Autofluorescence Bronchoscopy

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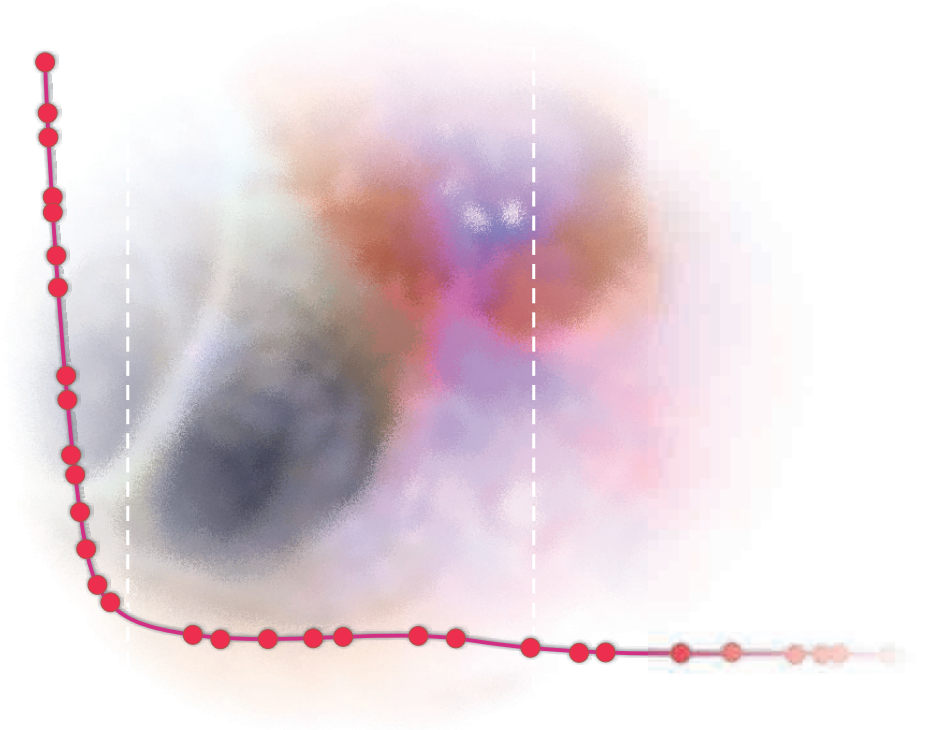

UNI-MED SCIENCE

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UNI-MED

Wagner, Manfred:
Autofluorescence Bronchoscopy/Manfred Wagner and Joachim H. Ficker.-
1st edition - Bremen: UNI-MED, 2007
(UNI-MED SCIENCE)
ISBN 978-3-8374-4956-3

© 2007 by UNI-MED Verlag AG, D-28323 Bremen,
International Medical Publishers
Internet: www.uni-med.de, e-mail: info@uni-med.de

Printed in Europe

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MEDICINE - STATE OF THE ART

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We greatly appreciate and acknowledge the collaboration of: Dr. Shreelata Datta.

Preface and acknowledgements

In 1897, the German physician Gustav Kilian became the first to use an optical instrument to inspect a patient's trachea and remove a foreign body. In 1966, the Japanese doctor Shigeto Ikeda described the first flexible bronchoscope. Since then, bronchoscopy has become an indispensable part of the pneumological diagnostic work-up and treatment. Its significance has increased in step with the constant technical improvements to the instruments. Glass fibre optics were constantly improved until, in the nineteen-nineties, they were replaced by miniaturised video-chip cameras capable of being integrated within the distal end of the endoscope. This enabled users to obtain images at a resolution previously possible only with the rigid bronchoscope, and at the same time access smaller and smaller airways for inspection.

In parallel with the development of video-chip endoscopy, research efforts have long been underway to improve the yield of information obtained from the bronchial mucosa, not only by imaging it in natural colours (white light bronchoscopy) but also by utilising optical phenomena based on the use of light beyond the range directly visible to the human eye. For this purpose, various methods for diagnostic autofluorescence have been developed. These not only enable direct evaluation of the surface of the mucosa, but also provide information from the upper layers of the mucosa, and in this way increase the sensitivity of the examination for the detection of premalignant or early malignant lesions. In this book we describe the fundamentals of the autofluorescence technique, the advantages and shortcomings of the various technical devices, and present information on clinical applications. In addition, the clinical value of the method is critically discussed.

We like to thank the authors and all those others whose efforts and commitment made this project possible. It is the hope of the editors and authors that this book might help readers to integrate the new possibilities opened up by autofluorescence bronchoscopy into their routine work, to the greater benefit of our patients.

Nürnberg, November 2006

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