Diseases of the Liver and Biliary System

SHERLOCK

THIRD EDITION

Diseases of the Liver and Biliary System

SHEILA SHERLOCK
M.D.(Edin.), F.R.C.P., F.R.C.P.E.

Professor of Medicine
Royal Free Hospital School of Medicine
University of London

THIRD EDITION

BLACKWELL
SCIENTIFIC PUBLICATIONS
OXFORD

First Edition 1955
Reprinted 1956
Second Edition 1958
Reprinted 1959, 1961
Third Edition 1963

Spanish Edition 1956

Printed in Great Britain in the City of Oxford by
The Alden Press
and bound by
The Kemp Hall Bindery, Oxford

Preface to the Third Edition

THE five years since the second edition have seen many advances in our understanding of diseases of the liver and biliary system. Serum enzyme methods are replacing sero-flocculation tests in diagnosis and electron microscopy is revolutionizing our concepts of pathogenesis; both these techniques are introduced throughout the book. The chapter on cirrhosis has been expanded to include fresh information on the role of alcohol, and to define more clearly the active cirrhosis of young people and its relation to disturbed immunity and to virus hepatitis. An increasing number of drugs are recognized to be hepatotoxic, so a new chapter is devoted to drug-induced liver injury. This has inevitably encroached on the problem of management of jaundice, which is set out afresh. The mechanisms leading to jaundice and the means of differentiating the various types of cholestasis are described, and the indications for aspiration liver biopsy, percutaneous cholangiography and therapeutic trials of corticosteroids are discussed.

This edition introduces a new classification of portal hypertension based on improved diagnostic criteria; recently recognized complications of porta-caval anastomosis; a regime combining dietetic and diuretic management of ascites; the value of retrograde hepatic venography; the use of scintillation scanning to outline space-occupying lesions of the liver; and enzyme deficiencies causing neonatal jaundice.

Accompanying this new material are eighty-three new figures and approximately 1000 important new references from the world's literature. To make way for this new material and to prevent the book becoming an impersonal mass of facts has necessitated careful pruning. This has been achieved because new facts usually clarify a situation and make several previously obscure points redundant. These have disappeared, so that the third edition is, in fact, a few pages shorter than its predecessor.

I am grateful to my co-workers who have by individual research and frank discussion helped me to formulate the ideas expressed. These include Dr Barbara H. Billing, Dr A. M. Dawson, Dr C. S. Pitcher, Dr A. E. Read, Dr Stanley Shaldon and Dr Roger Williams. Miss Audrey Bulley and Mrs E. Diprose gave secretarial assistance. Miss D. F. Atkins read the proofs and ensured the accuracy of the references. Blackwell Scientific Publications have again been most helpful.

The five years since the last edition have been happily punctuated by the arrival of Amanda Melys in September 1958 and Auriole Zara in December 1962. They, like ~~their father~~, Dr D. Geraint James, have contributed more than they realize, even if they have occasionally mixed up the galley proofs and scribbled over the page proofs.

August 1963 SHEILA SHERLOCK

Preface to the First Edition

My aim in writing this book has been to present a comprehensive and up-to-date account of diseases of the liver and biliary system, which I hope will be of value to physicians, surgeons and pathologists and also a reference book for the clinical student. The modern literature has been reviewed with special reference to articles of general interest. Many older more specialized classical contributions have therefore inevitably been excluded.

Disorders of the liver and biliary system may be classified under the traditional concept of individual diseases. Alternatively, as I have endeavoured in this book, they may be described by the functional and morphological changes which they produce. In the clinical management of a patient with liver disease, it is important to assess the degree of disturbance of four functional and morphological components of the liver—hepatic cells, vascular system (portal vein, hepatic artery and hepatic veins), bile ducts and reticulo-endothelial system. The typical reaction pattern is thus sought and recognized before attempting to diagnose the causative insult. Clinical and laboratory methods of assessing each of these components are therefore considered early in the book. Descriptions of individual diseases follow as illustrative examples. It will be seen that the features of hepato-cellular failure and portal hypertension are described in general terms as a foundation for subsequent discussion of virus hepatitis, nutritional liver disease and the cirrhoses. Similarly blood diseases and infections of the liver are included with the reticulo-endothelial system, and disorders of the biliary tract follow descriptions of acute and chronic bile duct obstruction.

I would like to acknowledge my indebtedness to my teachers, Professor J. Henry Dible, Professor Sir James Learmonth and Professor John McMichael, who stimulated my interest in hepatic disease, and to my colleagues at the Postgraduate Medical School and elsewhere who

have generously invited me to see patients under their care. I am grateful to Dr A. G. Bearn for criticizing part of the typescript and to Dr A. Paton for his criticisms and careful proof reading. Miss D. F. Atkins gave much assistance with proof reading and with the bibliography. Mr Per Saugman and Mrs J. M. Green of Blackwell Scientific Publications have co-operated enthusiastically in the production of this book.

