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Davide Schiffer

Brain Tumors

Biology, Pathology, and Clinical References

Second Revised Edition

With the Collaboration of Maria Teresa Giordana
Alessandro Mauro · Riccardo Soffietti

With 286 Figures in 459 Separate Illustrations



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Preface to the Second Edition

Neurooncology has become a science of such great proportions and indefinite limits as to include branches which widely diverge from one another. Therefore, it is not an easy task to fit it all into the narrow framework of a book, though the collaboration among scientists compensates partly for the varying depths of knowledge and experience in the individual disciplines. The principal characteristic of this work, however, is in casting “pathology” as the common nosographic link.

Though scientific progress has brought us well past the nosography of brain tumors, pathology remains the point of departure, the area of mutual understanding to which all students of neurooncology refer when laying out diagnostic, therapeutic, and research schedules. Neurologists, neurosurgeons, and neuroradiologists orient themselves only by referring to tumor types.

Neurooncology treatises require ever greater numbers of authors in order to cover the different subject areas with uniform authority. Excellent texts are available today for this purpose. The present book is not, and does not wish to be, a treatise but rather aims at presenting different aspects of neurooncology from the perspective of pathology and its biological and clinical correlates. It expresses the author's experience in the study of brain tumors and their pathology and clinical characteristics. The emphasis dedicated to the subjects relates to the clinicopathological and theoretical importance.

The characteristics of the first edition as described above have been preserved; the clinical applications have been amplified and the biological and pathological problems updated. The unity of perspectives, as mentioned, has been favored over delving into the details of particular areas.

The book is the product of the clinical and pathological experience gained at a single institution, and in this endeavor it conforms to some great books on brain tumors of the past. This may be anachronistic, but has the advantage of uniformity.

As to the references, in comparison with the first edition, many items have been omitted and new items have, obviously, been inserted. At first glance, they appear to be too numerous but this is a wrong impression considering the number of scientific contributions which have appeared in the main scientific journals in the past years. Evenso, the list of references is not exhaustive, so that important contributions may not have been included.

The book is addressed to pathologists, neuropathologists, neurosurgeons, neurologists and to all those working in the field of neurooncology who deal for one reason or another with pathology and its application in clinical practice.

Many thanks to all those who directly or indirectly collaborated in this work, and, in particular, Dr. Antonio Migheli, Dr. Maria Claudia Vigliani, Dr. Paola Cavalla, and

Mrs. Annalisa Ferraiolo for histological preparations. The warmest thanks to Professor Anthony Raimondi for his support and constant encouragement.

Turino, September 1996

Daide Schiffer

Preface to the First Edition

Neuro-oncology has in the past decade undergone tremendous developments, so much so that it is now a scientific field of vast proportions. Molecular and genetic biology, on the one hand, and the improvements in imaging techniques, therapies, and general management, on the other, have been highly instrumental in effecting this progress. Despite all recent developments, descriptive pathology, however, with its many biological correlates – foremost among them immunohistochemistry – and, therefore, histological diagnosis and prognostic assessment continue to be the reference points for judging all new achievements in neuro-oncology.

Years of experience of patients with brain tumors and collaboration with neurosurgeons, neuro-oncologists, neuro-radiologists, radiotherapists, and neurobiologists have taught us that the pathologist supplying the histological diagnosis may in fact sometimes fail to get across the biological message. Sometimes this failure arises because it is really impossible for pathology to provide the expected nosographic definition of a tumor. Sometimes, by contrast, it is due to real difficulties in understanding the language of the pathologist. This is particularly true when the prognosis deducible from the diagnostic label is not unequivocal. In attempting to be objective, the pathologist counterbalances the lack of a clear-cut definition with a detailed histological description, which means that everything depends upon his partners' ability to interpret this information properly.

The aim of this book is thus to provide neurologists, neurosurgeons, neuro-oncologists and interested students of this subject with a broad knowledge base on the pathology of brain tumors.

The book describes the pathology of brain tumors and its relationship to clinical and biological features, taking particular account of the importance of the various problems from a general neuro-oncological point of view. Such a treatment may risk giving the impression that disproportionate attention is given to some topics, at the expense of others. However, the aim of the book was to describe and discuss the various subjects in the light of their clinical and biological importance during this historic period of development. Accordingly, the initial chapters on ontogenesis and immunohistochemistry must be considered of valuable help. Today, as everybody knows, some diagnoses are overused or even abused and some conditions are frequently overtreated. Such topics have also been given due attention in this book.

I am deeply indebted to many colleagues who helped in preparing the volume: Dr. Humberto Cravioto New York University for supplying pictures; Dr. Antonio Migheli and Dr. Maria Claudia Vigliani of our Institute for their help in electron microscopy and immunohistochemistry, Mrs. Maria Teresa Bertello and Dr. Angelo Attanasio for their help in preparing the manuscript; and Mrs. Annalisa Ferraiolo for histological

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Turino, Januar 1993

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