

HANDBUCH DER ALLGEMEINEN PATHOLOGIE

SECHSTER BAND / ACHTER TEIL

TRANSPLANTATION



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Transplantation

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Preface

Organ transplantation has almost disappeared from headlines in the daily press, possibly because it failed to fulfill exaggerated expectations. Transplantation pathology has become more and more important, not only with relation to therapeutic transplantations but even more in its fundamental theories. There is some analogy here to the development in space science where spectacular achievements were followed by sobering frustrations and where, for the time being, the effect on technology is more fruitful than the outcome of the original far-reaching projects. That transplant rejection was defined, in most of its stages, as an immunologic process, has given many new impulses to immunology in general. Transplantation assays have become a *pet* experiment in immunobiology and an abundant source of general information and knowledge.

The implications of such a development could not be predicted when the present volume was outlined and planned. In accordance with the concept of WILLI MASSHOFF, general transplantation pathology was given a central position as a fundamental science, while the chapters on the transplantation of various tissues are of a more paradigmatic character. It was MASSHOFF who invited competent authors and who managed to balance their articles, despite some overlapping, so as to draw a comprehensive picture of contemporary transplantation pathology. WILLI MASSHOFF died while he was editing the first manuscripts. As co-editors we have undertaken to complete the publication that we began together.

Some delays were unavoidable. The progress of evolution, especially in immunology, is so rapid that some of the articles written nearly 2 years ago no longer correspond to the present status of knowledge. Our readers will notice this by comparing the dates of bibliographic references. The decision of the authors who approved of publication in spite of the delay is very much appreciated because a new editing and updating of these chapters would in turn have outdated the more recent ones. The chapter on "Cell Systems Participating in Graft Rejections" by HAGMANN was added to update the volume in this important aspect of cellular immunology.

The first chapters deal with the genetic background of transplant reactions, their clinical significance, and the mixed leucocyte culture test (MLC). In its phylogenetic and ontogenetic aspects, transplant theory adheres to the field

of general biology; the discussion of humoral and cell-mediated mechanisms and of tolerance phenomena relates it to general immunology. Subsequent chapters report on the transplantation of cells—mostly from bone marrow—and of skin, connective tissue, cornea and bone. An overview is given in the central comprehensive chapter by CH.R. JERUSALEM and P.H.K. JAP. Therapeutic possibilities and their implications for general pathology are discussed in chapters on radiation-induced tolerance, and the application of antisera and various medications. The volume ends with a presentation of the graft-versus-host reaction as an inverted transplant rejection.

The editors have often questioned the utility of this kind of review volume in a large handbook. The rapid progress of science will outstrip, as a rule, their work in editing and preparing contributions. Whoever wants to keep abreast of recent developments will find the latest publications in scientific periodicals. The fundamental facts of contemporary knowledge, however, can only be gathered from comprehensive presentations where the widespread results are collected, compared and evaluated. Here we see the role of our volume and the reason for its publication.

WILLI MASSHOFF began his editing under these aspects, and we have endeavoured to complete his work. Having been in close contact with him over many years we felt sufficiently informed about his plans, and we hoped to fulfill them to the best of our ability. WILLI MASSHOFF had to die without having seen the final shape of this volume which we dedicate to his memory as a token of friendship and reverence.

HANS COTTIER
EKKEHARD GRUNDMANN

Vorwort

Die Organtransplantation ist aus den Überschriften der Tagespresse verschwunden. Mag sein, daß sie manche übersteigerte Erwartung nicht erfüllt hat. Die Transplantations-Pathologie ist um so wichtiger geworden. Das gilt sowohl für die Transplantation als klinische Therapie als auch in noch stärkerem Maße für ihre theoretischen Grundlagen. Eine gängige Parallele bietet sich an: Die Weltraumforschung brachte neben spektakulären Höhepunkten auch Ernüchterung; der Gewinn an Technologie ist vorerst größer als der der primär projektierten Ziele. Die Erkenntnis, daß die Abstoßung eines Transplantates in nahezu allen Phasen ein immunologischer Vorgang ist, brachte der Immunologie eine Fülle von Impulsen. Die Transplantation wurde ein bevorzugtes Experiment der Immunbiologie, und viel allgemeingültiges Wissen wurde so gewonnen.

