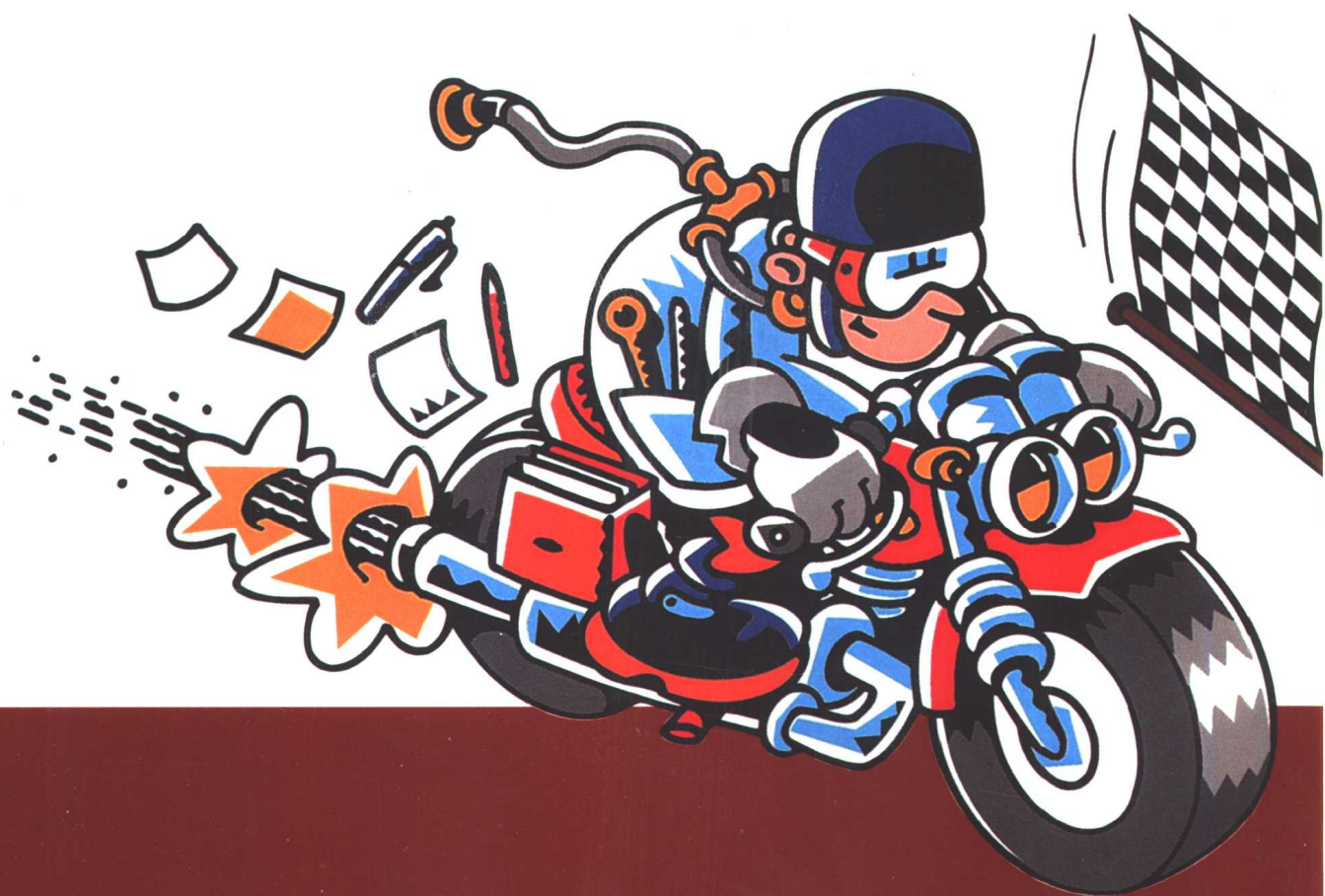


风暴式医学教程 MOSBY'S CRASH COURSE (原版英文医学教程)

