A

Abdominal pain

Epigastric

Peptic ulcer
Pancreatitis
Reflux oesophagitis
Acute gastritis
Malignancy: gastric, pancreatic
Pain from adjacent areas: *See* RUQ, central abdominal pain, cardiac/pulmonary/pleural pathology, e.g. MI, pericarditis, pneumonia
Functional disorders: non-ulcer dyspepsia, irritable bowel syndrome

Right upper quadrant (RUQ)

Gall bladder pathology: cholecystitis (usually related to gallstones, occasionally may be acalculous), biliary colic, cholangitis
Liver pathology: hepatitis, hepatomegaly (congestive, e.g. in congestive cardiac failure, Budd–Chiari syndrome), hepatic tumours, hepatic/subphrenic abscess
Pain from adjacent areas: *See* Epigastric (e.g. pancreatitis, peptic ulcer), RIF, Loin pain, pulmonary/pleural pathology, e.g. pneumonia, pulmonary infarction
Appendicitis, e.g. in a pregnant woman
Colonic cancer (hepatic flexure)
Herpes zoster

Right iliac fossa (RIF)

Gastrointestinal: appendicitis, mesenteric adenitis (Yersinia, in children), Meckel's diverticulum (in children), inflammatory bowel disease, colonic cancer, constipation, irritable bowel syndrome
Reproductive: *Females*: Mittelschmerz (ovulation), ovarian cyst tortion/rupture/haemorrhage, ectopic pregnancy, salpingitis/pelvic inflammatory disease, endometriosis. *Males:* seminal vesiculitis, cancer in undescended testis
Renal: UTI, ureteric colic (renal stones)
Pain from adjacent areas: *See* RUQ, suprapubic, central abdominal pain, groin pain, hip pathology, psoas abscess, rectus sheath haematoma, right-sided lobar pneumonia

Suprapubic

Urinary retention
Cystitis
Pain from adjacent areas: *See* RIF, LIF

Left iliac fossa (LIF)

Gastrointestinal: diverticulitis, inflammatory bowel disease, colonic cancer, constipation, irritable bowel syndrome
Reproductive: *See* RIF
Renal pain: *See* RIF
Pain from adjacent areas: *See* LUQ, suprapubic, central abdominal, hip pathology, psoas abscess, rectus sheath haematoma, left-sided lobar pneumonia

Left upper quadrant (LUQ)

Splenic rupture, splenic infarction (e.g. sickle cell disease), splenomegaly
Subphrenic abscess

Abdominal pain continued

Pain from adjacent areas: *See* epigastric (e.g. pancreatitis, peptic ulcer), LIF, loin pain, cardiac/pulmonary/pleural pathology, e.g. MI, pericarditis, pneumonia, empyema, pulmonary infarction
Colonic cancer (splenic flexure)
Herpes zoster

Central abdominal (periumbilical)

Gastrointestinal: intestinal obstruction, early appendicitis, gastroenteritis
Vascular: abdominal aortic aneurysm (leaking, ruptured), mesenteric ischaemia (thrombosis, embolism, vasculitis, e.g. polyarteritis nodosa)
Medical causes, e.g. diabetic ketoacidosis, uraemia
Pain from adjacent areas, e.g. epigastric, iliac fossae

Loin pain

Infection: UTI (pyelonephritis), perinephric abscess/pyonephrosis
Obstruction, e.g. renal stones (*See* Urinary tract obstruction)
Renal carcinoma
Renal vein thrombosis
Polycystic kidney disease
Pain from vertebral column

Groin pain

Renal stones (pain radiating from loin to groin)
Testicular pain, e.g. torsion, epididymo-orchitis (pain radiating from scrotum to groin)
Hernia (inguinal)
Hip pathology
Pelvic fractures

Diffuse abdominal pain

Gastroenteritis
Peritonitis
Intestinal obstruction
Inflammatory bowel disease
Mesenteric ischaemia
Medical causes (see below)
Irritable bowel syndrome

