## Gate to Gastrointestinal Malignancy



Sabah Hassan Ketan Aldaragee



### Gate to Gastrointestinal Malignancy

# Gate to Gastrointestinal Malignancy

Sabah Hassan Ketan Aldaragee

UNIVERSITI MALAYSIA SABAH

Kota Kinabalu•Sabah•2008 http://www.ums.edu.my/penerbit

#### O Universiti Malaysia Sabah, 2008

All rights reserved. No part of this publication may be reproduced, distributed, stored in a database or retrieval system, or transmitted, in any form or by any means, electronics, mechanical, graphic, recording or otherwise, without the prior written permission of Penerbit Universiti Malaysia Sabah, except as permitted by Act 332, Malaysian Copyright Act of 1987. Permission of rights is subjected to royalty or honorarium payment.

Perpustakaan Negara Malaysia

Cataloguing-in-Publication Data

Aldaragee, Sabah Hassan Ketan, 1960-

Gate to gastrointestinal malignancy / Sabah Hassan Ketan Aldaragee.

Includes index

Bibliography: p. 183

ISBN 978-983-2369-91-2

1. Cancer. I. Title.

616.994

Cover designer: Ai Khen Wong
Layout designer: Rosalind Ganis
Text typeface: Times New Roman
Font and leading size: 11/13.2 points
Printed by: Capital Associates (S) Sdn. Bhd.

To my parents
To my wife
To my two sons, Mohamad Noor & Zain Alabedean

#### **Contents**

LIST OF FIGURES		ix			
LIST OF TABLES LIST OF PHOTOGRAPHS GLOSSARY PREFACE INTRODUCTION					
			CHAPTER 1	OESOPHAGEAL CANCER	1
				A: Squamous Cell Carcinoma	1
				B: Adenocarcinoma of the Oesophagus	2
			CHAPTER 2	GASTRIC CANCER	17
	A: Adenocarcinoma	18			
	B: Stromal Tumours of the Stomach (GIST)	37			
	C: Gastric Lymphoma	43			
CHAPTER 3	DUODENAL CANCER	49			
	A: Duodenal Adenocarcinoma	49			
	B: Gastrinoma	53			
CHAPTER 4	SMALL BOWEL MALIGNANT TUMOURS	59			
	A: Adenocarcinoma	60			
	B: Neuroendocrine Tumours	61			
	C: Lymphoma	61			
CHAPTER 5	COLORECTAL CANCER	71			
CHAPTER 6	ANAL CANCER	95			
	A: Surgical Treatment of Anal Margin Tumours	101			
	B: Surgical Treatment of Anal Canal Tumours	102			
CHAPTER 7	LIVER CANCER	105			
	A: Primary Liver Cancer: Hepatocellular Carcinoma (HCC)	105			
	B: Metastatic Liver Cancer	114			
CHAPTER 8	GALL BLADDER CANCER	117			
CHAPTER 9	BILEDUCTSCANCER (CHOLANGIOCARCINOMA	) 125			

CHAPTER 10	AMPULLARY CANCER	133
CHAPTER 11	PANCREATIC CANCER	139
CHAPTER 12	2 NEUROENDOCRINE TUMOURS OF PANCREAS	147
	A: Insulinoma	149
	B: Glucagonoma	151
	C: VIPoma	153
	D: Somatostatinoma	155
	E: Non-functioning Pancreatic Endocrine Tumours	157
CHAPTER 13	CARCINOID TUMOUR	159
CHAPTER 14	MISCELLANEOUS TUMOURS	167
	A: Omental Tumours	167
	B: Mesentric Tumours	169
	C: Peritoneal Cancer	174
BIBLIOGRAI	РНҮ	181
INDEX		183