心脏病学

Cardiology

Anjana Siva ◉ Mark Noble
with Wilfred Yeo Series Editor



国际医学
畅销书

- ◉ 揭秘国际医学教学
- ◉ 独创风暴式记忆新法
- ◉ 助你在竞争中胜出

科学出版社
Harcourt Asia
Mosby

(原版英文医学教程)

风暴式医学教程

Mosby's Crash Course

心脏病学

Cardiology

Anjana Siva © Mark Noble
with Wilfred Yeo as Series Editor

科学出版社

Harcourt Asia

Mosby

2002

Anjana Siva © Mark Noble; Mosby's Crash Course: Cardiology

Copyright © Mosby International Ltd, 1999.

Authorized Reprinting by **Science Press**, A division of *China Science Publishing Group*.

All rights reserved. For sale in the People's Republic of China only.

Reprint ISBN 981-4095-22-2

本书英文影印版由科学出版社——中国科学出版集团核心企业和美国哈克出版集团国际公司合作出版。
本版本是最新美国版,惟一获正式授权的完整和无节略的复制版,仅限在中国境内(不包括香港特别行政区和台湾省)出版和标价销售。

未经出版者书面许可,不得以任何方式复制或抄袭本书的任何部分。

版权所有,翻印必究。

北京市版权局版权登记号:01-2001-3864

图书在版编目(CIP)数据

心脏病学/(英)赛瓦(Siva, A.)著.-影印版.-北京:科学出版社,2002.2

风暴式医学教程

ISBN 7-03-009695-9

I. 心… II. 赛… III. 心脏病学-教材-英文 IV. R541

中国版本图书馆 CIP 数据核字(2001)第 063344 号

NA 25/05

科学出版社 出版

北京东黄城根北街16号

邮政编码:100717

<http://www.sciencep.com>

源海印刷厂 印刷

科学出版社发行 各地新华书店经销

*

2002年2月第 一 版 开本:787×1092 1/16

2002年2月第一次印刷 印张:15

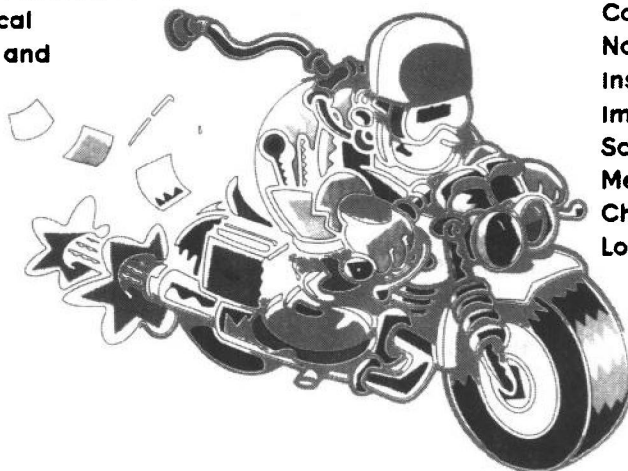
印数:1—5 000 字数:336 000

定价:39.00元

(如有印装质量问题,我社负责调换〈新欣〉)

Series editor
Wilfred Yeo

BMedSci, MB, ChB, MD, MRCP
Senior Lecturer in Medicine,
Medicine/Clinical
Pharmacology and
Therapeutics,
University of
Sheffield



Faculty advisor
Mark Noble

DSc, MD, PhD, FRCP, FESC
Weston Professor of
Cardiovascular Medicine,
National Heart and Lung
Institute,
Imperial College of
Science, Technology, and
Medicine, and
Charing Cross Hospital,
London

Cardiology

Anjana Siva

MA, BChir, MRCP
Research Registrar
Department of Clinical
Pharmacology,
Addenbrooke's Hospital,
Cambridge

