Thymus Gland Pathology
Clinical, Diagnostic, and Therapeutic Features
To the memory of my wonderful mother Anne Marie

C. Lavini

To my wife Susan and my daughters Kate Leticia and Elisa Jean

C.A. Moran

To the young surgeons

U. Morandi

To my patients, friends and colleagues from Modena

R. Schoenhuber
Preface

The thymus is a gland that over the last two centuries has generated great awareness not only from the anatomical perspective but also for the physiological and pathological roles it plays in many disease processes. Prior to the early studies on its anatomy and physiology in the 18th century, the thymus was believed to perform unusual and curious functions such as purification of the nervous system, providing a protective cushion for the vasculature of the superior mediastinum, fetal nourishment, or more spiritual roles such as being the seat of the soul, among others. During the 19th century important anatomical/physiological studies took place focusing on the role of the thymus in pathological conditions. However, it was not until the middle of the 19th century that a more comprehensive analysis of the role of the thymic gland and its role in pathogenesis began to emerge.

Currently, while the knowledge gained on the diverse aspects of the thymic gland has furthered our understanding of its role in a gamut of processes, more knowledge is still being sought, and by no means is a full understanding of the gland’s physiology and pathology complete. Different aspects, including its purported endocrine function, its association with other autoimmune diseases like multiple sclerosis, rheumatoid arthritis, and lupus erythematosus, among others, are under evaluation and research. In addition, surgical modalities in the treatment of pathological conditions affecting the thymus gland are also under evaluation and scrutiny in order to provide the best methodology. Therefore, our daily practice regarding diseases involving the thymic gland has become a multidisciplinary approach in which experts, including radiologists, neurologists, immunologists, pathologists, oncologists, and surgeons, participate in the evaluation of patients.

Analysis of past and the present developments has afforded us the opportunity to bring you an updated version of the thymic gland – its diagnosis and treatment. This volume encompasses authors from four different continents and attempts to highlight clinical, diagnostic, and therapeutic modalities. New pathological and oncological classifications are carefully presented and discussed; the role of thymopathies with special interest on myasthenia gravis is clearly addressed; and the role of the different diagnostic imaging modalities, including PET and the different surgical techniques, is carefully reviewed. Special emphasis is given to the surgery of the thymus: the different approaches including open conventional, open video-assisted, totally endoscopic, and robotic techniques, and the types of interventions including the complex techniques in superior vena cava syndrome, and the re-interventions. As would be expected, an accurate analysis of the anesthesiological and intensive care problems is also presented. From the oncological point of view, the role of radiation, chemotherapy, and complementary treatments (steroids, octreotide) is highlighted. In the section of myasthenia gravis, the effectiveness of modern therapeutic protocols, the use of multimodal therapy, and the follow-up of patients are carefully discussed. And finally, a chapter dedicated to one of the most recent treatment modalities – thymic transplantation in the setting of some congenital thymic diseases – provides important insight to this text.
In short, we hope that the current text will provide valuable information for those involved in the diagnosis and treatment of patients with thymic pathology, and will add significantly to the understanding of this complex gland.

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