

# Topics in Gastroenterology 3

---

edited by  
S.C.Truelove  
M.J.Goodman

# Topics in Gastroenterology

## 3

EDITED BY

**S. C. TRUELOVE**

MA, MD, FRCP

AND

**M. J. GOODMAN**

MA, BM, BCh, MRCP



**BLACKWELL SCIENTIFIC PUBLICATIONS**

OXFORD LONDON EDINBURGH MELBOURNE

© 1975 Blackwell Scientific Publications  
Osney Mead, Oxford,  
85 Marylebone High Street, London W1,  
9 Forrest Road, Edinburgh,  
P.O. Box 9, North Balwyn, Victoria, Australia.

All rights reserved. No part of this publication  
may be reproduced, stored in a retrieval system,  
or transmitted, in any form or by any means,  
electronic, mechanical, photocopying, recording  
or otherwise without the prior permission of  
the copyright owner.

ISBN 0 632 00337 5

First published 1975

Distributed in the United States of America by  
J.B. Lippincott Company, Philadelphia  
and in Canada by  
J.B. Lippincott Company of Canada Ltd, Toronto

Printed and bound in Great Britain  
at the Alden Press, Oxford

## Preface

As with previous volumes in this series, this book is based on a post-graduate course in gastroenterology held in Oxford in January of the current year. It is a great pleasure to thank our contributors whose chapters are based on the lectures they gave in the course. On this occasion, the course dealt with three main topics and with a group of miscellaneous topics, and the book follows the same pattern.

We are grateful to our publishers, Blackwell Scientific Publications, for producing this book so speedily. We wish to thank Mr Per Saugman, their Chairman and Managing Director, for his active support and Mr John Robson, their Production Manager, for his enthusiastic co-operation.

*Nuffield Department of Clinical Medicine,  
The Radcliffe Infirmary, Oxford*

S.C. Truelove  
M.J. Goodman

## Contributors

- MR JOHN ALEXANDER-WILLIAMS *The General Hospital, Birmingham*
- DR P. ASQUITH *Department of Experimental Pathology, Medical School, Birmingham*
- DR J.H. BARON *Department of Surgery, Hammersmith Hospital, London W12*
- PROFESSOR R.Y. CALNE *Addenbrooke's Hospital, Cambridge*
- DR A.C. CAMPBELL *Nuffield Department of Clinical Medicine, The Radcliffe Infirmary, Oxford*
- DR D.R. CAVE *Professorial Surgical Unit, St George's Hospital, London SW17*
- DR P.B. COTTON *The Middlesex Hospital, London W1*
- DR M.J. GOODMAN *Nuffield Department of Clinical Medicine, The Radcliffe Infirmary, Oxford*
- PROFESSOR A.A. HARPER *Department of Physiology, The Medical School, Newcastle-upon-Tyne*
- DR D.P. JEWELL *Royal Free Hospital, London NW3*
- MR EMANOEL LEE *Nuffield Department of Surgery, The Radcliffe Infirmary, Oxford*
- DR I.C.M. MACLENNAN *Nuffield Department of Clinical Medicine, The Radcliffe Infirmary, Oxford*
- DR CHRISTOPHER MALLINSON *Greenwich District Hospital, London SE10*
- DR ORESTIS N. MANOUSOS *Hippokration Hospital, Athens*
- PROFESSOR PETER J. MORRIS *Nuffield Department of Surgery, The Radcliffe Infirmary, Oxford*
- DR T.C. NORTHFIELD *St George's Hospital Medical School, London SW17*



DR M.E. PARSONS *Smith Kline and French Laboratories, Welwyn  
Garden City*

MR M.T. ROSENBERG *Brook General Hospital, London SE18*

DR W.G. SCOTT-HARDEN *Cumberland Infirmary, Carlisle*

DR J.M. SKINNER *Harkness Laboratory, The Radcliffe Infirmary,  
Oxford*

MR JOHN E. TRAPNELL *Royal Victoria Hospital, Boscombe,  
Bournemouth*

DR S.C. TRUELOVE *Nuffield Department of Clinical Medicine, The  
Radcliffe Infirmary, Oxford*

DR SHEILA L. WALLER, M.R.C. *Gastroenterology Unit, Central  
Middlesex Hospital, London NW10*

DR A.D.B. WEBSTER *Northwick Park Hospital, Harrow*

PROFESSOR RALPH WRIGHT *Royal South Hants Hospital,  
Southampton*

# Contents

Preface	viii
Contributors	ix

## Acute Upper Gastrointestinal Haemorrhage

1 The Problem S.C.TRUELOVE	3
2 Endoscopy P.B.COTTON	9
3 Emergency Radiology W.G.SCOTT-HARDEN	23
4 Medical Treatment T.C.NORTHFIELD	37
5 Surgical Treatment JOHN ALEXANDER-WILLIAMS	53