Mark Noble

DSc, MD, PhD, FRCP, FESC
Weston Professor of
Cardiovascular Medicine,
National Heart and Lung
Institute,
Imperial College of Science,
Technology, and Medicine,
and
Charing Cross Hospital,
London

Science Press
Harcourt Asia
Mosby

SCIENCE PRESS

*A division of China Science Publishing Group
16 Donghuangchenggen North Street,
Beijing 100717
China*

HARCOURT ASIA PTE. LTD

*A Harcourt Publishers International
Company
583 Orchard Road #09-01 Forum
Singapore 238884*

Distribute in the Mainland China by Science Press,
16 Donghuangchenggen North Street, Beijing 100717, China.

Copyright © Mosby International Ltd, 1999.

All rights reserved. No part of this publication may be reproduced, or transmitted in any form of by any means, electronic, mechanical, including photocopy, recording or any information storage and retrieval system, without permission in writing from the publisher.

Printed in China by HARCOURT ASIA PTE. LTD and SCIENCE PRESS under special arrangement with Mosby, A Harcourt Health Science Company. This edition is the only authorized complete and unabridged reproduction of the latest American Edition, published and priced for sale in China only, not including Hong Kong SAR and Taiwan.

Unauthorized export of this edition is a violation of the Copyright Act Violation of this Law is subject to Civil and Criminal penalties.

This Edition First Printed in China in 2002.

ISBN 7-03-009695-9/R • 764

Reprint ISBN 981-4095-22-2

Printed in China



Preface

Cardiology is a varied and exciting field comprising a wide range of acute and chronic disorders. No final year medical student can avoid learning the basics of cardiology because the speciality is well represented in all aspects of the final examination, and rightly so because the more common cardiac conditions such as ischaemic heart disease, cardiac failure, and valve disease are frequently seen in practice by all junior doctors.

This book is designed to cover all aspects of cardiac disease and its management. The management of acute emergencies is laid out clearly in the form of flow charts. Clinical trials have been mentioned wherever relevant to enable students to see the effect of the results of these trials on medical practice.

Care has been taken to present diseases in an interesting and concise manner with management plans that are up to date and particularly relevant for final year students and junior doctors. Emphasis has been placed upon the importance of good history taking and examination skills and the need to approach all problems in a logical manner.

I hope you find this text a useful revision tool. Good luck!

Anjana Siva

Over the past 30 years it has been my privilege to enjoy rapport with many generations of medical students. In recent years this has involved a revolution in teaching methods and a new curriculum. Students are being introduced to clinical cardiology from the beginning of their studies.

Although designed as a revision course, this book contains all the student needs to know about cardiology for MB finals. It is based on clinical experience. In the new system of learning the student should explore, from this clinical knowledge, the underlying anatomy and physiology. Then it is possible to understand why the clinical features are as they are from logical reasoning from first principles. The companion book – *Crash Course Cardiovascular System* – is recommended to aid this process of deeper understanding.

Beware, however, of the danger of learning primarily specialties and systems. The patient must be understood as a whole person.

Mark Noble



Preface

So you have an exam in medicine and you don't know where to start? The answer is easy—start with *Crash Course*. Medicine is fun to learn if you can bring it to life with patients who need their problems solving. Conventional medical textbooks are written back-to-front, starting with the diagnosis and then describing the disease. This is because medicine evolved by careful observations and descriptions of individual diseases for which, until this century, there was no treatment. Modern medicine is about problem solving, learning methods to find the right path through the differential diagnosis, and offering treatment promptly.

This series of books has been designed to help you solve common medical problems by starting with the patient and extracting the salient points in the history, examination, and investigations. Part II gives you essential information on the physical examination and investigations as seen through the eyes of practising doctors in their specialty. Once the diagnosis is made, you can refer to Part III to confirm that the diagnosis is correct and get advice regarding treatment.