Medical causes

CVS/Respiratory: MI, pneumonia, Bornholm's disease (Coxsackie B virus infection, rare)
Metabolic: diabetic ketoacidosis, Addisonian crisis, hypercalcaemia, uraemia, porphyria, phaeochromocytoma, lead poisoning
Neurological: Herpes zoster, tabes dorsalis
Haematological: sickle cell crisis, retroperitoneal haemorrhage (e.g. anticoagulants), lymphadenopathy
Inflammatory: vasculitis (e.g. Henoch–Schönlein purpura, polyarteritis nodosa), familial Mediterranean fever
Infections: intestinal parasites, tuberculosis, malaria, typhoid fever
Irritable bowel syndrome

Abdominal distension

Fat (obesity)
Fluid (ascites, fluid in the obstructed intestine)

Flatus (intestinal obstruction*)
Faeces
Fetus
Giant organomegaly (e.g. an ovarian cystadenoma, lymphoma)

*Small bowel: adhesions, herniae, intussusception, Crohn's disease, gallstone ileus, foreign body, tumour, tuberculosis. Large bowel: cancer, volvulus, diverticulitis, faeces.

Abdominal masses
See Masses and swellings

Abdominal wall veins, dilated
Caput medusae (portal hypertension)
Inferior vena cava obstruction

Acanthosis nigricans
Malignancy: oesophagus, stomach, large bowel, bladder, kidney
Insulin resistance: diabetes mellitus, PCOS, steroids
Acromegaly
Prader–Willi syndrome

Acanthocytosis
Artifact (blood collected in EDTA tube)
Abetalipoproteinaemia (associated with retinitis pigmentosa, neurological deficits)
Anorexia
Liver failure
Chronic renal failure
Hyposplenism
Hypothyroidism
Chorea–acanthocytosis syndrome

ACE (Angiotensin-converting enzyme), ↑
Sarcoidosis
TB
Lymphoma
Asbestosis
Silicosis

Acid phosphatase, ↑
Prostate cancer
Paget's disease of bone
Lysosomal storage disease, e.g. Gaucher's disease
Thrombocythaemia

Acidosis
Metabolic
Normal anion gap
↓ HCO_3^- GI loss: diarrhoea, fistula (biliary, intestinal, pancreatic), ileostomy, ureterosigmoidostomy
Renal loss: renal tubular acidosis (type 2), renal tubular damage (e.g. drugs/heavy metals), hyperparathyroidism, acetazolamide
↑ H^+ Renal tubular acidosis (1 & 4), ammonium chloride ingestion

Acidosis continued

High anion gap

Ketoacidosis: diabetes mellitus, excess alcohol, starvation

Lactic acidosis:

- Tissue hypoxia, e.g. shock (haemorrhagic/septic), severe exercise, severe anaemia
- Drugs: metformin, ethanol, methanol, ethylene glycol, zidovudine
- D-Lactic acidosis (short gut syndrome)
- Leukaemia
- Lymphoma
- Liver failure
- Glucose-6-phosphatase deficiency, mitochondrial disorders (e.g. MELAS)

Renal failure

Salicylate poisoning

Respiratory

CNS

Organic disease involving respiratory centre (e.g. vascular, infection, inflammation, trauma, tumour)

Drugs: opiates, benzodiazepines, barbiturates and other anaesthetic agents

Lungs

Severe asthma (uncommonly), COPD, large airway obstruction, obstructive sleep apnoea

Neuromuscular

Motor neurones: Guillain–Barré syndrome, motor neurone disease, poliomyelitis, acute porphyria

Neuromuscular junction/muscle: myasthenia gravis, muscular dystrophies, muscle relaxants, diaphagmatic paralysis

Chest wall

Severe kyphoscoliosis, severe obesity, traumatic 'flail chest'

Acute confusional state

See Delirium

Ageusia

Infection/inflammatory diseases of oral cavity

Chorda tympani injury, e.g. during surgery (unilateral anterior 2/3 of the tongue)

Radiation

See also Dysgeusia (impairment of taste)