## Pancreatitis

6 The Regulation of Pancreatic Secretion A.A.HARPER	69
7 The Aetiology of Pancreatitis SHEILA L.WALLER	97

8	Acute Pancreatitis	117
	JOHN E. TRARNELL	
9	Pancreatic Function Tests	129
	J. H. BARON	
10	Chronic Pancreatitis	153
	CHRISTOPHER MALLINSON	
11	The Surgery of Chronic Pancreatitis	171
	M. T. ROSENBERG	

### Some Immunological Aspects of Gastroenterology

12	Basic Considerations	185
	I. C. M. MACLENNAN	
13	The Major Histocompatibility System (HL-A) and Disease in Man	197
	PETER J. MORRIS	
14	Immunosuppression	209
	A. C. CAMPBELL	
15	Immunocytes of the Gastrointestinal Tract	227
	J. M. SKINNER	
16	Immune Deficiency Disease	245
	A. D. B. WEBSTER	
17	Alpha-Chain Disease	259
	ORESTIS N. MANOUSOS	
18	Coeliac Disease	273
	P. ASQUITH	
19	Viral Hepatitis	285
	RALPH WRIGHT	
20	Transplantation of the Liver	295
	R. Y. CALNE	



**Miscellaneous Topics**

21	The Gastric Parietal Cell D.P. JEWELL	309
22	Antagonists of the Histamine H <sub>2</sub> -Receptors M.E. PARSONS	323
23	Gastrointestinal Mucus in Relation to Disease M.J. GOODMAN	343
24	The Aetiology of Crohn's Disease D.R. CAVE	357
25	Split Ileostomy for Crohn's Disease of the Colon EMANOEL LEE and S.C. TRUELOVE	373
	Index	387

**Acute Upper  
Gastrointestinal  
Haemorrhage**



## Chapter 1

### The problem

S. C. TRUELOVE

Acute upper gastrointestinal haemorrhage is a common medical emergency. A good idea of its frequency can be gained from the experience of the Radcliffe Infirmary which is the only general hospital admitting acute medical and surgical emergencies from the City of Oxford and a large belt of surrounding countryside, the population served being about 300,000. The admissions for upper gastrointestinal haemorrhage are fairly constant at around 140 a year.

When these cases were last surveyed, the results were disappointing (Schiller *et al*, 1970). The study covered the 15-year period 1953-67 and it might have been expected that this would have been a long enough time for an improvement in results to occur. On the contrary, it was found that the fatality rates in the three successive 5-year periods had remained remarkably steady at the considerable number of close on 10%. If we extrapolate from these findings, we can conclude that in Britain there are roughly 28,000 admissions a year from this cause and there are approximately 2,500 deaths.

Consideration of other published series suggests that the Oxford experience can be taken as fairly typical of the country as a whole, so that the figures obtained by extrapolation are probably reasonably accurate.

A further point worth emphasis is that the majority of the deaths in the Oxford series did not occur in the first two days after admission: 4 out of 5 of the deaths in the entire series occurred more than 48 hours after admission

7 out of 8 of the deaths in patients with gastric or duodenal ulcer occurred more than 48 hours after admission.

This finding suggests that there must be a distinct possibility that these results can be bettered if there are improvements in diagnosis and treatment.

### Fibreoptic endoscopy

Almost immediately after the period covered by this Oxford study, a remarkable development in fibreoptic endoscopy occurred. In 1967 there was developed the first example of the modern type of fibreoptic instrument, a lateral-viewing gastroscope with facilities for biopsy under vision and lavage. This was followed in rapid succession by other instruments, such as a side-viewing duodenoscope and a forward-viewing panendoscope which enables inspection of the oesophagus, stomach and proximal duodenum at a single examination.

These instruments have found wide application in gastroenterological practice, including the rapid diagnosis of the underlying cause of acute upper gastrointestinal haemorrhage. It is probably their introduction which has focussed attention once more on this problem and has generated renewed attempts to improve its management.

There is a good deal of evidence that emergency endoscopy of the oesophagus, stomach and duodenum provides a more precise diagnosis than emergency radiology, especially if a conventional barium meal is employed (Palmer, 1969; Cotton *et al*, 1973; Allen *et al*, 1973; Hoare, 1975). It is reasonable to conclude that this should be the first diagnostic procedure to be performed and that radiology should be reserved for those in whom endoscopy fails to show a lesion, either through an incomplete examination or because the examination is negative. At the present time, this is a policy of perfection because, as pointed out in Chapters 2 and 3, there are still many hospitals without the skilled endoscopists to mount an emergency service. We can anticipate, however, that within the next ten years it will become as inappropriate for a patient with acute upper gastrointestinal haemorrhage to be admitted to such a hospital as it would be today for a patient with a myocardial infarction to be in a hospital not equipped to monitor the heart.