Throughout the series we have included informative diagrams and hints and tips boxes to simplify your learning. The books are meant as revision tools, but are comprehensive, accurate, and well balanced and should enable you to learn each subject well. To check that you did learn something from the book (rather than just flashing it in front of your eyes!), we have added a self-assessment section in the usual format of most medical exams—multiple-choice and short-answer questions (with answers), and patient management problems for self-directed learning. Good luck!

Wulf Yeo
Series Editor (Clinical)

To my mother and father AS



Acknowledgements

I would like to thank the following individuals for their help in providing material for this text:

Miss S Bland for providing the exercise ECG.

Mr D Cuthbert for providing information on cholesterol lowering trials.

Miss A Hall for providing the ECG showing atrial flutter.

Dr MO Sullivan for providing the ECG showing left ventricular hypertrophy.

Dr S Haydock for providing the retinal photos.

Anjana Siva



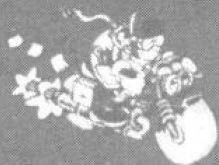
Contents

Preface	v	
Part I: The Patient Presents With	1	
1. Chest Pain	3	
Differential diagnosis of chest pain	3	
History to focus on the differential diagnosis of chest pain	3	
Examination of patients who have chest pain	4	
Investigation of patients who have chest pain	5	
Central chest pain at rest of recent onset in an ill patient	7	
2. Dyspnoea	11	
Differential diagnosis of dyspnoea	11	
History to focus on the differential diagnosis of dyspnoea	11	
Examination of dyspnoeic patients	12	
Investigation of dyspnoeic patients	13	
Dyspnoea at rest of recent onset in an ill patient	15	
3. Syncope	19	
Differential diagnosis of syncope	19	
History to focus on the differential diagnosis of syncope	19	
Examination of patients who present with syncope	20	
Investigation of patients who present with syncope	21	
Syncope of recent onset in an ill patient	22	
4. Palpitations	25	
Differential diagnosis of palpitations	25	
History to focus on the differential diagnosis of palpitations	25	
Examination of patients who have palpitations	26	
Investigation of patients who have palpitations	27	
5. Ankle Swelling	31	
Differential diagnosis of oedema	31	
History to focus on the differential diagnosis of ankle swelling	32	
Examination of patients who have oedema	32	
Investigation of patients who have oedema	34	
Important aspects	34	
6. Heart Murmur	37	
Differential diagnosis of a heart murmur	37	
History to focus on the differential diagnosis of a heart murmur	37	
Examination of patients who have a heart murmur	39	
Investigation of patients who have a heart murmur	42	
7. High Blood Pressure	43	
Differential diagnosis	43	
History to focus on the differential diagnosis of high blood pressure	43	
Examination of patients who have high blood pressure	44	
Investigation of patients who have high blood pressure	46	
8. Fever Associated With A Cardiac Symptom or Sign	49	
Differential diagnosis	49	
History to focus on the differential diagnosis of fever	49	
Examination of patients who have a fever associated with a cardiac symptom or sign	50	
Investigation of patients who have a fever associated with a cardiac symptom or sign	52	
Part II: History, Examination, and Common Investigations	55	
9. History	57	
Aim of history taking	57	
Presenting complaint	57	
Systems review	60	
Allergies	62	
Family history	62	
Social history	62	



