Tumors OF THE ORBIT AND ALLIED PSEUDO Tumors

An Analysis of 216 Case Histories

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This Book is Dedicated to
Susan Rix Ingalls
and
Cecile Dupont Ingalls

PREFACE

THE DATA contained in this monograph were derived from photographs, biopsies, and case histories of orbital tumors originally assembled for exhibition at the 1947 meeting of the American Academy of Ophthalmology and Otolaryngology.

The greater part of the material used in the preparation of the exhibit was obtained from specimens of orbital tumors in the Pathology Laboratory of the Institute of Ophthalmology of the Presbyterian Hospital. Some additional material was obtained from the Head and Neck Clinic of the Memorial Hospital for the Treatment of Cancer and Allied Diseases, and a few specimens were referred from outside sources.

The exhibit, based on photographs, illustrated the important features of orbital tumors by pictures of patients with unilateral exophthalmos, photographs of roentgenograms, pictures of gross specimens, photomicrographs of tumor tissues, statistical tables, and condensed case reports.

The biopsies and specimens of 216 orbital tumors, consisting of 27 types, were collected in the period from 1934 to 1946. The history of each case and the accompanying microscopic description of the tumor were studied, and the resultant data were tabulated. Considerably more information was obtained than could be presented in the exhibit.

It is this data, together with the photographs of material, that are now submitted in the hope that they may be of value to the practitioner confronted with the occasional patient with unilateral exophthalmos.

The more common non-circumscribed lesions of the orbit are not within the scope of this work, nor does the material available in one laboratory include all the known tumors of the orbit. In these respects the book is incomplete.

I am deeply indebted to Doctor John H. Dunnington and to Doctor A. B. Reese for their invitation to assemble the original

exhibit and for their encouragement in this work. I also wish to express my thanks to Doctor Gordon M. Bruce, Doctor John H. Dunnington, Doctor Thomas H. Johnson, Doctor John P. Macnie, Doctor Charles A. Perera, Doctor Raymond L. Pfeiffer, and Doctor A. B. Reese for their kindness in permitting the inclusion of their cases. I am also indebted to Doctor Raymond L. Pfeiffer for the excellent descriptions of the roentgenograms made available to me.

R. G. I.

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INTRODUCTION

Tumors of the orbit are space-taking lesions which occupy a position posterior to the septum orbitale. In most cases they are specific cell type neoplasms, and as such are defined as abnormal new growths of tissue. These growths are parasitic and do not obey the laws of growth of normal tissues.

Allied to specific cell type tumors are certain pseudo tumors: lymphogranulomas, hematomas, and inclusion cysts. These are circumscribed lesions which produce unilateral exophthalmos. Clinically, they are nearly indistinguishable from true tumors.

Most of the orbital new growths described are circumscribed but not always encapsulated collections of cells in endless proliferation. These growths produce masses of tissue serving no useful purpose. By growing, this tissue, benign or malignant, becomes increasingly dangerous to the eye.

THE ORIGIN OF TUMORS

For years pathologists believed neoplasms have had their origin in fetal defects and that displaced cells could in later years become activated. Mallory[1] listed four types of fetal defects:

1. *Fetal rests:* When the neural tube and branchial clefts have served their purpose during early embryonic life, they normally disappear. If they persist, they may serve as a potential source of trouble and explain the presence of gliomas over the coccyx and dermoid cysts in the orbit.

2. *Fetal displacement:* Cell masses undergo movement in the formation of early embryonic organs. When they are displaced or lost in the movement of cells, they tend to develop

in the same way they would have in their normal environment. These cells account for the presence of accessory organs such as accessory spleen, pancreas, lacrimal, and salivary glands.

3. Local tissue abnormalities: These include both fetal rests and displacements, resulting in the formation of vascular endothelium which in turn results in the formation of hemangiomas.

4. Fetal inclusions: The occurrence of teratoma assumes that within one fetus there has been included a cell which could have formed another fetus.

These views and other hypotheses formulated from time to time in the past are being gradually supplanted by more recent developments, criticism being directed largely against the old idea of unicentric origin of tumors.

Stout[2] believes that human cancer seems to start at one or more focal points and in many instances is preceded by a phase of relatively long duration, during which the cells are acted upon by something associated with a process of chronic irritation which results in cellular hyperplasia. Willis[3] states that tumors constitute one of the major forms of growth disturbance in response to certain external agents, carcinogenic agents, applied to cells and that although many of these external agents are being identified, the nature of the internal response, the neoplastic change, in the affected cells still needs elucidation.

THE CLASSIFICATION OF TUMORS

Tumors are classified on a histologic basis in exactly the same manner as that of normal tissues. The method in general usage is based on three facts: that there is a morphologic resemblance to the theoretical tissue or cell of origin, that specific type tumors may arise from each of the differentiated blast forms of cell, and that the more complex mixed or teratoid tumors may result from the neoplastic development of undifferentiated cells as seen in the ovary and testes.[4]