Alanine-amino transferase (ALT)

See Liver function tests

Alkaline phosphatase

See Liver function tests

Alkalosis

Metabolic

GI loss of H^+

Vomiting, laxative abuse, villous adenoma, VIPoma

Renal loss of H^+
↑↑ ***Mineralocorticoid activity (stimulates H^+ secretion):***
Hyperaldosteronism
↑↑ Glucocorticoids: Cushing's syndrome, liquorice (inhibits 11-hydroxysteroid dehydrogenase and ↓ glucocorticoid metabolism)

↑ **Na^+** ***delivery to distal nephron***
Diuretics: thiazides and loop diuretics (also ↑ aldosterone secretion)
Bartter's syndrome, Gitelman's syndrome

Intracellular shift of H^+
Hypokalaemia (also note that the above causes of GI/renal loss of H^+, also induce K^+ loss)

Other
Compensation for respiratory acidosis
Excessive alkali ingestion (e.g. ↑↑ sodium bicarbonate administration in treatment of acidotic states)
Fulminant hepatic failure (failure to synthesize urea and neutralize bicarbonate derived from amino acid metabolism)

Respiratory
Hyperventilation:
- Physiological (anxiety, pain, fever, pregnancy, high altitude)
- Mechanical overventilation
- Respiratory failure (type I): asthma, COPD, pneumonia, pulmonary oedema, pulmonary embolism, ARDS, fibrosing alveolitis, right → left shunt
- Salicylate poisoning, CO poisoning
- CNS disease (CVA, infection, tumour, trauma)
- Others: liver failure (acute), Gram −ve septicaemia

Alopecia
Non-scarring
Aging (male/female pattern baldness)
Alopecia areata
Traction, trichotillomania
Telogen effluvium: transitory ↑ in number of hairs in resting phase of the hair growth cycle, associated with stress, (e.g. surgery, febrile illness, childbirth, etc.)
Cutaneous diseases (e.g. psoriasis, eczema)
Drugs (cytotoxics, ciclosporin, OCPs, anticoagulants, antithyroid drugs, vitamin A/retinoids)
Endocrine diseases (hypopituitarism, hypo/hyperthyroidism, diabetes mellitus)
Nutritional deficiency (iron, zinc, biotin, caloric deficiency)
Congenital

Scarring
Trauma/burns
Infection: pyogenic infection, TB (lupus vulgaris), syphilis, viral (varicella, herpes simplex), fungal (e.g. ringworm), protozoal (Leishmaniasis), leprosy
Inflammatory disease: SLE, scleroderma, sarcoidosis
Skin disease: lichen planus, cicatricial pemphigoid, necrobiosis lipoidica, folliculitis decalvans

Ambiguous genitalia
See Pseudohermaphrodite

Amenorrhoea

Non-pathological: pregnancy, lactation, menopause, drugs (e.g. Depo-Provera)
Hypothalamus: starvation, anorexia, excessive exercise, weight loss, *GnRH deficiency* (isolated or part of Kallmann's syndrome)
Pituitary: hypopituitarism, hyperprolactinaemia
Ovaries: PCOS, premature ovarian failure, damage to ovaries (infection e.g. mumps, autoimmune, surgery, radiotherapy), ovarian dysgensis *(*e.g. *Turner's syndrome)*
Uterus/vagina: *absent uterus, imperforate hymen, transverse vaginal septum*
Asherman's syndrome: scarring of endometrial lining 2° to infection and instrumentation, e.g. D&C
Thyroid: hypo/hyperthyroidism
Adrenals: adrenal tumours, Cushing's syndrome
Note: The causes in *italics* present only with primary amenorrhoea.

