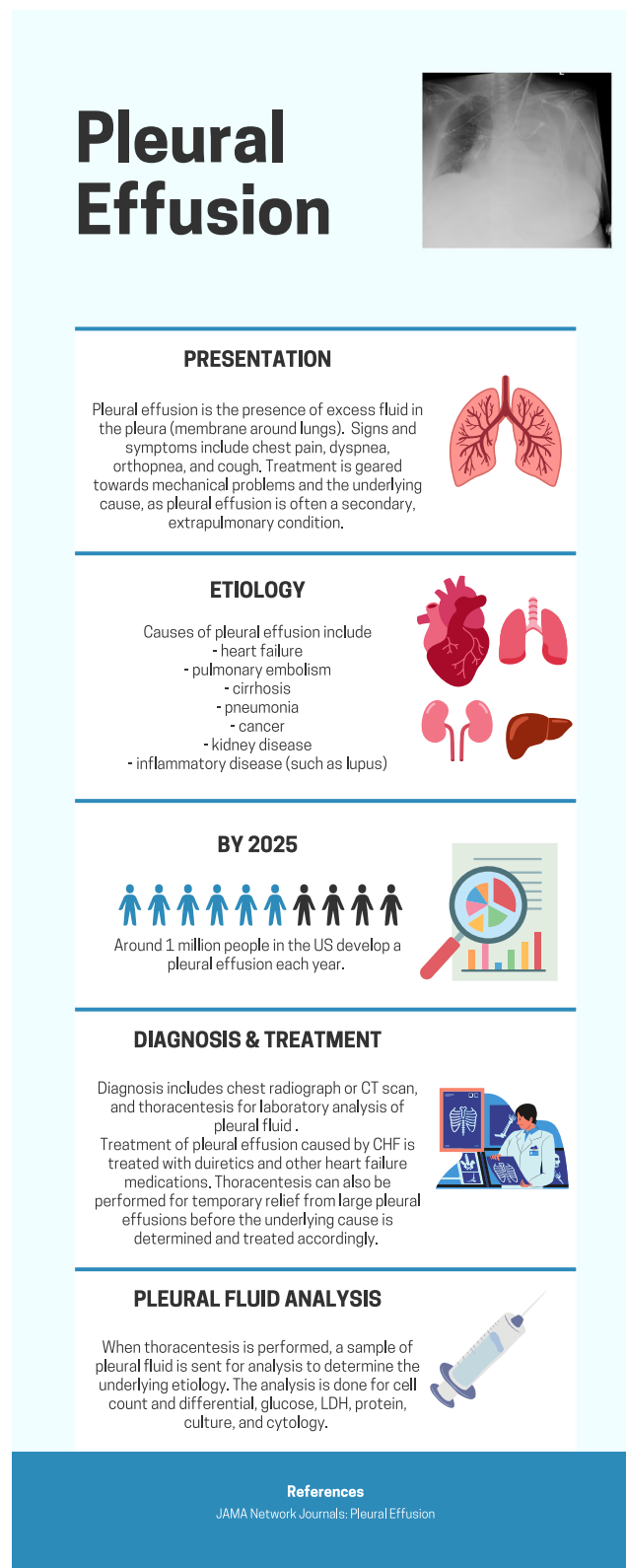


Fig. 3 Infographic depicting overview of pleural effusion presentation, symptoms, etiology, and treatment. Designed by Shreya Kolluri on [canva.com](https://www.canva.com)

Acknowledgements

This research was supported (in whole or in part) by the HCA Healthcare and/or an HCA Healthcare-affiliated entity. The views expressed in this publication represent those of the author(s) and do not necessarily represent the official views of the HCA Healthcare or any of its affiliated entities.

Authors' contributions

LG saw the patient and obtained informed consent. SK and LG wrote the manuscript. TS and RK provided edits. SK designed the infographics. All authors read and approved the final version of the manuscript.

Funding

None

Availability of data and materials

Data sharing not applicable to this article as no datasets were generated or analyzed during the current study.

Declarations

Ethics approval and consent to participate

This study was conducted in accordance with the Declaration of Helsinki and exempt by the HCA CARRIE Institutional Review Board (study #2022-902). The requirement for written informed consent was waived as the obtained data was de-identified.

Consent for publication

The patient provided written informed consent for this clinical image submission.

Competing interests

The authors declare that they have no competing interests.

Received: 29 September 2022 Accepted: 19 October 2022

Published online: 23 January 2023

References

1. Light RW. Pleural diseases. 1992;38:266–331. [https://doi.org/10.1016/0011-5029\(92\)90007-c](https://doi.org/10.1016/0011-5029(92)90007-c).
2. Aquino SL, Webb WR, Gushiken BJ. Pleural exudates and transudates: diagnosis with contrast-enhanced CT. *Radiology*. 1994;192:803–8. <https://doi.org/10.1148/radiology.192.3.8058951>.
3. Waite RJ, Carbonneau RJ, Balikian JP, Umali CB, Pezzella AT, Nash G. 175, 145-150. 1990. <https://doi.org/10.1148/radiology.175.1.2315473>.
4. Kearney SE, Davies CW, Davies RJ, Gleeson FV. Computed tomography and ultrasound in parapneumonic effusions and empyema. *Clinical radiology*. 2000;55:542–7. <https://doi.org/10.1053/crad.1999.0480>.
5. Raasch BN, Carsky EW, Lane EJ, O'Callaghan JP, Heitzman ER. Pleural effusion: explanation of some typical appearances. 1982;139:899–904. <https://doi.org/10.2214/ajr.139.5.899>.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Ready to submit your research? Choose BMC and benefit from:

- fast, convenient online submission
- thorough peer review by experienced researchers in your field
- rapid publication on acceptance
- support for research data, including large and complex data types
- gold Open Access which fosters wider collaboration and increased citations
- maximum visibility for your research: over 100M website views per year

At BMC, research is always in progress.

Learn more biomedcentral.com/submissions

