

# Frozen Section Library

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Houston, Texas, USA

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Qihui “Jim” Zhai  
Editor

# Frozen Section Library: Endocrine Organs

 Springer

*Editor*

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ISBN 978-1-4614-8611-4      ISBN 978-1-4614-8612-1 (eBook)  
DOI 10.1007/978-1-4614-8612-1  
Springer New York Heidelberg Dordrecht London

Library of Congress Control Number: 2013954544

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*To my wife, Fangjie “Jenny” Chen,  
and our daughter, Jasmine*



# Series Preface

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For over 100 years, the frozen section has been utilized as a tool for the rapid diagnosis of specimens while a patient is undergoing surgery, usually under general anesthesia, as a basis for making immediate treatment decisions. Frozen section diagnosis is often a challenge for the pathologist who must render a diagnosis that has crucial import for the patient in a minimal amount of time. In addition to the need for rapid recall of differential diagnoses, there are many pitfalls and artifacts that add to the risk of frozen section diagnosis that are not present with permanent sections of fully processed tissues that can be examined in a more leisurely fashion. Despite the century-long utilization of frozen sections, most standard pathology textbooks, both general and subspecialty, largely ignore the topic of frozen sections. Few textbooks have ever focused exclusively on frozen section diagnosis and those textbooks that have done so are now out-of-date and have limited illustrations.

The *Frozen Section Library* Series is meant to provide convenient, user-friendly handbooks for each organ system to expedite use in the rushed frozen section situation. These books are small and lightweight, copiously color illustrated with images of actual frozen sections, highlighting pitfalls, artifacts, and differential diagnosis. The advantages of a series of organ-specific handbooks, in addition to the ease-of-use and manageable size, are that: (1) a series allows more comprehensive coverage of more diagnoses, both common and rare, than a single volume that tries to highlight a limited number of diagnoses for each organ and (2) a series allows more detailed insight by permitting experienced authorities

to emphasize the peculiarities of frozen section for each organ system.

As a handbook for practicing pathologists, these books will be indispensable aids to diagnosis and avoiding dangers in one of the most challenging situations that pathologists encounter. Rapid consideration of differential diagnoses and how to avoid traps caused by frozen section artifacts are emphasized in these handbooks. A series of concise, easy-to-use, well-illustrated handbooks alleviates the often frustrating and time-consuming, sometimes futile, process of searching through bulky textbooks that are unlikely to illustrate or discuss pathologic diagnoses from the perspective of frozen sections in the first place. Tables and charts will provide guidance for differential diagnosis of various histologic patterns. Touch preparations, which are used for some organs such as central nervous system or thyroid more often than others, are appropriately emphasized and illustrated according to the need for each specific organ.

This series is meant to benefit practicing surgical pathologists, both community and academic, and to pathology residents and fellows; and also to provide valuable perspectives to surgeons, surgery residents, and fellows who must rely on frozen section diagnosis by their pathologists. Most of all, we hope that this series contributes to the improved care of patients who rely on the frozen section to help guide their treatment.

Houston, TX, USA

Philip T. Cagle, MD



# Preface

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Frozen section diagnosis can be challenging, particularly when you are handling the case alone. This difficulty may be compounded by dramatic and irreversible surgical implications.

This monograph, as a volume of the *Frozen Section Library* series, will concentrate on the practical issues commonly encountered with endocrine organ lesions of the thyroid, parathyroid, endocrine pancreas, adrenal gland, pituitary gland, and others, by illustrating typical, as well as less ideal, images that we often encounter in daily practice.

Each chapter uses a similar format, discussing the importance of communicating with the surgeon, understanding commonly encountered clinical scenarios and indications, suggestions on how to handle the specimen appropriately, and highlighting diagnostic pitfalls and pearls. Pathologists should be aware that in the best interest of patient care, deferring to permanent is a valid option for difficult cases in order to avoid irreversible overtreatment. In some scenarios a frozen section diagnosis should not be attempted.

Insights from our surgical colleagues have been contributed by some of the best practicing surgeons for the thyroid, parathyroid, and endocrine pancreas chapters. Understanding in principle the implication of our interpretation and contribution to the surgeon-pathologist interaction is of utmost importance.

Thyroid pathology, particularly the diagnosis of papillary thyroid carcinoma and minimally invasive follicular carcinoma, is among the most controversial areas in surgical pathology. Our approach dictates that a lesion should not be called a

carcinoma unless you see compelling histologic features on frozen sections.

As surgical pathologists we often debate among ourselves when we should perform a frozen section and when we should decline a request for frozen section of a thyroid specimen. Our opinion is that for each patient we should evaluate our role with the surgeon to determine if a frozen section will likely benefit the patient's care, above all.

I sincerely hope this book will fill a niche in endocrine pathology and provide practical and succinct, yet comprehensive, guidelines for the intraoperative consultation of endocrine organ specimens.

Florida, USA  
June 2013

Qihui "Jim" Zhai, MD, FCAP

# Acknowledgments

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My thanks start with Dr. Philip T. Cagle, the editor in chief of the *Frozen Section Library* series, for his invitation and trust to write and edit this volume, *Endocrine Organs*.

The process of preparing this manuscript reminded me of so many wonderful learning experiences in endocrine pathology. Throughout my residency, fellowship, and academic practices, the mentoring and friendship of these outstanding pathologists nurtured my career development. Thank you, Drs. Ricardo V. Lloyd, K. Krishnan Unni, Mario Luna, Adel K. El-Naggar, Alberto G. Ayala, Jae Y. Ro, Thomas M. Wheeler, and Mary R. Schwartz.

The contributors of this book are some of the best practicing surgeons and pathologists in their fields. I am very grateful that they have shared their expertise and insights with us in spite of their busy schedules.

Collaborative working relationships with endocrine surgeons at The Methodist Hospital at Houston, University of Cincinnati, and Mayo Clinic have taught me a great deal, particularly the clinico-pathological correlations around the patient, who is the very center of our practice.

Dr. Ricardo V. Lloyd has critically reviewed and provided constructive advice for the book. I cannot thank you enough, Dr. Lloyd, for your mentoring, friendship, and invaluable contribution to this volume. My earliest projects involving thyroid, which were mentored by Dr. Lloyd, led to my continued interest in thyroid pathology.

I would also like to thank Dr. Cherise Cortese for her language editing to those chapters I authored, making them more readable.

Above all, I would like to thank my wife, Fangjie “Jenny” Chen, and our daughter, Jasmine, for their love, understanding, and support.



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