Amnesia

Acute/transient

In the presence of other cognitive deficits: acute confusional state (*See* Delirium)
Trauma (head injury)
Transient global amnesia (may be associated with migraine)
Temporal lobe epilepsy
Migraine
Transient ischaemic attack (TIA), tumours (rare)

Chronic/persistent

In the presence of other cognitive deficits (*See* Dementia)
Medial temporal lobe lesions (bilateral)
Vascular: posterior cerebral artery occlusion (bilateral)
Infection: herpes simplex encephalitis
Inflammation: limbic encephalitis (may be paraneoplastic), sarcoidosis
Tumours: midline (in the region of the third ventricle)
Toxic/metabolic: thiamine deficiency (Korsakoff's psychosis in alcoholism, hyperemesis gravidarum)

Amylase, ↑

Pancreatitis (acute)
Acute abdomen: peptic ulcer, perforation, intestinal obstruction, ruptured ectopic pregnancy
Diabetic ketoacidosis
Renal failure
Salivary gland disorders: calculi, mumps
Morphine (spasm of sphincter of Oddi)
Macroamylasaemia: amylase is complexed with another protein, e.g. immunoglobulin and its renal clearance is reduced

ANA

SLE (95%), drug-induced lupus (100%)
Systemic sclerosis (90%)
Sjögren's syndrome (80%)
Rheumatoid arthritis (60%)
Polymyositis (40%)
Polyarteritis nodosa (20%)
Other diseases: chronic active hepatitis, diabetes, Waldenström's macroglobulinaemia, myasthenia gravis
Normal population (5–8%)

Anaemia

Macrocytic

Alcohol
Folate/B_{12} deficiency
Haemolytic anaemia
Hypothyroidism
Liver disease
Myelodysplasia

Microcytic

Iron deficiency: blood loss (GI [e.g. peptic ulcer, malignancy], urogenital [e.g. menorrhagia, haematuria]), hookworm (Ancylostroma duodenale)
↓ absorption (gastrectomy, small bowel disease),
↑ demands (growth, pregnancy), ↓ intake (e.g. vegans)
Thalassaemia
Sideroblastic anaemia: congenital (X-linked), alcohol, drugs (isoniazid, chloramphenicol), lead, myelodysplasia
Lead poisoning
Anaemia of chronic disease (often normocytic, but may be microcytic)

Normocytic

Anaemia of chronic disease (chronic infection, inflammatory/connective tissue diseases, malignancy)
Haemolytic anaemia (may also cause macrocytic anaemia)
Hypothyroidism (may also cause macrocytic anaemia)
Pregnancy
Renal failure
Bone marrow failure

Haemolytic

Hereditary

Haemoglobinopathies: sickle cell anaemia, thalassaemia
Membrane defects: spherocytosis, elliptocytosis
Metabolic defects: pyruvate kinase deficiency, glucose-6-phosphate dehydrogenase deficiency

Acquired

Autoimmune: Warm antibodies (idiopathic, SLE, lymphoma, drugs, e.g. methyldopa), Cold antibodies (idiopathic, infections, e.g. *Mycoplasma* sp., EBV, other viruses, lymphoma)
Alloimmune: Transfusion reaction, haemolytic disease of newborn
Drugs: penicillin, quinidine
Non-immune: trauma: microangiopathic haemolytic anaemia (TTP, HUS, DIC, malignant hypertension, pre-eclampsia), artificial heart valves, March haemoglobinuria
Infection: malaria, clostridia
Paroxysmal nocturnal haemoglobinuria, secondary to liver and renal disease

Aplastic

Idiopathic
Inherited: Fanconi anaemia, dyskeratosis congenita
Acquired: drugs (cytotoxics, chloramphenicol, gold, methotrexate), chemicals (parathion, benzene), radiation, viral infection (B19 parvovirus, HIV, hepatitis, measles), paroxysmal nocturnal haemoglobinuria, sepsis

ANCA
p-ANCA
Microscopic polyangiitis
Churg–Strauss disease
Also: inflammatory bowel disease, sclerosing cholangitis, biliary cirrhosis, autoimmune hepatitis, rheumatic autoimmune diseases

c-ANCA
Wegener's granulomatosis
Infections, e.g. amoebic colitis

Androgenization
PCOS
Congenital adrenal hyperplasia
Cushing's syndrome
Adrenal tumours

