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Complex Pleuropulmonary Infections

Edited by Gernot Rohde
and Dragan Subotic



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Complex Pleuropulmonary Infections

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Managing Editors: Rachel White and Catherine Pumphrey
European Respiratory Society
442 Glossop Road, Sheffield,
S10 2PX, UK
Tel: 44 114 2672860
E-mail: Monograph@ersj.org.uk

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Edited by
Gernot Rohde and Dragan Subotic

Editor in Chief
Tobias Welte

This book is one in a series of *European Respiratory Monographs*. Each individual issue provides a comprehensive overview of one specific clinical area of respiratory health, communicating information about the most advanced techniques and systems required for its investigation. It provides factual and useful scientific detail, drawing on specific case studies and looking into the diagnosis and management of individual patients. Previously published titles in this series are listed at the back of this *Monograph*.

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Preface



Since the beginning of the last century, respiratory medicine has evolved as a specialism from the study of respiratory physiology. Consequently, for over a hundred years, obstructive airway diseases such as asthma and chronic obstructive pulmonary disease have been an important focus of chest physicians. Although these diseases are still of continued importance, the spectrum of pulmonary diseases now studied has been greatly expanded and includes thoracic oncology, allergology, pulmonary infections, sleep medicine and intensive care medicine. In addition, the collaborations between paediatricians and pulmonologists and between surgeons and pneumologists have become more and more important.

In the preface to the previous issue of the *European Respiratory Monograph (ERM)*, whose topic was bronchial infections, I pointed out that the 21st century will one day be described as the century of infectious diseases. The economic crisis has contributed to a deterioration of the social and hygiene conditions in many parts of the world, creating a breeding ground for the spread of infectious diseases. Antibiotic overconsumption has led to an exponential growth of resistant organisms. The globalisation of the economy has contributed to the spread of these resistant infectious agents, while the development of new antibiotics has not kept pace with the development of resistance. Therefore, surgical measures again play an essential role in the treatment of infectious pathogens, as was the case in the era of tuberculosis before World War II.

The present issue of the *ERM* summarises the most important infectious diseases that need a common therapeutic approach between thoracic surgeons and pneumologists. I want to congratulate the Guest Editors, Gernot Rohde and Dragan Subotic, for their tremendous work in setting up this excellent trendsetting *ERM*, which should be of interest to pneumologists, infectious disease specialists and thoracic surgeons alike. I hope this book will stimulate joint research, leading to better understanding and more successful therapy, and I am convinced that readers will find this *ERM* useful for their daily work.

Guest Editors



Gernot Rohde

Gernot Rohde is Associate Professor of Respiratory Medicine at the Maastricht University Medical Center (Maastricht, the Netherlands), as well as the chairman of the executive board of CAPNETZ (Competence Network for Community-Acquired Pneumonia) and a member of the executive board of ISARIC (International Severe Acute Respiratory and Emerging Infection Consortium). Currently he is External Activities Director of the European Respiratory Society (ERS) and HERMES (Harmonised Education in Respiratory Medicine for European Specialists) Director Elect.

Gernot Rohde graduated from medical school in 1998 and was recognised as a specialist in internal medicine in 2004. He completed an ERS fellowship at the Imperial College London (London, UK) in 2005, and finished his specialisation as a pulmonologist in 2006 in Germany. His fields of scientific interest include respiratory infections in asthma and chronic obstructive pulmonary disease (COPD) with a focus on viral pathogens, new detection methods for respiratory viruses (real-time PCR), the role of emerging respiratory viruses, inflammation caused by and innate immune responses towards respiratory viruses, community-acquired pneumonia, and detection of latent tuberculosis. He has published more than 75 scientific articles listed in PubMed. He is associate editor of *PLoS One*, *Breathe* and *The Clinical Respiratory Journal*.