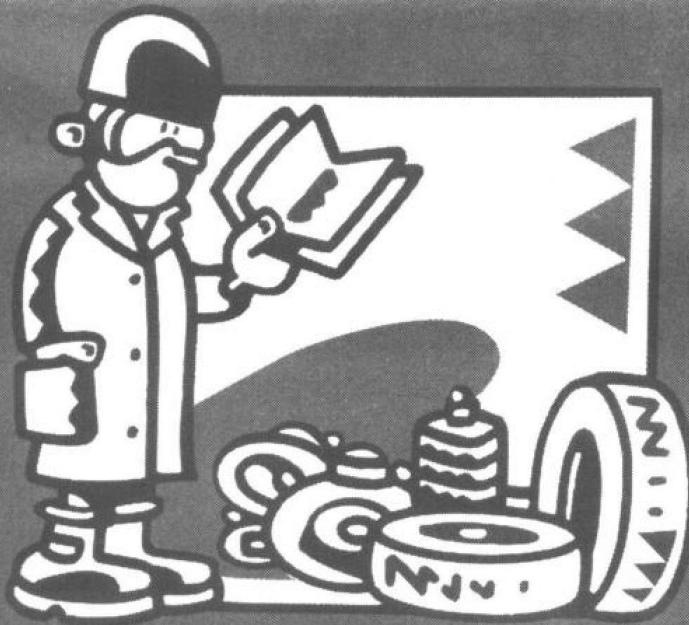
Contents

10. Examination	65	15. Supraventricular Tachyarrhythmias	113
How to begin the examination	65	Definition of supraventricular tachyarrhythmias	113
Observation	65	Sinus tachycardia	113
Examination of the hands	66	Premature atrial ectopics	113
Examination of the pulse	66	Nodal and junctional ectopics	113
Take the blood pressure	66	Atrial tachycardia	114
Examination of the face	67	Atrioventricular junctional tachycardia	115
Examination of the jugular venous pressure	67	Atrioventricular nodal re-entrant tachycardia	115
Examination of the praecordium	68	Wolff-Parkinson-White syndrome	116
Finishing off the examination	70	Atrial flutter	117
		Atrial fibrillation	117
		Investigation of patients who have	
		supraventricular tachyarrhythmias	119
		Drugs used to treat tachyarrhythmias	121
11. How to Write a Medical Clerking	71	16. Ventricular Tachyarrhythmias	123
Documentation of the history	71	Definition of ventricular tachyarrhythmias	123
Documentation of the examination findings	73	Ventricular ectopic beats	123
At the end of the clerking	73	Ventricular tachycardia	124
Sample medical clerking	73	Ventricular fibrillation	125
		Torsades de pointes	126
		Drugs used to treat ventricular tachycardia	
		and fibrillation	127
		Non-pharmacological treatments of	
		ventricular tachyarrhythmias	128
12. Common investigations	77	17. Cardiac Arrest and Resuscitation	131
Electrocardiography	77	Basic life support	131
Echocardiography	84	Advanced life support	134
Myocardial perfusion imaging	86		
Magnetic resonance imaging	87	18. Bradyarrhythmias	137
Positron emission tomography	87	Definition of bradyarrhythmias	137
Cardiac catheterization	87	Sinus bradycardia	137
		Sinus node disease	137
		Atrioventricular block	138
		Bundle branch block	141
		Investigation of bradyarrhythmias	142
		Pacemakers	143
Part III: Diseases and Disorders	91	19. Cardiac Failure	145
		Definition of cardiac failure	145
		Pathophysiology of cardiac failure	145
		Causes of cardiac failure	147
		Clinical features of cardiac failure	148
		Examination of patients who have	
		cardiac failure	149
		Investigation of cardiac failure	150
		Management of cardiac failure	151
13. Angina Pectoris	93		
Definition of angina pectoris	93		
Pathophysiology of angina pectoris	93		
Risk factors for coronary artery disease	93		
Clinical features of angina pectoris	93		
Investigation of angina pectoris	95		
Management of angina pectoris	96		
Unstable angina	100		
Low molecular weight heparins	101		
14. Acute Myocardial Infarction	103		
Definition of acute myocardial infarction	104		
Clinical features of acute myocardial infarction	104		
Investigation of acute myocardial infarction	106		
Management of acute myocardial infarction	107		
Summary of management of			
ischaemic chest pain	111		
Heart block after myocardial infarction	112		