The photomicrographs were taken by Mr E. V. Willmott, F.R.P.S., and Mr C. A. P. Graham from sections prepared by Mr J. G. Griffin and the histology staff of the Postgraduate Medical School. Clinical photographs are the work of Mr C. R. Brecknell and his assistants. The black and white drawings were made by Mrs H. M. G. Wilson, and Mr D. Simmonds. I am indebted to them all for their patience and skill.

The text includes part of unpublished material included in a thesis submitted in 1944 to the University of Edinburgh for the degree of M.D., and part of an essay awarded the Buckston-Browne prize of the Harveian Society of London in 1953. Colleagues have allowed me to include published work of which they are jointly responsible. Dr Patricia P. Franklyn and Dr R. E. Steiner have kindly loaned me radiographs. Many authors have given me permission to reproduce illustrations and detailed acknowledgments are given in the text. I wish also to thank the editors of the following journals for permission to include illustrations: *American Journal of Medicine*, *Archives of Pathology*, *British Heart Journal*, *Circulation*, *Clinical Science*, *Edinburgh Medical Journal*, *Journal of Clinical Investigation*, *Journal of Laboratory and Clinical Investigation*, *Journal of Pathology and Bacteriology*, *Lancet*, *Postgraduate Medical Journal*, *Proceedings of the Staff Meetings of the Mayo Clinic*, *Quarterly Journal of Medicine*, *Thorax* and also the following publishers: Butterworth's Medical Publications, J. & A. Churchill Ltd, The Josiah Macy Junior Foundation and G. D. Searle & Co.

Finally I must thank my husband, Dr D. Geraint James who, at considerable personal inconvenience, encouraged me to undertake the writing of this book and also criticized and rewrote most of it. He will not allow me to dedicate it to him.

Contents

Chapter 4. The Haematology of Liver Disease

Chapter 5. Hepato-cellular Failure

Chapter 6. Treatment of Hepato-cellular Failure

Chapter 7. Portal Venous System and Portal Hypertension

Chapter 8. The Hepatic Artery and Hepatic Veins

Chapter 9. Jaundice

Chapter 10. Virus Hepatitis

Chapter 11. Jaundice due to Drugs and Poisons

Chapter 12. Nutritional Liver Disease

Chapter 13. Hepatic Cirrhosis

Chapter 14. Haemochromatosis

Chapter 15. Hepatolenticular Degeneration

Chapter 16. Obstructive Jaundice (Cholestasis) and Biliary Cirrhosis

Chapter 17. The Liver in Circulatory Failure

Chapter 18. The Liver in Metabolic Disorders

Chapter 19. The Liver in Infancy and Childhood

Chapter 20. The Liver in Pregnancy

Chapter 21. Haemolytic Jaundice

Chapter 22. The Liver and Diseases of the Reticulo-Endothelial System

Chapter 23. Infections of the Liver

Chapter 24. Hepatic Tumours

Chapter 25. The Anatomy, Physiology and Investigation of the Biliary Tract

Chapter 26. Congenital Anomalies of the Biliary Tract

Chapter 27. Gall-stones and their Complications

Chapter 28. Benign Stricture of the Bile Ducts

Chapter 29. Extrinsic Pressure on the Bile Ducts

Chapter 30. Tumours of the Gall-Bladder and Bile Ducts

CHAPTER 1

Anatomy of the Liver

The liver, the largest organ in the body, weighs 1200–1500g and comprises one-fiftieth of the total adult body weight. It is relatively larger in infancy, comprising one-eighteenth of the birth weight. This is mainly due to a large left lobe, which accounts for the bulging abdomen in infants.

Sheltered by the ribs in the right upper quadrant, it is shaped like a pyramid whose apex reaches the xiphisternum (figs. 1, 2, 3). The upper

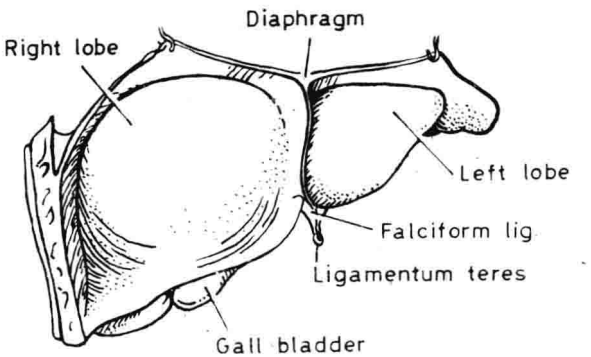

FIG. 1. Anterior view of the liver.

border lies approximately at the level of the nipples. There are two anatomical lobes, the right being about six times the size of the left in adult life, but only three times as large in infancy. Lesser segments of the right lobe are the *quadrate lobe*, on its inferior surface, and the *caudate lobe* on the posterior surface. The right and left lobes are separated anteriorly by a fold of peritoneum called the falciform ligament, inferiorly by the fissure for the ligamentum teres, and posteriorly by the fissure for the ligamentum venosum.

The liver has a double blood supply. The *portal vein* brings venous blood from the intestines and spleen and the *hepatic artery*, coming from the coeliac axis, supplies the liver with arterial blood. These