



RAPID

Emergency and Unscheduled Care

**Oliver Phipps
Jason Lugg**

WILEY Blackwell

Rapid Emergency and Unscheduled Care

We would like to thank our families:

Jaime and Rupert

Debbie, Rebecca and Katie

along with our friends for their patience and support

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Contents

List of contributors, x
Preface, xi
Acknowledgements, xii
List of abbreviations, xiii

Cardiovascular

Abdominal aortic aneurysm, 3
Acute coronary syndrome, 4
Anaphylaxis, 5
Aortic dissection (thoracic), 8
Atrial fibrillation, 9
Bradycardia, 10
Deep vein thrombosis, 12
Heart failure, 13
Hypertension, 14
Ischaemic lower limb, 15
Myocarditis, 16
Pericarditis, 17
Shock, 18
Tachycardia, 19

Ear, nose and throat (ENT)

Acute sore throat, 23
Auricular haematoma, 24
Epiglottitis, 24
Epistaxis, 25
Foreign bodies, 26
Glandular fever, 27
Mumps, 28
Nose injury, 28
Otitis externa (acute), 29
Otitis media (acute), 29
Peritonsillar abscess (quinsy), 30

Endocrine

Diabetes mellitus: Type 1, 35
Diabetes mellitus: Type 2, 36
Diabetic ketoacidosis (DKA), 36

Hyperkalaemia, 38

Hypokalaemia, 38

Gastroenterology

Abdominal trauma, 43

Appendicitis, 44

Biliary colic, 45

Cholecystitis (acute), 45

Crohn's disease, 46

Diverticulitis, 47

Gastroenteritis, 48

Gastrointestinal bleeding (upper), 49

Gastrointestinal bleeding (lower), 52

Gastrointestinal perforation, 52

Gastro-oesophageal reflux disease (GORD), 53

Irritable bowel syndrome (IBS), 54

Pancreatitis (acute), 55

Pancreatitis (chronic), 56

Paralytic ileus, 57

Peptic ulcer disease, 57

Peritonitis, 58

Small bowel obstruction, 59

Ulcerative colitis, 60

Genitourinary

Acute kidney injury (AKI), 65

Chronic renal failure, 66

Renal colic, 67

Testicular torsion, 67

Urinary tract infection (UTI), 68

Infections, sepsis and infectious diseases

Malaria, 73

Sepsis, 74

Septic arthritis, 75

Typhoid, 76

Mental health emergencies

Mental health overview, 81

Characteristics of different psychiatric illnesses, 82

Acute confusion (delirium), 83
Acute psychosis, 84
Acute anxiety and panic attacks, 85
Deliberate self-harm, 86
Mental Health Act overview, 87

Musculoskeletal

Achilles tendon injuries, 91
Ankle injuries, 92
Back pain (acute), 93
Calcaneum fractures, 95
Compartment syndrome, 95
Elbow injuries, 96
Femoral injuries, 99
Foot injuries, 101
Gastrocnemius muscle tears, 103
Hand injuries, 104
Knee injuries, 107
Neck pain: Traumatic neck sprain, 110
Pelvic fractures, 111
Plantar fasciitis, 111
Pulled elbow, 112
Shoulder and clavicle injuries, 113
Tibial/fibular injuries, 114
Traumatic amputation, 116
Upper limb injuries, 116
Volar plate injuries, 118
Wrist injuries, 118

Neurology

Bell's palsy, 123
Encephalitis, 124
Epilepsy, 125
Giant cell arteritis, 126
Guillain-Barré syndrome, 127
Meningitis, 128
Migraine, 129
Minor head injuries, 130
Status epilepticus, 131
Stroke (cerebrovascular event), 132
Subarachnoid haemorrhage, 133
Subdural haemorrhage, 134

Obstetrics and gynaecology

Eclampsia, 139
Ectopic pregnancy, 139
Hyperemesis gravidarum, 141
Miscarriage, 141
Pre-eclampsia, 142
Vaginal bleeding (late pregnancy), 143