In spite of the convincing evidence that emergency endoscopy improves diagnosis, decisive proof that the management of the patient is thereby improved and that the fatality rate is lowered has not yet been forthcoming, although there are suggestive results. Perhaps the best study is that of Hoare (1975) in a hospital in which one group of physicians referred all their patients for emergency endoscopy while another group relied on radiology. The surgeons dealing with the patients were the same for the two groups. The endoscopic group had a considerably lower fatality rate (5.7%) than the radiological group



(15.2%) and, although this difference does not quite reach the conventional level of statistical significance ( $P$  being somewhat greater than 0.05), the study must be regarded as providing fairly strong evidence that emergency endoscopy improves management.

### **The emergency barium meal**

Apart from a few enthusiasts who employed the less versatile endoscopes which preceded the latest generation, the diagnosis in acute upper gastrointestinal haemorrhage previously depended either upon clinical guess-work or on an emergency barium meal. One of the pioneers of the emergency barium meal was Hampton (1937) but it did not come into general use until much later.

The conventional barium meal has severe limitations in the diagnosis of the cause of upper gastrointestinal bleeding. Certainly there is no strong evidence that it markedly improves management as judged by the fatality rate. For example, in the Oxford study already mentioned, an emergency barium meal was performed in only 5% of the patients in the first five years whereas this figure increased to 60% in the third five years, but there was no decline in the fatality rate.

However, all these examinations were conventional barium meals and a recent development has been the introduction of the double-contrast barium meal. It is interesting that a double-contrast technique has been widely used in the diagnosis of colonic lesions since being developed by Welin (1958) but it has only recently begun to find favour for the study of the upper gastrointestinal tract. Chapter 3 deals with this development. There certainly seems to be a good case for the use of this technique in hospitals not yet provided with an adequate endoscopy service and also in those patients in whom endoscopy has failed.

### **Angiography**

The third main diagnostic method is angiography, preferably selective coeliac or superior mesenteric angiography. Provided the patient is actually bleeding at the time of the examination, this accurately locates the site of the bleeding. However, it is a highly technical method and in general it seems best to reserve it for patients in whom neither

endoscopy nor double-contrast radiology has been successful in locating the source of the bleeding (see Chapter 4).

### Medical management

Blood transfusion is the mainstay of medical treatment and many patients make an uneventful recovery after a single transfusion. On the other hand, there are some who are in a state of clinical shock at the time of arrival in hospital and require urgent resuscitation. Others may at first respond and then suffer from severe recurrent haemorrhage. An important question is whether some patients are best managed by monitoring the central venous pressure. If so, it is convenient to know which patients to select for this and also to decide whether such patients should be in an intensive therapy unit to ensure accurate observation. Chapter 4 deals with this and other aspects of medical treatment.

### Surgical management

It is probable that the most decisive factor influencing the fatality rate is the surgical management. The first problem is to select the patients who require surgery to survive. A few patients are admitted in shock and continue to bleed so rapidly that emergency surgery cannot be delayed; the suggestion made in Chapter 2 that such patients should be endoscoped under general anaesthesia in the operating theatre to help the surgeon plan his operation appears to be a good one. In the great majority, there is no frantic rush and a diagnosis can normally be made as the first step after the patient has been resuscitated. Once the diagnosis is made, the decision about surgery becomes easier. Acute lesions, such as erosions or Mallory-Weiss tears, can usually be expected to do well with blood transfusion. Patients with a chronic peptic ulcer who are under the age of 50 will mostly do well with blood transfusion but a few require surgery. In chronic peptic ulcer, the main risk falls on the patients over the age of 50 and the question arises whether such patients should be brought to emergency surgery once they have been fully resuscitated, without waiting to see whether they suffer from recurrent haemorrhage. Patients with bleeding oesophageal varices have a poor prognosis compared with those with chronic peptic ulcer and the crucial factor is commonly the state of their liver function. However, it is now

well established that patients with oesophageal varices frequently bleed from another lesion so early diagnosis may improve the results. Patients with diffuse haemorrhagic gastritis are fortunately uncommon as they frequently bleed heavily and there is no unanimity about the best type of surgical treatment. All these issues are discussed in Chapter 5.

### Conclusions

Acute gastrointestinal haemorrhage is a common medical emergency which carries a considerable fatality rate. It is to be hoped that developments in early diagnosis, in medical management and in the selection of patients for emergency surgery, all of which are discussed in subsequent chapters, will lead to an improvement in the outcome.

### References

- SCHILLER K.F.R., TRUELOVE S.C. and WILLIAMS D.G. (1970) *Brit. med. J.* **2**, 7.  
PALMER E.D. (1969) *J. Amer. med. Ass.* **207**, 1477.  
COTTON P.B., ROSENBERG M.T., WALDRAM R.P.L. and AXON A.T.R. (1973) *Brit. med. J.* **2**, 505.  
ALLEN H.M., BLACK M.A. and SCHUMAN B.M. (1973) *Arch. Surg.* **106**, 450.  
HOARE A.M. (1975) *Brit. med. J.* **1**, 27.  
HAMPTON A.O. (1937) *Amer. J. Roentgenol.* **38**, 565.  
WELIN S. (1958) *Brit. J. Radiol.* **31**, 453.

