

Endometrial Cytology with Tissue Correlations

ESSENTIALS IN CYTOPATHOLOGY SERIES

Dorothy L. Rosenthal, MD, FIAC, Series Editor

Editorial Board

Syed Z. Ali, MD

Douglas P. Clark, MD

Yener S. Erozan, MD

1. D.P. Clark and W.C. Faquin: Thyroid Cytopathology. 2005
ISBN 0-387-23304-0
2. D. L. Rosenthal and S.S. Raab: Cytologic Detection
of Urothelial Lesions. 2005
ISBN 0-387-23945-6
3. D.C. Chhieng and E.B. Stelow: Pancreatic Cytopathology. 2007
ISBN 978-0-387-68946-3
4. S.Z. Ali and A.V. Parwani: Breast Cytopathology. 2007
ISBN 978-0-387-71594-0
5. W.C. Faquin and C.N. Powers: Salivary Gland
Cytopathology. 2008
ISBN 978-0-387-76622-5
6. Y.S. Erozan and I. Ramzy: Pulmonary Cytopathology. 2009
ISBN 978-0-387-88886-6
7. J.A. Maksem, S.J. Robboy, J.W. Bishop and I. Meiers:
Endometrial Cytology with Tissue Correlations. 2009
ISBN 978-0-387-89909-1

John A. Maksem, MD

Director of Cytopathology, Orlando Health, Orlando, FL

Stanley J. Robboy, MD, FCAP

Professor of Pathology and Obstetrics and Gynecology,
Duke University Medical Center, Durham, NC

John W. Bishop, MD

HS Clinical Professor of Pathology, University of California,
Davis, Sacramento, CA

Isabelle Meiers, MD

Head of Cytopathology, University Hospital Lewisham,
London, UK

Endometrial Cytology with Tissue Correlations

 Springer

John A. Maksem, MD
Director of Cytopathology
Orlando Health
Orlando, FL

Stanley J. Robboy, MD, FCAP
Professor of Pathology and
Obstetrics and Gynecology
Duke University Medical Center
Durham, NC

John W. Bishop, MD
HS Clinical Professor of Pathology
University of California, Davis
Sacramento, CA

Isabelle Meiers, MD
Head of Cytopathology
University Hospital Lewisham
London, UK

Series Editor:

Dorothy L. Rosenthal, MD, FIAC
Professor of Pathology, Oncology and Gynecology/Obstetrics
The Johns Hopkins School of Medicine
Baltimore, MD 21287, USA

ISBN: 978-0-387-89909-1

e-ISBN: 978-0-387-89910-7

DOI: 10.1007/978-0-387-89910-7

Library of Congress Control Number: 2008940340

© Springer Science+Business Media, LLC 2009

All rights reserved. This work may not be translated or copied in whole or in part without the written permission of the publisher (Springer Science+Business Media, LLC, 233 Spring Street, New York, NY 10013, USA), except for brief excerpts in connection with reviews or scholarly analysis. Use in connection with any form of information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed is forbidden. The use in this publication of trade names, trademarks, service marks, and similar terms, even if they are not identified as such, is not to be taken as an expression of opinion as to whether or not they are subject to proprietary rights.

While the advice and information in this book are believed to be true and accurate at the date of going to press, neither the authors nor the editors nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Printed on acid-free paper

springer.com

The authors wish to dedicate this work to our loved ones and to our beloved mentors, who encouraged us in our pursuit of gynecological pathology and cytopathology, and who inspired us to create this work. Special mention is given to Dr. Liang-Che Tao, whose seminal publications, heartfelt support, and brilliant invention both inspired and encouraged us to gain a further understanding of the art of endometrial cytopathology. Also, especial thanks must be extended to Dr. David G. Bostwick, whose innovative views on the practice of anatomic pathology and cytopathology have helped to move this field forward and to make this effort possible.