Ophthalmology

Acute angle-closure glaucoma, 147
Anterior uveitis, 147
Blunt trauma, 148
Chemical injury, 149
Conjunctivitis, 150
Corneal injury, 150
Foreign bodies, 151
Loss of vision, 152
Subconjunctival haemorrhage, 153
Superglue injuries, 153
UV radiation injuries, 154

Overdose and poisoning

Alcohol misuse and intoxication, 157
Carbon monoxide poisoning, 158
Drug misuse, 158
Paracetamol overdose, 159
Poisoning, 160

Respiratory

Asthma, 165
Chest sepsis (including pneumonia), 166
Chest wall injury, 167
Chronic obstructive pulmonary disease (COPD), 168
Croup (acute laryngotracheobronchitis), 170
Cystic fibrosis, 171
Flail chest, 172
Haemothorax, 173
Lung cancer, 173
Open chest wound: Medical emergency, 174
Pulmonary embolism, 174
Pneumothorax (simple), 175
Tension pneumothorax: Medical emergency, 176

Skin

- Abscesses, 179
- Animal bites, 179
- Burn to skin, 180
- Cellulitis, 182
- Dermatophyte infection of the skin: Body and groin, 183
- Human bite, 184
- Impetigo, 185
- Necrotising fasciitis, 185
- Scabies, 186
- Varicella infection, 187

The electrocardiogram

- Electrocardiograph (ECG), 191
- Atrial fibrillation, 191
- Atrial flutter, 191
- Asystole, 192
- First-degree heart block, 192
- Normal sinus rhythm, 192
- Pulseless electrical activity (PEA), 192
- Second-degree heart block: Mobitz type 1 (Wenckebach), 193
- Second-degree heart block: Mobitz type 2, 193
- Sinus bradycardia, 193
- Sinus tachycardia, 194
- Supraventricular tachycardia (SVT), 194
- Third-degree heart block: Complete heart block, 194
- Torsade de pointes, 194
- Ventricular fibrillation, 195
- Ventricular standstill, 195
- Ventricular tachycardia (VT), 195

- Index, 197

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Preface

The growth of non-medical practitioners working in emergency and unscheduled care has been a key feature of the changing healthcare workforce in the United Kingdom. In writing this book we have attempted to cover a comprehensive range of diseases, injuries and illnesses that present to nurses, paramedics and allied health professionals working in emergency and unscheduled care environments.

The text has been designed to provide a quick reference summary of conditions, their definition, aetiology, history, examination, investigations and management. We have made the assumption that clinicians are already skilled at history taking and physical examination. We are mindful that local protocols and procedures vary and therefore regularly direct the reader to refer to local protocols throughout the text.

It has been no mean feat writing a text to cover a diverse area of clinical practice and for a wide professional audience. We hope you enjoy reading this book and that you find it useful as a reference guide in your daily practice.

Oliver Phipps
Jason Lugg

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List of abbreviations

ABC	Airway, Breathing, Circulation
ABCDE	Airway, Breathing, Circulation, Disability, Exposure
ABG	Arterial blood gas
ACE	Angiotensin-converting enzyme
ACS	Acute coronary syndrome
AF	Atrial fibrillation
AKI	Acute kidney injury
AOM	Acute otitis media
ATLS	Advanced Trauma Life Support
AXR	Abdominal X-ray
β	Beta
BP	Blood pressure
BPM	Beats per minute
BTS	British Thoracic Society
CBG	Capillary blood glucose
CCU	Coronary care unit
COPD	Chronic obstructive pulmonary disease
CPAP	Continuous positive airway pressure
CRP	C-reactive protein
CRT	Capillary refill time
CSF	Cerebral spinal fluid
CT	Computerised tomography
CVS	Cardiovascular system
CXR	Chest X-ray
DIC	Disseminated intravascular coagulation
DVT	Deep vein thrombosis
ECG	Electrocardiogram
ED	Emergency department
EPAC	Early pregnancy assessment clinic
ERCP	Endoscopic retrograde cholangiopancreatography
ESR	Erythrocyte sedimentation rate
FBC	Full blood count
GCS	Glasgow Coma Score
GI	Gastrointestinal
HARM	Heat, alcohol, running and massage
HR	Heart rate
ICP	Intracranial pressure
ITU	Intensive therapy unit
IV	Intravenous
JVP	Jugular venous pressure
KCL	Potassium chloride
LIF	Left iliac fossa
LVF	Left ventricular failure
MC&S	Microscopy, culture and sensitivity
MHA	Mental Health Act
MRCP	Magnetic resonance cholangiopancreatography
MRI	Magnetic resonance imaging
NG	Nasogastric
NSAID	Non-steroidal anti-inflammatory drug