Angioid streaks
Pseudoxanthoma elasticum
Ehlers–Danlos syndrome
Paget's disease of bone
Sickle cell anaemia
Acromegaly, hypercalcaemia, lead poisoning

Angular stomatitis
See Cheilitis

Anisocoria
Physiological inequality
Unilateral miosis (*See* Miosis) or mydriasis (*See* Mydriasis)
Prosthetic eyeball

Anisocytosis
Iron deficiency
Thalassaemia
Megaloblastic anaemia

Ankle oedema
See Oedema

Annular skin lesions
Tinea corporis
Urticaria
Pityriasis rosea
Granuloma annulare
Sarcoidosis
Subacute cutaneous lupus erythematosus
Erythema annulare centrifugum
Erythema chronicum migrans
Erythema multiforme
Nummular eczema
Psoriasis
Leprosy

Anorectal pain
Anal fissure

Haemorrhoids (strangulated, thrombosed)
Perianal abscess
Perianal haematoma
Proctalgia fugax
Malignancy
Trauma
Solitary rectal ulcer

Anosmia

Nasal congestion (rhinitis), nasal polyps
Neurological: tumours on the floor of the anterior fossa (e.g. meningioma), head trauma, neurodegenerative diseases
Congenital: Kallmann's syndrome (anosmia and GnRH deficiency), cleft palate

Aortic regurgitation

Valve leaflet damage/abnormalities: infective endocarditis, rheumatic fever, trauma, bicuspid aortic valve
Aorta and valve ring dilatation: aortic dissection, aortitis (e.g. syphilis), arthritides (rheumatoid arthritis, seronegative arthritides, e.g. ankylosing spondylitis, Reiter's syndrome), ↑↑BP
Others: Marfan's syndrome, pseudoxanthoma elasticum, Ehlers–Danlos syndrome, osteogenesis imperfecta, inflammatory bowel disease

Aortic stenosis

Stenosis secondary to rheumatic heart disease
Calcification of a congenital bicuspid AV
Calcification/degeneration of a tricuspid AV in elderly

Apex beat

Heaving (pressure loaded)

Aortic stenosis (*See* Aortic stenosis)
Systemic hypertension

Thrusting (volume loaded)

Mitral regurgitation (*See* Mitral regurgitation)
Aortic regurgitation (*See* Aortic regurgitation)

Tapping

Mitral stenosis (*See* Mitral stenosis)

Apex beat not palpated

Obesity, muscular chest wall
Dextrocardia
COPD
L-sided pneumothorax
L-sided pleural effusion
Large pericardial effusion

Aphasia

See Dysphasia

Appetite, ↓

See Weight loss, ↓ appetite

APTT, ↑
Haemophilia
von Willebrand's disease
Liver disease
Warfarin therapy, vitamin K deficiency
Heparin
DIC

Note: APTT monitors the intrinsic pathway i.e. deficiency or inhibition of coagulation factors: XII, XI, IX, VIII, X, V, II, and fibrinogen

Arachnodactyly
Normal finding
Marfan's syndrome
Homocysteinuria
Ehlers–Danlos syndrome

Arm pain
Trauma, strain injury
Arthritis (*See* Monoarthralgia)
Neurological: cervical spinal cord compression (prolapsed disc, cervical spondylosis, tumours)
Brachial plexus involvement: apical lung cancer, cervical rib
Peripheral neuropathies
Carpal tunnel syndrome
Vascular: subclavian artery stenosis, arterial/venous thrombosis, embolism
Bone: tumours (primary, secondary: lung, breast, prostate, kidney, thyroid)
Referred cardiac pain
See also Shoulder pain

Arm swelling
Congenital lymphoedema (rare)
Trauma
Cellulitis
Deep venous thrombosis (DVT) (axillary vein: associated with excessive exercise, cervical rib)
Axillary lymph node involvement: radiotherapy, surgical excision, malignancy, filariasis