Contents

20. Cardiomyopathy	157	24. Hypertension	183
Definition of cardiomyopathy	157	Definition of hypertension	183
Dilated cardiomyopathy	157	Causes of hypertension	183
Hypertrophic obstructive cardiomyopathy	158	Clinical features of hypertension	184
Restrictive cardiomyopathy	160	Investigation of a patient who has hypertension	184
21. Pericarditis and Pericardial Effusion	161	Management of hypertension	186
Acute pericarditis	161	Phaeochromocytoma	187
Dressler's syndrome	163	25. Congenital Heart Disease	189
Chronic constrictive pericarditis	163	Definition of congenital heart disease	189
Pericardial effusion	163	Causes of congenital heart disease	189
22. Valvular Heart Disease	165	Complications of congenital heart disease	189
Rheumatic fever	165	Atrial septal defect	190
Mitral stenosis	166	Ventricular septal defect	192
Mitral regurgitation	168	Patent ductus arteriosus	193
Aortic stenosis	171	Coarctation of the aorta	193
Aortic regurgitation	173	Other causes of congenital heart disease	195
Assessing the severity of a valve lesion	174	Notes on pulmonary hypertension and Eisenmenger's syndrome	195
Tricuspid regurgitation	174	Part IV: Self-assessment	197
Other valve lesions	176	Multiple-choice questions	199
Prosthetic heart valves	176	Short-answer questions	203
23. Infective Endocarditis	177	Patient management problems	206
Definition of infective endocarditis	177	MCQ answers	207
Epidemiology of infective endocarditis	177	SAQ answers	208
Pathophysiology of infective endocarditis	178	Index	211
Clinical features of infective endocarditis	179		
Investigation of a patient who has infective endocarditis	180		
Management of infective endocarditis	181		
Complications of infective endocarditis	182		
Monitoring of patients who have infective endocarditis	182		



THE PATIENT PRESENTS WITH

1. Chest Pain	3	5. Ankle Swelling	31
2. Dyspnoea	11	6. Heart Murmur	37
3. Syncope	19	7. High Blood Pressure	43
4. Palpitations	25	8. Fever Associated with a Cardiac Symptom or Sign	49



1. Chest Pain

DIFFERENTIAL DIAGNOSIS OF CHEST PAIN

Chest pain is one of the most common presenting complaints seen by cardiologists. It is important to remember that:

- There are many causes of chest pain.
- Some are life-threatening and require prompt diagnosis and treatment whereas others are more benign.

The first differentiation to be made is between cardiac and non-cardiac chest pain (Fig. 1.1)

HISTORY TO FOCUS ON THE DIFFERENTIAL DIAGNOSIS OF CHEST PAIN

Because the differential diagnosis is so diverse a thorough history is very important.

Presenting complaint

Differentiation depends upon a detailed history of the pain with particular emphasis on the following characteristics of the pain (Fig. 1.2):

- Continuous or intermittent.
- Duration.
- Position of the pain—central or lateral/posterior.
- Exacerbating factors—exertion, emotion, food, posture, movement, breathing.
- Radiation of the pain—to neck, arms, head.
- Quality of pain—crushing, burning, stabbing.

Past medical history

This may provide important clues:

- A history of ischaemic heart disease.
- A history of peptic ulcer disease or of frequent ingestion of non-steroidal anti-inflammatory drugs.

Differential diagnosis of chest pain	
System involved	Pathology
cardiac	myocardial infarction angina pectoris pericarditis prolapse of the mitral valve
vascular	aortic dissection
respiratory (all tend to give rise to pleuritic pain)	pulmonary embolus pneumonia pneumothorax pulmonary neoplasm
gastrointestinal	oesophagitis due to gastric reflux oesophageal tear peptic ulcer biliary disease
musculoskeletal	cervical nerve root compression by cervical disc costochondritis fractured rib
neurological	herpes zoster

Fig. 1.1 Differential diagnosis of chest pain.