Foreword

Although only 2 cm separate the cervical mucosa from the lining of the uterine cavity, the endometrium has not been screened for neoplasms to the same extent as has the uterine cervix. As a result, endometrial cancers are now the most common malignancies of the female reproductive organs in the United States. Two factors have long been blamed as the reason to bypass cytological examination of endometrial tissue in favor of biopsy: inadequate material to reliably categorize the sample, and inadequate experience by cytopathologists to accurately triage the patient for further management.

Maksem and his colleagues provide convincing evidence, both by data and by superb micrographs, that good material can be harvested and experience can be acquired to direct clinicians in managing their patients. In an era in which cost containment is essential, the ability to adequately sample a potentially malignant tissue in an office setting without sedation or anesthesia is a bonus.

The Editorial Board of the EIC Series predicts that this volume will become a seminal work. We look forward to reading about your experience with this long-neglected frontier in cytopathology.

Dorothy L. Rosenthal, M.D., F.I.A.C.

Series Preface

The subspecialty of cytopathology is 60 years old and has become established as a solid and reliable discipline in medicine. As expected, cytopathology literature has expanded in a remarkably short period of time, from a few textbooks prior to the 1980's to a current and substantial library of texts and journals devoted exclusively to cytomorphology. *Essentials in Cytopathology* does not presume to replace any of the distinguished textbooks in cytopathology. Instead, the series will publish generously illustrated and user-friendly guides for both pathologists and clinicians.

Building on the amazing success of *The Bethesda System for Reporting Cervical Cytology*, now in its second edition, the *Series* will utilize a similar format, including minimal text, tabular criteria, and superb illustrations based on real-life specimens. *Essentials in Cytopathology* will, at times, deviate from the classic organization of pathology texts. The logic of decision trees, elimination of unlikely choices, and narrowing of differential diagnosis via a pragmatic approach based on morphologic criteria will be some of the strategies used to illustrate principles and practice in cytopathology.

Most of the authors for *Essentials in Cytopathology* are faculty members in The Johns Hopkins University School of Medicine, Department of Pathology, Division of Cytopathology. They bring to each volume the legacy of John K. Frost and the collective experience of a preeminent cytopathology service. The archives at Hopkins are meticulously catalogued and form the framework for text and illustrations. Authors from other institutions have been selected on the basis of their national reputations, experience, and enthusiasm for cytopathology. They bring to the series complementary

viewpoints and enlarge the scope of materials contained in the photographs.

The editor and authors are indebted to our students, past and future, who challenge and motivate us to become the best that we possibly can be. We share that experience with you through these pages, and hope that you will learn from them as we have from those who have come before us. We would be remiss if we did not pay tribute to our professional colleagues, the cytotechnologists and preparatory technicians who lovingly care for the specimens that our clinical colleagues send to us.

And finally, we cannot emphasize enough throughout these volumes the importance of collaboration with the patient care team. Every specimen comes to us as a question begging an answer. Without input from the clinicians, complete patient history, results of imaging studies and other ancillary tests, we cannot perform optimally. It is our responsibility to educate our clinicians about their role in our interpretation, and for us to integrate as much information as we can gather into our final diagnosis, even if the answer at first seems obvious.

We hope you will find this series useful and welcome your feedback as you place these handbooks by your microscopes, and into your book bags.

Dorothy L. Rosenthal, M.D., FIAC
Baltimore, Maryland
drosenthal@jhmi.edu
July 15, 2004

Contents

Foreword.....	vii
Series Preface	ix
Introduction.....	1
1 Office-based Endometrial Sampling	5
2 Tao Brush and Endometrial Cytology	11
3 Cytoarchitecture and Nuclear Atypia as the Bases for the Cytology Risk-Stratification Endometrial Samplings	15
4 Performance Characteristics of Endometrial Cytology in a Hysterectomy-Controlled Environment.....	25
5 Normal Endometrium	39
6 Benign Endometrial Abnormalities	97
7 Endometrial Epithelial Metaplasias and Foam Cells	153
8 Endometrial Precancer.....	189
9 Endometrial Carcinoma.....	231
10 Technical Appendix	279
Index	291