Differential Diagnosis of Acute Abdominal Pain

Cause grouping	Differentials	Classical history	Classic examination findings	Investigation findings (Initial test, diagnostic test)	Definitive management (remember ABCDE first)
Surgical	Peritonitis ↘Peptic ulcer ↘Tumour ↘Gallbladder ↘Appendix ↘Spleen ↘AAA ↘Ectopic ↘SBP	•Severe generalised abdominal pain	•Shock •No abdominal movement with respiration •Guarding •Firm, peritonitic abdomen •Rebound tenderness •Severe pain to light palpation •Percussion tenderness	•Erect CXR: air under diaphragm •CT abdo/pelvis: reveal cause	•Urgent laparotomy & repair
	Ruptured AAA	•Elderly •Severe generalised abdominal pain •Back pain •Reduced GCS/collapse	•Shock •Peritonitis •Expansile mass	•USS abdomen if freely available •CT only if stable •Don't delay theatre	•Aim for permissive hypotension (SBP~100) •Activate 'massive haemorrhage protocol' e.g. 10U •Urgent open repair (/ EVAR if stable)
	Appendicitis	•Young patient •Periumbilical pain initially •Moves to RIF •Anorexia, nausea	•Tender RIF •Worse at McBurney's point •Guarding/local peritonitis •Rovsing's +ve	*Clinical diagnosis* •USS abdo/pelvis if gynae differentials •Inflammatory markers: raised •Urine βHCG: rule out ectopic	•Appendicectomy
	Gallstones	Biliary colic •Intermittent RUQ pain •Exacerbated by fatty food Cholecystitis •Continuous RUQ pain •Murphy's +ve •Tender + guarding RUQ CBD stones •Jaundice •RUQ pain Cholangitis •Jaundice •Fever/rigors •RUQ pain Acute pancreatitis (See column)		•LFTs: obstructive picture if CBD stones/cholangitis •Inflammatory markers: raised in cholecystitis/cholangitis •Abdominal USS	Biliary colic •Analgesia •OPT Cholecystectomy Cholecystitis •Antibiotics (ciprofloxacin or cephalosporin) •Cholecystectomy (hot/6w) CBD stone •Continuous IVI (prevent hepato-renal syndrome) •ERCP Cholangitis •IV antibiotics (e.g. cipro/tazocin) •Treat cause
	Acute pancreatitis	•Severe epigastric/central pain •Radiating to back •Relieved by sitting forwards •Vomiting •History of possible cause e.g. gallstones, alcohol, trauma, surgery, medications etc	•Epigastric tenderness •Tachycardia •Fever •Shock •Jaundice •Grey-Turner's and Cullen's signs (rare)	*Clinical diagnosis* •Amylase or lipase: raised •LFTs: deranged •CT abdo if diagnostic uncertainty •Apache II / Glasgow score ↘ABG required ↘Calcium •Confirm cause ↘USS abdo (exclude gallstones in all patients) ↘Triglycerides ↘Immunoglobulins	•Supportive management •Lots of IV crystalloids e.g. 1L every 4h (third space sequestration) •Stop causative meds •No antibiotics unless proven infection •Treat cause •ITU may be required
	Diverticulitis	•Elderly •LIF pain •Pyrexia	•Tender LIF •Guarding/local peritonism •PR (confirm no CA/abscess)	•Inflammatory markers: raised •Flexible sigmoidoscopy or CT abdo/pelvis	•NBM + IV fluids •Bowel antibiotics (Cef + Met)
	Renal colic	•Spasms of loin to groin pain (excruciating) •Nausea and vomiting •Cannot lie still	•Soft abdomen •May be renal angle tenderness	•Urine dip: microscopic haematuria •KUB X-ray •CT KUB	•Diclofenac analgesia •Smooth muscle relaxants (nifedipine/tamsulosin) •Antibiotics (e.g. cefuroxime) if infection •Pelvic stone ↘<2cm – ESWL ↘>2cm – PCNL •Ureteric stone ↘<5mm - conservative ↘<1cm – ESWL ↘>1cm - ureteroscopy
	Bowel obstruction	•Vomiting (may be faeculent) •Colicky abdominal pain •No bowel motions or flatus	•Distended, tender abdomen •Tinkling bowel sounds	•AXR: distended bowel loops •CT abdo/pelvis: confirm and determine cause	•NBM + IV fluids •Wide-bore NG tube (free drainage) •Laparoscopy/laparotomy depending on cause
	Acute mesenteric ischaemia	•Age >50y •Severe abdominal pain •Diarrhoea •Risk factors: AF, CVS risk factors	•Hypovolaemia → shock •Soft abdomen (pain out of proportion to exam)	•VBG: ↑lactate •CT abdo/pelvis: ischaemic bowel •Mesenteric angiography: if required	•Aggressive IV fluids •Antibiotics (e.g. gentamicin + metronidazole) •Surgical bowel resection •Heparin may be used
	Other surgical differentials	Testicular torsion; volvulus; strangulated hernia; Meckel's diverticulum; mesenteric adenitis; adhesions; hepatic abscess; psoas abscess			

Medical	Gastritis/ peptic ulcer	•Epigastric pain •Related to meals (peptic ulcer = during meals; duodenal ulcer = before meals/at night) •Risk factors e.g. NSAIDs, alcohol, spicy food	•Tender epigastrium •Soft abdomen	•FBC: may be microcytic anaemia •Erect CXR: exclude perforation •OGD: if severe	•PPI (omeprazole PO/ pantoprazole IV) •H Pylori eradication (if +ve)
	Pyelonephritis	•Fever, chills, rigors •Loin pain •Urinary frequency and dysuria	•Loin tenderness •Renal angle tenderness	•Urine dip + culture: positive leukocytes and nitrites •Inflammatory markers: raised	•Antibiotics (e.g. ciprofloxacin or cephalosporin)
	Other medical differentials	Gastroenteritis; constipation; Crohn's disease; ulcerative colitis; MI; pneumonia; sickle cell crisis; DKA; pyelonephritis; IBS; Budd-Chiari syndrome; addisonian crisis; hypercalcaemia; acute intermittent porphyria; hepatitis			

Gynae	Ectopic pregnancy	•Severe unilateral pelvic pain •~6-8 weeks pregnant/not using contraception/missed period •Shoulder tip pain •May have spotting	•Tenderness RIF/LIF •Guarding •Adnexal tenderness ± mass •Cervical excitation	•Urinary βHCG: +ve •Serum βHCG + trend •Transvaginal USS	•Laparoscopy/laparotomy (or methotrexate if uncomplicated) •Anti-D prophylaxis (if required)
	Ovarian cyst rupture/ torsion/ haemorrhage	•Sudden unilateral pelvic pain •May be light vaginal bleeding •May be fever/vomiting	•Tenderness RIF/LIF •Guarding •Adnexal tenderness ± mass	•Transvaginal/abdo USS •Urinary βHCG: r/o ectopic	•Laparoscopy/laparotomy
	Pelvic inflammatory disease	•Bilateral pelvic pain (gradual onset) •Vaginal discharge •Dyspareunia and dysmenorrhoea •May be post-coital or inter-menstrual bleeding	•Suprapubic tenderness •Vaginal discharge, cervicitis •Bilateral adnexal tenderness •Cervical excitation •May be fever	•Inflammatory markers: raised •Triple vaginal swabs	•Broad spectrum antibiotics (e.g. metronidazole + doxycycline + quinolone)
	Other gynae differentials	Salpingitis; pregnancy; fibroid degeneration; Fitz-Hugh–Curtis syndrome; endometriosis			