Arterial blood gases
Hypoxia, normal or low P_aCO_2 (respiratory failure: type 1)
Asthma
COPD
Pulmonary embolism
Pulmonary oedema
Pneumonia
Pulmonary fibrosis
R → L shunt
ARDS

Hypoxia, high P_aCO_2 (respiratory failure: type 2)
CNS:
- Organic disease involving respiratory centre (vascular, infection, inflammation, trauma, tumour)
- Drugs: opiates, benzodiazepines, barbiturates and other anaesthetic agents

Lungs:

Severe asthma, COPD, large airway obstruction, obstructive sleep apnoea
Neuromuscular:
Motor neurones: Guillain–Barré syndrome, motor neurone disease, poliomyelitis, acute porphyria
Neuromuscular junction/muscle: myasthenia gravis, muscular dystrophies muscle relaxants, diaphragmatic paralysis
Chest wall:
Severe kyphoscoliosis, severe obesity, traumatic 'flail chest'

Arthralgia

See Monoarthralgia and Polyarthralgia

Ascites

Exudate

Malignancy (abdominal, pelvic, peritoneal mesothelioma)
Infection: e.g. TB, pyogenic
Pancreatitis
Myxoedema (hypothyroidism)
Budd–Chiari syndrome (hepatic vein obstruction), portal vein thrombosis
Chylous ascites (obstruction of lymphatics, e.g. surgery, lymphoma)

Transudate

Cirrohsis
Cardiac failure, constrictive pericarditis
Nephrotic syndrome
Rare: Meigs' syndrome (ovarian fibroma, ascites, pleural effusion), ovarian hyperstimulation

Aspartate-amino transferase (AST, SGOT)

See Liver function tests

AST

See Liver function tests

Asterixis

Liver failure
CO_2 retention

Ataxia

Cerebellar ataxia

Vascular: infarction, haemorrhage
Infection: varicella, cerebellar abscess, TB, toxoplasmosis, cysticercosis
Inflammation: multiple sclerosis, vasculitis
Trauma
Tumour: cerebellar haemangioblastoma, astrocytoma, metastases, paraneoplastic
Toxic/metabolic: alcohol, phenytoin, myxoedema
Congenital: cerebellar hypoplasia, Dandy–Walker syndrome, Arnold–Chiari malformation
Degenerative: multiple system atrophy
Hereditary ataxias: autosomal recessive (e.g. Friedreich's ataxia, ataxia telangiectasia), autosomal dominant (e.g. spinocerebellar ataxia)
Storage diseases, e.g. Niemann–Pick disease, Tay–Sachs disease, ceroid lipofuscinosis, metachromatic leukodystrophy, sialidosis and numerous other genetic/metabolic causes, e.g. Refsum disease, Wilson's disease, etc.

Ataxia continued

Sensory ataxia

Subacute combined degeneration of the cord (*See* B_{12} deficiency), syphilis (tabes dorsalis), cervical myelopathy, diabetic pseudotabes

Avascular necrosis

Fracture (e.g. scaphoid, neck of femur)
Radiotherapy
Sickle cell
Steroids
Cushing's syndrome
Connective tissue diseases (e.g. rheumatoid arthritis, SLE)
Pregnancy
Pancreatitis
Alcohol
Other: Fabry's disease, Gaucher's disease; Caisson's disease (in deep-sea divers)

Axillary erythematosus rash

Seborrhoeic dermatitis
Contact dermatitis
Flexural psoriasis
Fungal infection: candidiasis, tinea
Erythrasma (*Corynebacterium* infection)

Axis deviation

Left axis deviation (LAD)

Left anterior hemiblock
MI (inferior wall)
Wolff–Parkinson–White syndrome (some types)
Ventricular tachycardia (left ventricular focus)
Obesity, pregnancy, congenital heart defects (e.g. endocardial cushion defects)

Right axis deviation (RAD)

Right ventricular hypertrophy (e.g. secondary to COPD), pulmonary embolism
MI (antero-lateral)
Wolff–Parkinson–White (left-sided accessory pathway)
Dextrocardia
Left posterior hemiblock (rare)