NSTEMI	Non-ST-elevation myocardial infraction
OGD	Oesophago-gastro-duodenoscopy
PE	Pulmonary embolus
PMH	Past medical history
RIF	Right iliac fossa
ROM	Range of movement
RR	Respiratory rate
RTC	Road traffic collision
SLE	Systemic lupus erythematosus
SOB	Shortness of breath
SPO₂	Oxygen saturations
STEMI	ST-elevation myocardial infarction
TFT	Thyroid function test
TIA	Transient ischaemic attack
TM	Tympanic membrane
U&E	Urea and electrolytes
VBG	Venous blood gas
WCC	White cell count

Cardiovascular

Abdominal aortic aneurysm

Definition

An abdominal aortic aneurysm (AAA) is defined as an enlargement of the aorta by at least 1.5 times its normal diameter. The normal diameter of the aorta is ~2 cm and increases with age. Most AAA are small and not dangerous; however when they increase in size, they are prone to rupture causing a life-threatening condition.

Epidemiology

It is estimated that in 95% of patients, AAA is a complication of atherosclerosis. Risk factors include being male, hypertension, increasing age, smoking and a family history of AAA.

History

- Asymptomatic and often detected on routine abdominal imaging or NHS screening programme.
- Patient may feel pulsatile mass in abdomen.
- Backache.
- Aching pain in the epigastrium and central abdomen to the back.
- In rupture the patient will have severe abdominal pain, often epigastric and radiating to the back.
- May be accompanied by collapse.
- Symptoms can be similar to renal colic.

Examination

The patient should be assessed using the ABCDE approach with appropriate step interventions. Specific points to increase the likely diagnosis of a ruptured AAA include:

- Signs of shock
- Abdominal tenderness and guarding
- Palpable abdominal mass – often pulsatile
- Weak or absent lower limb pulses

Investigations

- Bloods:
 - FBC
 - U&Es
 - LFTs
 - Clotting screen
 - Cross-match
- Arterial blood gas
- ECG
- CXR and AXR
- CT abdomen
- FAST ultrasound scan

Management

- Transfer direct to the emergency department (ED) with pre-alert.
- ABCDE approach.
- Oxygen (set SpO₂ target).
- IV access × 2.
- Cautious IV fluid resuscitation to maintain blood pressure (systolic ~90 mmHg or radial pulse presence), ideally with blood products.
- Analgesia.
- Early discussion with appropriate surgeons.
- Prepare for theatre.

Acute coronary syndrome

Definition

Acute coronary syndrome (ACS) is an umbrella term that encompasses:

- Unstable angina
- Non-ST segment elevation myocardial infarction (NSTEMI)
- ST segment elevation myocardial infarction (STEMI)

Aetiology

ACS is commonly caused by rupture of an atheromatous plaque in a coronary artery. This results in the accumulation of fibrin and platelets to repair the damage. This results in a thrombus formation leading to partial or complete occlusion of the coronary artery and distal myocardial cell death.

Epidemiology

Around 114 000 patients with ACSs are admitted to the hospital each year in the United Kingdom. Coronary heart disease (CHD) is the most common cause of death in the United Kingdom with around one in five men and one in seven women dying each year from CHD.

History

- Consider the history of chest pain or discomfort.
- Cardiovascular (CVS) risk factors.
- Family history of CHD.
- History of CHD, previous treatment and investigations:
- Pain or discomfort in the chest and/or the arms, back or jaw lasting longer than 15 minutes
- Chest pain with nausea and vomiting, sweating and/or breathlessness
- Abrupt deterioration in stable angina, with recurring chest pain discomfort occurring more frequently with little or no exertion and often lasting longer than 15 minutes.