- Recent operations—cardiothoracic surgery may be complicated by Dressler's syndrome, mediastinitis, ischaemic heart disease or pulmonary embolus (PE).
- Pericarditis may be preceded by a prodromal viral illness.
- Pulmonary embolus may be preceded by a period of inactivity (e.g. a recent operation, illness, or long journey).
- Hypertension is a risk factor for both ischaemic heart disease and dissection of the thoracic aorta.

Drug history, family history, and social history

Other risk factors for ischaemic heart disease such as a positive family history and smoking should be excluded.

A history of heavy alcohol intake is a risk factor for gastritis and peptic ulcer disease.



Characteristics of different types of chest pain

Characteristic	Myocardial ischaemia	Pericarditis	Pleuritic pain	Gastrointestinal disease	Musculoskeletal
Quality of pain	crushing, tight or bandlike	sharp (may be crushing)	sharp	burning	usually sharp may be a dull ache
Site of pain	central anterior chest	central anterior	anywhere (usually very localized pain)	central	may be anywhere
Radiation	to throat, jaw or arms	usually no radiation	usually no radiation	to throat	to arms or around chest to back
Exacerbating and relieving factors	exacerbated by exertion, anxiety, cold; relieved by rest and by glyceryl trinitrate	exacerbated when lying back relieved by sitting forward	exacerbated by breathing, coughing, or moving; relieved when stop breathing	peptic ulcer pain often relieved by food and antacids (cholecystitis and oesophageal pain are exacerbated by food)	may be exacerbated by pressing on chest wall or moving neck
Associated features	patient often sweaty, breathless, and shocked; may feel nauseated	fever, recent viral illness (e.g. rash, arthralgia)	cough, haemoptysis, breathlessness; shock with pulmonary embolus	excessive wind	other affected joints, patient otherwise looks very well

Fig. 1.2 Characteristics of different types of chest pain.



When a patient presents as a hospital emergency with cardiac chest pain, try to differentiate diagnoses for which thrombolysis is contraindicated from those for which it is indicated. Thrombolysis is contraindicated in pericarditis and dissection of the thoracic aorta.

EXAMINATION OF PATIENTS WHO HAVE CHEST PAIN

Points to note on examination of the patient who has chest pain are shown in Fig. 1.3.

Inspection

On inspection, look for:

- Signs of shock (e.g. pallor, sweating)—may indicate myocardial infarction (MI), dissecting aorta, PE.
- Laboured breathing—may indicate MI leading to left ventricular failure (LVF) or a pulmonary cause.

- Signs of vomiting—suggests MI or an oesophageal cause.
- Coughing—suggests LVF, pneumonia.

Cardiovascular system

Note the following:

- Pulse and blood pressure—any abnormal rhythm, tachycardia, bradycardia, hypotension, hypertension? Inequalities in the pulses or blood pressure between different extremities are seen in aortic dissection.
- Mucous membranes—pallor could suggest angina due to anaemia; cyanosis suggests hypoxia.
- Any increase in jugular venous pressure—a sign of right ventricular infarction or pulmonary embolus.
- Carotid pulse waveform—a collapsing pulse is seen with aortic regurgitation, which can complicate aortic dissection. It is slow rising if angina is due to aortic stenosis.
- Displaced apex beat, abnormal cardiac impulses (e.g. paradoxical movement in anterior myocardial infarction).
- On auscultation—listen for a pericardial rub, third heart sound (a feature of LVF), mitral or aortic regurgitation (features of myocardial infarction or dissection respectively), aortic stenosis (causes angina).