### List of Figures

Figure		Page
1.1	Metastases of oesophageal cancer	4
1.2	Advantages and disadvantages of CT scan of the chest and abdomen	7
1.3	Advantages and disadvantages of endoscopic ultrasound	8
2.1	OGDS shows tumour involving lesser curvature of stomach	23
2.2	OGDS shows pre-pyloric tumour causing gastric outlet obstruction	24
2.3	OGDS shows tumour at gastroesophageal junction extending to involve lesser curvature	24
2.4	OGDS shows tumour at the cardia	25
2.5	OGDS shows fundal tumour extending to involve the cardia	25
2.6	OGDS shows bleeding fundal tumour involving the cardia	25
2.7	OGDS shows fundal tumour involving the cardia	26
2.8	CT scan of the abdomen	27
	(Gastric cancer extending to involve the whole lesser curvature)	
2.9	Advantages and disadvantage of endoluminal ultrasound	28
2.10	Diffuse B-cell non-Hodgkin's gastric lymphoma seen by OGDS	45
2.11	B-cells non-Hodgkin's gastric lymphoma seen by OGDS	46
4.1	CT scan of the abdomen shows GIST tumour at the D-J junction	63
5.1	Colonoscopy shows sigmoid tumour	79
5.2	Colonoscopy shows huge rectal tumour	80
5.3	Colonoscopy shows very big rectal tumour	80
5.4	Middle third rectal tumour seen during colonoscopy	81
5.5	Near complete obstruction due to huge rectal tumour	82
5.6	Near complete obstruction at rectosigmoid junction in advanced sigmoid cancer	83
5.7	Stent is applied through colonoscopy to relieve the obstruction	87
7.1	CT scan of the abdomen shows hepatocelular carcinoma of liver	108
10.1	CT scan of abdomen shows ampullary tumour	135
10.2	Endoscopic ultrasound (EUS) shows periampullary tumour	136
14.1	Peritoneal cavity	174
14.2	Ultrasound and CT scan features of peritoneal cancer	177

#### List of Tables

Table		Page
1.1	Important risk factors of squamous cell carcinoma	1
1.2	Important risk factors of adenocarcinoma of the oesophagus	2
1.3	Anatomical predilection and histological types of oesophageal cancer	2 3 3
1.4	Types of gross appearance in oesophageal cancer	
1.5	Clinical presentation and manifestation	5
1.6	TNM staging system of oesophageal cancers	9
1.7	Stages of oesophageal cancers	10
1.8	Complications of external radiotherapy to oesophagus	14
1.9	Major side effects of photodynamic therapy	15
2.1	Lauren's classification of gastric adenocarcinoma	19
2.2	Borrmann's classification of gastric adenocarcinoma	20
2.3	Clinical manifestations according to tumour site	21
2.4	TNM staging of gastric cancer	30
2.5	R classification	30
2.6	The choice of operation according to tumour location	32
2.7	KIEL classification of primary gastric lymphoma	44
4.1	TNM staging system for small bowel malignant tumours	65
5.1	Symptoms and signs of caecal and right-sided colonic tumours	77
5.2	Symptoms and signs of left-sided colonic tumours	77
5.3	Symptoms and signs of sigmoid cancer	<b>7</b> 8
5.4	Symptoms and signs of carcinoma of transverse colon	<b>7</b> 8
5.5	Symptoms and signs of rectal cancer	<b>7</b> 8
5.6	Dukes' staging system	85
5.7	TNM staging system	86
5.8	Comparison between Dukes' classification and TNM staging systems	86
5.9	The choice of operation as dependent on the site of primary tumour	89
5.10	Criteria for local treatment modality	92
6.1	TNM staging of anal cancer	100
7.1	TNM staging criteria for HCC	110
7.2	CLIP scoring system	111
8.1	The staging of gall bladder cancer	121
8.2	Steps of operative technique of radical cholecystectomy	122
9.1	TNM staging for cholangiocarcinoma	131
10.1	TNM staging for ampullary cancer	137
11.1	TNM staging for pancreatic cancer	143

#### **List of Photographs**

Photo		Page
4.1	Intraoperative GIST at D-J junction	60
4.2	GIST tumour at D-J junction where the resection of jejunal loop is done	67
4.3	The resected GIST with jejunal loop	67
5.1	A specimen of resected advanced sigmoid tumour	91
14.1	Giant mesentric tumour	171

#### Glossary

5FU 5-flurouracil

ABG Arterial blood gases

AJCC American Joint Committee on Cancer

APC Adenomatous polyposis coli APR Abdominoperineal resection

**APTT** Activated partial thromboplastin time

**APUD** Amine precursor uptake and decarboxylation

BOA Basal acid output

BRCA1 Breast cancer serum is a human gene belongs to a class of tumour

suppressor located on long arm of chromosome 17

BUSE Blood urea and electrolytes

CBD Common bile duct

CEA Carcino-embryonic antigen

CLIP Cancer of Liver Italian Programme

DNA Deoxyribonucleic acid
DVT Deep venous thrombosis

EBV Epstein-Barr virus

**ERCP** Endoscopic retrograde cholangiopancreatogram

ESR Erythrocyte sedimentation rate (ratio)

**EUA** Examination under anaesthesia

EUS Endoscopic ultrasound / Endoluminal ultrasound

FAP Familial adenomatous polyposis

FBC Full blood count

**FEV.** Forced expiratory volume in the first second

FNAC Fine needle aspiration cytology FNH Follicular nodular hyperplasia

**G1** Well differentiated

G2 Moderately differentiated
 G3 Poorly differentiated
 G4 Undifferentiated
 G1 Gastrointestinal

