

# HOSPITAL PHYSICIAN®

## PULMONARY DISEASE BOARD REVIEW MANUAL

### PUBLISHING STAFF

#### PRESIDENT, GROUP PUBLISHER

Bruce M. White

#### EXECUTIVE EDITOR

Debra Dreger

#### SENIOR EDITOR

Becky Krumm, ELS

#### EDITOR

Ellen M. McDonald, PhD

#### ASSISTANT EDITOR

Jennifer M. Vander Bush

#### EDITORIAL ASSISTANT

Meghan Cunningham

#### EXECUTIVE VICE PRESIDENT

Barbara T. White, MBA

#### PRODUCTION DIRECTOR

Suzanne S. Banish

#### PRODUCTION ASSOCIATES

Tish Berchtold Klus

Christie Grams

Mary Beth Cunney

#### ADVERTISING/PROJECT MANAGER

Patricia Payne Castle

#### NOTE FROM THE PUBLISHER:

This publication has been developed without involvement of or review by the American Board of Internal Medicine.



The Association for Hospital Medical Education endorses HOSPITAL PHYSICIAN for the purpose of presenting the latest developments in medical education as they affect residency programs and clinical hospital practice.

## Pleural Effusion: Diagnosis and Management of Causative Disorders

**Series Editor: Robert A. Balk, MD, FACP, FCCP, FCCM**

*Professor of Internal Medicine*

*Rush Medical College*

*Director of Pulmonary and Critical Care Medicine*

*Rush-Presbyterian-St. Luke's Medical Center*

*Chicago, IL*

**Contributing Author: Richard W. Light, MD**

*Director, Pulmonary Disease Program*

*Saint Thomas Hospital*

*Professor of Medicine*

*Vanderbilt University*

*Nashville, TN*

## Table of Contents

Transudative and Exudative Pleural Effusions . . . . .	2
Pleural Effusion in Patients with Pneumonia . . . . .	4
Malignant Pleural Effusion . . . . .	7
Summary . . . . .	9
Board Review Questions . . . . .	10
Answers . . . . .	11
References . . . . .	11
Suggested Readings . . . . .	12

Cover Illustration by Dean Vigyikan

Copyright 2001, Turner White Communications, Inc., 125 Strafford Avenue, Suite 220, Wayne, PA 19087-3391, www.turner-white.com. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, mechanical, electronic, photocopying, recording, or otherwise, without the prior written permission of Turner White Communications, Inc. The editors are solely responsible for selecting content. Although the editors take great care to ensure accuracy, Turner White Communications, Inc., will not be liable for any errors of omission or inaccuracies in this publication. Opinions expressed are those of the authors and do not necessarily reflect those of Turner White Communications, Inc.

# HOSPITAL PHYSICIAN®

## PULMONARY DISEASE BOARD REVIEW MANUAL

### Pleural Effusion: Diagnosis and Management of Causative Disorders

#### Series Editor:

**Robert A. Balk, MD, FACP, FCCP, FCCM**

*Professor of Internal Medicine*

*Rush Medical College*

*Director of Pulmonary and Critical Care Medicine*

*Rush-Presbyterian-St. Luke's Medical Center*

*Chicago, IL*

#### Contributing Author:

**Richard W. Light, MD**

*Director, Pulmonary Disease Program*

*Saint Thomas Hospital*

*Professor of Medicine*

*Vanderbilt University*

*Nashville, TN*

---

#### TRANSUDATIVE AND EXUDATIVE PLEURAL EFFUSIONS

---

##### CASE 1 PRESENTATION

A 60-year-old man comes to his physician's office because of increasing shortness of breath and swelling of the legs that is worse in the right than in the left leg. He reports no chest pain, calf pain, or fever but says that he has gained 3.6 kg (8 lb) in the past 2 weeks and that his stomach appears to be "getting a little larger." The patient has 1-pillow orthopnea and 2 to 3 episodes of nocturia each night. He has a 20-year history of hypertension and has had 2 myocardial infarctions (MIs) within the past 5 years. Additionally, he sustained a fracture of the right femur 2 years ago in an automobile accident. Before his first MI, he had smoked 2 packs of cigarettes daily for 35 years and drank heavily. Although he subsequently stopped smoking and decreased his alcohol intake slightly, he still drinks despite having been told not to because of cirrhosis.

Although able to walk 1 mile at a normal pace 2 weeks ago, the patient now becomes dyspneic when he walks across the room. Physical examination shows an obese man who looks chronically ill and older than his stated age. Temperature is 98.6°F (37°C), blood

pressure is 120/80 mm Hg, pulse is 104 bpm, and respiratory rate is 14 breaths/min. Pulse oximetry reveals an oxygen saturation of 94%. Cardiac examination reveals no cardiomegaly, cardiac murmurs, or gallops. There are signs of a large right-sided pleural effusion, including absent tactile fremitus, dullness to percussion, and absent breath sounds over the entire right hemithorax. Other pertinent physical findings include possible ascites, 2+ pitting edema of the right leg to the midcalf, and 1+ pitting edema of the left leg to the midcalf. Homans' sign is not present. A chest radiograph shows a massive right-sided pleural effusion and a heart of normal size.

- Does Patient 1 have a transudative or an exudative pleural effusion?
- What diagnoses could account for the large unilateral pleural effusion in this patient?

##### DIFFERENTIATING TRANSUDATIVE FROM EXUDATIVE PLEURAL EFFUSIONS

Pleural effusions classically have been divided into 2 groups: transudates and exudates. Transudative pleural effusions develop when systemic factors influencing the formation or absorption of pleural fluid are altered so that pleural fluid accumulates. The fluid can originate in the lung, pleura, or peritoneal cavity. The