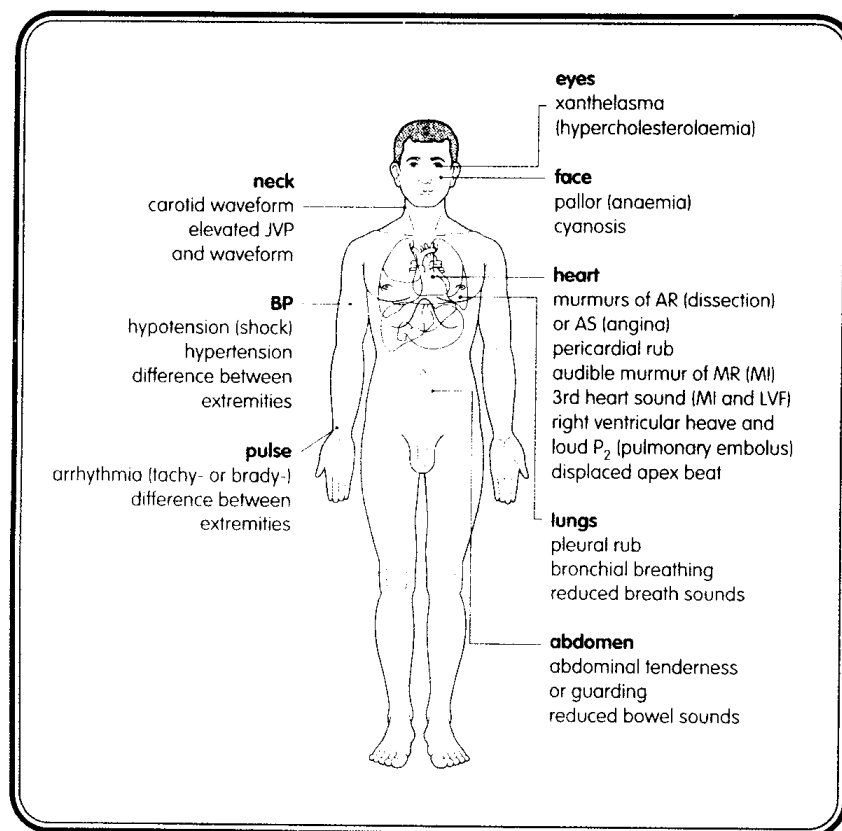


Fig. 1.3 Points to note when examining a patient who has chest pain. (AR, aortic regurgitation; AS, aortic stenosis; BP, blood pressure; JVP, jugular venous pressure; LVF, left ventricular failure; MI, myocardial infarction; MR, mitral regurgitation; P₂, pulmonary component of the second heart sound.)

Respiratory system

Note the following signs:

- Breathlessness or cyanosis.
- Unequal hemithorax expansion
—a sign of pneumonia and pneumothorax.
- Abnormal dullness over lung fields
—a sign of pneumonia.
- Any bronchial breathing or pleural rub
—signs of pneumonia and pleurisy.

Gastrointestinal system

Specifically look for:

- Abdominal tenderness or guarding.
- Scanty or absent bowel sounds—suggests an ileus (e.g. due to perforated peptic ulcer and peritonitis).

Blood tests

These include:

- Cardiac enzymes—may be elevated in MI from 4 hours after the onset of infarction.
- Full blood count—anaemia may exacerbate angina.
- Renal function and electrolytes—may be abnormal if the patient has been vomiting, leading to dehydration and hypokalaemia, or due to diuretic therapy.
- Arterial blood gases—hypoxia is a sign of PE and LVF, hypocapnoea is seen with hyperventilation.
- Liver function tests and serum amylase—deranged in cholecystitis and peptic ulcer disease.

Electrocardiography

Findings may include:

- Bundle branch block (BBB)—if new this may be due to MI; if it is old MI cannot be diagnosed from the ECG.
- ST elevation in absence of BBB indicates acute MI (rarely it is due to Prinzmetal's angina).
- Fully developed Q waves—indicate old MI (i.e. over 24 hours old).
- Atrial fibrillation secondary to any pulmonary disease or ischaemia.

INVESTIGATION OF PATIENTS WHO HAVE CHEST PAIN

A summary of tests used to investigate chest pain is shown in Fig. 1.4 and an algorithm is shown in Fig. 1.5.