Als der jetzt vorliegende Band geplant wurde, war diese Entwicklung noch nicht in dieser Konsequenz vorauszusehen. Es ist das Verdienst von WILLI MASSHOFF, den Band schließlich so gegliedert zu haben, daß die allgemeine Transplantations-Pathologie als Grundlagenwissenschaft in den Mittelpunkt kam, während die speziellen Gewebskapitel mehr paradigmatische Stellung erhielten. MASSHOFF gelang es, kompetente Autoren zu gewinnen und die Beiträge im Ansatz so aufeinander abzustimmen, daß sie trotz mancher Überschneidungen ein geschlossenes Bild der Transplantations-Pathologie liefern. Während der Bearbeitung der eingehenden Manuskripte verstarb WILLI MASSHOFF. Die unterzeichnenden Mitherausgeber haben es übernommen, gemeinsam das begonnene Werk zu Ende zu führen.

Dabei waren Verzögerungen nicht zu vermeiden. Die Erkenntnisse gerade in der Immunologie schritten in raschem Tempo weiter, und es ist mancher Beitrag — vor fast zwei Jahren abgeschlossen — schon nicht mehr auf dem aktuellen Stand. Der Leser kann das leicht an den Jahreszahlen der Literaturzitate erkennen. Wir sind den Autoren dieser Beiträge besonders dankbar, daß sie trotzdem ihre Zustimmung zur Veröffentlichung gegeben haben: eine nochmalige Überarbeitung dieser Artikel hätte wiederum die anderen veralten lassen. Durch Einfügung des Beitrages von HAGMANN et al. über „Cell Systems Participating in Graft Rejection“ wurde wenigstens dieser für die zelluläre Immunologie wichtige Aspekt aktualisiert.

Der Band beginnt mit Artikeln über die genetischen Grundlagen der Trans-

plantatreaktion, deren klinische Bedeutung und die Testmöglichkeiten mit der mixed leukocyte culture (MLC). Die phylogenetischen und ontogenetischen Aspekte stellen die Transplantatlehre in den Bereich der Allgemeinen Biologie; die Erörterungen der humoralen und zellvermittelten Mechanismen sowie der Toleranzphänomene geben allgemein-immunologische Beziehungen. Es folgen Abhandlungen über die Transplantation von Zellen — im wesentlichen des Knochenmarkes, der Haut, des Bindegewebes, der Cornea, des Knochens; als zentraler Beitrag bringt der Artikel von CH.R. JERUSALEM und P.H.K. JAP das Résumé der vorangegangenen Beispiele. Den therapeutischen Möglichkeiten und ihren Folgen für die Allgemeine Pathologie widmen sich die Artikel über die strahlen-induzierte Toleranz, die Anwendung von Antiseren und von verschiedenen Medikationen. Eine Darstellung der Graft-versus-Host-Reaktion als einer umgekehrten Transplantat-Abstoßung schließt diesen Band.

Die Herausgeber haben oft über den Sinn solcher zusammenfassenden Handbuchbände diskutiert. Das wissenschaftliche Erkenntnistempo überholt in der Regel die redaktionelle Bearbeitung. Wer das Allerneueste wissen will, findet es in den wissenschaftlichen Zeitschriften. Die Grundlage des heutigen Wissensstandes kann er aber nur aus zusammenfassenden Darstellungen erfahren, die das weit verbreitete Wissensgut sammeln, ordnen und werten. Hier liegt nach unserer Ansicht die Daseinsberechtigung auch dieses Bandes.

Unter dieser Vorstellung hatte WILLI MASSHOFF die Redaktion übernommen. Wir, die Unterzeichnenden, haben versucht, seine Arbeit abzuschließen. Wir standen über viele Jahre in engem Kontakt mit ihm, glauben, seine Pläne zu kennen, und hoffen, sie wenigstens nach unserem Vermögen verwirklicht zu haben. Es ist WILLI MASSHOFF nicht vergönnt gewesen, den fertigen Band vor sich zu haben. Wir widmen ihn in Freundschaft und Verehrung seinem Gedächtnis.

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