Examination

- Clinical examination is often of little value in diagnosing ACS.
- It can identify alternative causes of chest pain (localised tenderness).
- Look for evidence of the aforementioned symptoms (sweating, SOB, shock).
- Full CVS, respiratory and abdominal assessment.
- Look for signs of heart failure.
- Examine chest wall for local tenderness and other possible causes of chest pain (costochondritis).

Investigations

- Vital signs – RR, HR, BP (both arms) and SpO₂
- Cardiac monitoring – to identify underlying rhythm and arrhythmias
- 12-Lead ECG:
 - To confirm a cardiac basis for presentation and may show pre-existing structural or CHD.
 - ECG changes that occur during episodes of angina (ischaemia) T-wave inversion or ST segment depression.
 - Look for ST segment elevation suggestive of an STEMI.
- Bloods:
 - FBC, U&Es, LFTs, clotting screen and glucose
 - Troponin – should be taken immediately in suspected ACS, but negative result can only be used to rule ACS at 6 and 12 hours, respectively
- CXR – useful to show complications of ischaemia (e.g. pulmonary oedema) or to explore alternative diagnoses (e.g. pneumothorax, aortic aneurysm)

Acute coronary syndrome (continued)

Management

- Refer to local protocols and care pathways.
- 999 Ambulance is required for transfer direct to cardiology in cases of STEMI for primary coronary intervention (PCI) or ED in other cases of ACS.
- IV access.
- IV morphine (dose titrated to pain with antiemetic).
- Oxygen (as required to meet target oxygen saturation of 94–98%).
- Nitrates (GTN if systolic BP > 90 mmHg).
- Aspirin (stat dose of 300 mg).

TOP TIP:

- Chest pain relieved by GTN does not exclude ACS.
- A normal ECG does not exclude an ischaemic cause.

Anaphylaxis

Definition

Anaphylaxis is a severe, life-threatening and systemic hypersensitivity reaction to a foreign protein. Common examples include drugs, food products and insect stings. The resulting vasodilation and bronchospasm causes life-threatening symptoms.

Aetiology

True anaphylaxis does not occur on the first exposure to the allergen as the patient needs to have been exposed previously and therefore sensitised to the protein. Further repeated exposure leads to significant histamine release that increases on each subsequent exposure.

Epidemiology

The incidence of anaphylaxis is increasing in the United Kingdom and is suggested to be around 1–3 reactions per 10 000 population per annum. The overall prognosis of anaphylaxis is good. Mortality is increased within the asthmatic population, specifically those with poorly controlled asthma. Mortality rates from anaphylaxis in the United Kingdom are estimated at around 20 per annum.

History

- May be PMH of anaphylaxis or allergic response
- Sudden onset of symptoms (usually within minutes)
- Identifiable trigger (not always possible)

Examination

Patients with suspected anaphylaxis should be assessed using the ABCDE approach as follows:

Airway

- Hoarse voice
- Airway swelling
- Stridor

Breathing

- Shortness of breath
- Tachypnoea
- Tiredness/exhaustion
- Cyanosis
- Respiratory arrest

Anaphylaxis (continued)

Circulation

- Signs of shock (pale and clammy)
- Tachycardia
- Hypotension
- Cardiac arrest

Skin/Mucosal

- Often first feature
- Erythema
- Urticaria
- Angioedema

Others

- Gastrointestinal disturbance (abdominal pain, vomiting and diarrhoea)

Investigations

- Investigation should not delay resuscitation.
- Vital sign monitoring should be established (RR, SpO₂, HR and ECG monitoring).
- 12-Lead ECG.
- CXR.
- ABG.
- Bloods (including mast-cell tryptase to confirm anaphylaxis diagnosis).

Management

- Call for help.
- Lie flat and raise legs (some patients may benefit from sitting up if respiratory distress is the key feature, blood pressure is not compromised and the patient is not feeling dizzy or does not faint).
- Give intramuscular adrenaline.*
- High flow oxygen.
- IV access and fluid challenges of 500–1000 ml in adults and 20 ml/kg in children.*
- IV antihistamine.*
- IV steroids.*

*Please see the latest guidelines for specific drugs and doses.

Please refer to the latest guidelines from the Resuscitation Council (UK) available at www.resus.org.uk.