GIST Gastrointestinal stromal tumour

GIT Gastrointestinal tract
HCC Hepatocellular carcinoma

HCL Hydrochloric acid

HIAA Hydroxy indole acetic acid HIV Human immunodeficiency virus

HNPCC Hereditary non-polyposis colorectal cancer

**HPF** High power field

IMA Inferior mesenteric artery IMV Inferior mesenteric vein

**K-ras** An oncogene resides on chromosome 12, involved in the G protein

signal transduction pathway modultory cellular proliferation and

differentiation

LFT Liver function test
M 0 No distant metastasis
M 1 Distant metastasis

M Metastasis

MALT Mucosa-associated lymphoid tissue MEN Multiple endocrine neoplasia

MRCP Magnetic Resonance Cholangiopancreatography

MRI Magnetic Resonance Imaging
Mx Metastasis cannot be assessed

N Node

N0 No regional lymph node metastasisN1 Regional lymph node metastasis

Nd-YAG Neodymium-doped yttrium aluminium garnet. It is a crystal that is used

as a lasing medium for solid-state lasers

NSAIDS Non-steroidal Anti-inflammatory Drugs
Nx Regional lymph nodes cannot be assessed

**OGDS** Oesophagogastroduodenoscopy

**PDT** Photo dynamic therapy

**PET** Positron emission tomography

**PT** Prothrombine time

PTB Percutaneous transhepatic biliary

PTC Percutaneous transhepatic cholangiography

PTT Partial thromboplastin time
R0 No apparent residual tumour

R1 Residual tumour detected only microscopically
 R2 Residual tumour can be detected macroscopically

SALTZ A combination of irinotecan, 5-flurouracil and leucovorin

SRS Somatostatine receptor scintigraphy

T Tumour

T0 No evidence of primary tumour

T1 Tumour involving lamina propria or submucosa

Tumour involving muscularis propria

Tumour involving adventitia

Tumour involving adjacent structures

**Tis** Carcinoma in situ

TNM Tumour Node Metastases
TPN Total parentral nutrition
TRUS Transrectal ultrasound

Tx Primary tumour cannot be assessed

US Ultrasound

VIP Vasointestinal peptide

**WDHA** Watery diarrhoea, hypokalemia, achlorhydria and acidosis

#### **Preface**

This book, Gate to Gastrointestinal Malignancy has comprehensive information on gastrointestinal malignancy in a concise, simple and more digestible manner. It can be regarded as a guide or main gate for entrance to more detailed medical textbooks. It helps students and doctors to remember the important points regarding the handling of gastrointestinal (GIT) cancer patients. It can be regarded as a quick reference for review in the ward or before examination. It involves the most recent information on investigations, surgical treatment and brief notes on chemotherapeutic and other palliative measures. It also includes operative notes on most common operations that can be performed on GIT malignancy. I hope this book will be a great help to our students and junior doctors.

I would like to express my gratitude to Professor Dr. Osman Ali, the Dean of School of Medicine, Universiti Malaysia Sabah for his continuous support and encouragement.

Last but not least, my sincere thanks to Mr. Chuah Jitt Aun, the Head of Surgical Department and consultant surgeon in Queen Elizabeth Hospital for his effort in reading this book and most importantly for giving his valuable comments.

Sabah Hassan Ketan Aldaragee
M.B.Ch.B, DGS, FRCSI, FRCS (Glasg), FACS
Associate Professor of Surgery
Head of Surgical Based Department
Consultant Surgeon
Surgical Oncologist
School Of Medicine
Universiti Malaysia Sabah
2008

#### Introduction

During the writing of Gate to Gastrointestinal Malignancy, I tried to make it simple, comprehensive, updated and easier to remember. The book includes all malignancies of gastrointestinal tract including epidemiology, risk and causative factors, histological types, clinical manifestations, radiological, endoscopic, haematological and other investigative modalities available at the present time. It covers most of the malignancies in an organ-wise method which are discussed in separate topics of the neuroendocrine tumour and gastrointestinal stromal tumour (GIST). Here they are explained in the most commonly affected organs with that type of malignancy. It also includes surgical, curative or palliative, chemotherapy, adjuvant or neoadjuvant and palliative measures in treating GIT cancer patients. Review of disease prognosis is also mentioned. Notes on most common operations together with some pictures of endoscopy and other modalities are also included in this book. The book is helpful as a quick reference to refresh the memory while in the ward or before examination.