Dragan Subotic

Dragan Subotic is a professor of surgery at the University of Belgrade School of Medicine and director of the Clinic for Thoracic Surgery, Clinical Center of Serbia, in Belgrade. He is an active member of the European Association for Cardiothoracic Surgery (EACTS), being a member of the thoracic domain in 2008–2011, and currently chairing the working group for pleuropulmonary infections of this association. Since 1999, Dragan Subotic has been actively participating within the surgical assembly of the ERS. The focus of his activities is to maintain and promote multidisciplinary activity of surgical and other assemblies, mostly in the form of joint scientific events during the annual congresses and through external educational courses.

The dominant field of professional activity of Dragan Subotic is general thoracic surgery, including diagnostics and treatment of malignant and nonmalignant diseases of the lungs, pleura, mediastinum and chest wall.

Introduction

Gernot Rohde* and Dragan Subotic#

*Dept of Respiratory Medicine, Maastricht University Medical Center, Maastricht, The Netherlands. #Clinic for Thoracic Surgery, Clinical Center of Serbia, University of Belgrade School of Medicine, Belgrade, Serbia.

Correspondence: G. Rohde, Dept of Respiratory Medicine, Maastricht University Medical Center, P. Debyelaan 25, 6202AZ Maastricht, The Netherlands. Email: g.rohde@mumc.nl

As cause of death, lower respiratory tract infections rank first in lower-income, third in lower-middle-income, fifth in upper-middle-income and sixth in high-income countries, accounting for 3.2 million deaths in 2011 worldwide, according to figures from the World Health Organization [1]. Lower respiratory tract infections cover a broad spectrum, from acute bronchitis to severe pneumonia and their complications. Many aspects have recently been covered in the *European Respiratory Monograph (ERM)* entitled “The Spectrum of Bronchial Infection” [2]. The topics of the current issue of the *ERM* extend the field to infections of the lungs, pleura and mediastinum and try to integrate conservative and surgical treatment, which plays a more important role in this field as compared to infections of the airway compartment.

The role of surgery in the treatment of pleuropulmonary infections mostly depends on the possibilities of medical treatment. Tuberculosis (TB) is a good example to illustrate the trend that surgical treatment has followed, from collapse therapy before the era of potent anti-TB drugs, through elective lung-sparing resections for localised forms of disease, to salvage surgery for multidrug-resistant TB, sometimes as a medical urgency [3]. Most forms of TB are treated by antimicrobial chemotherapy and the most recent updates to this treatment are therefore also covered in this issue.

One of the specific characteristics of lung infections is a radiographic evolution with a wide variety of initial pleuropulmonary presentations, sometimes mimicking the underlying disease. This often imposes the need for additional diagnostic procedures (e.g. bronchoscopy, thoracentesis, chest tube insertion or thoracoscopy) before the decision on treatment. These procedures should be dealt with only in adequately equipped institutions with the possibility of permanent radiographic control of patients. Furthermore, some of these infections, like aspergillosis or bronchiectasis, may require surgery without the possibility of thorough assessment of a patient. In these cases, urgent temporary procedures, like bronchial artery embolisation, may sometimes be necessary.

Bilateral lesions, for example as found in patients with bronchiectasis, represent a specific challenge for the surgeon. Therefore, a thorough knowledge of the conservative treatment options is mandatory. Attitudes have moved from surgery exclusively for unilateral disease, to bilateral operations in selected patients, sometimes with the use of modern video-assisted procedures [4].

The progress in the field of video-assisted procedures has greatly influenced the treatment of pleural empyema, making early disease stages amenable to efficient treatment in a less invasive way. This results in an indication for open surgery only in advanced stages [5]. As management is different for children and adults, separate chapters have been included for these two groups.

Some of these pleuropulmonary infections also affect extrathoracic organs, for example in hydatid disease. In this situation, a combined operative approach to expose thoracic and abdominal cavities is necessary, either for one- or two-stage procedures.

Taken together, complex pleuropulmonary infections require an experienced team, familiar with a broad spectrum of pulmonary diseases and also capable of preventing and dealing with post-operative complications in patients in whom major surgery is anticipated due to the presence of the existing or previous infection.

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