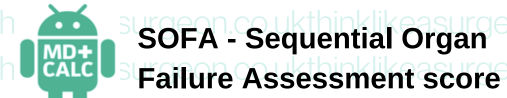
CHAPTER OVERVIEW - EPIGASTRIC REGION

This chapter covers key differentials in the epigastric region.
Perforated Duodenal ulcer, although seen infrequently since the advent of proton pump inhibitors, can be life threatening. Upper GI bleed which can present as hematemesis or melaena is covered in the GI bleeding chapter. Acute cardiac events may also present with epigastric pain therefore, an ECG is a must.
Never underestimate the pancreas. Pancreatitis can be life threatening and timely resuscitation can be the difference between mild and severe Systemic Inflammatory Response Syndrome.

CLICKABLE Calculators


SOFA - Sequential Organ Failure Assessment score

Modified Glasgow Score - Pancreatitis

Glasgow Blatchford Score

Epigastric pain +/-

1. N/V + radiation to back – Think **Pancreatitis**
2. Hematemesis – Think **Peptic Ulcer Disease – Bleeding/perforation**
3. Palpable swelling – Think **Hernia/ Hepatomegaly**
4. History of IHD – Think **M.I**

Examination:
General + Abdominal

Relevant Findings:
- Percussion Tenderness = Peritonism
- Hematemesis
- Palpable mass

Observations/NEWS
(**q-SOFA** sepsis criteria)

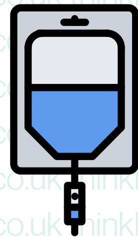
Q-SOFA Sepsis Criteria
- SBP < 100 mmHg
- GCS < 15
- RR > 22/minute

If 2/3 of the above present = SEPSIS

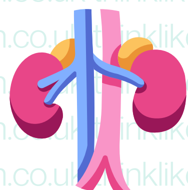
Investigations:
1. **Bloods**: FBC, U&E, LFT, Amylase, coagulation screen & G&S
2. **ECG**
3. **Radiology:** CXR

1. Peritonism +/- Sepsis (2/3 present)
2. Hematemesis +/- Haemodynamic compromise
3. ECG with new T/ST changes +/- raised Troponin

Fluid Guidelines



AKI Guidelines



YES - Urgent senior advice

While awaiting senior review – DO THIS..

1. NBM + Strict Input/output charting
2. IV Fluids (see NICE guidelines)
3. Regular Paracetamol + Opiate and PRN Morphine + Antiemetic
4. IV Antibiotics if septic/ deranged inflammatory markers*
5. Stop Anticoagulants if bleeding/Abnormal Coag
6. Follow AKI bundle if AKI**
7. Urgent medical review (ST changes)

NO - Review on ward round

1. Orally Sips only
2. AKI - IV fluids + medication review**
3. Regular Paracetamol + Opiate and PRN Morphine + Antiemetic
4. VTE Prophylaxis
5. Abdominal USS (if suspected pancreatitis)

* Refer to trust guidelines for choice of antibiotics
** Refer to trust AKI guidelines

Surgical conditions do not respect borders. This is neither a guideline nor a protocol. Just a learning resource to guide your thoughts.

ACUTE PANCREATITIS

Acute Inflammation of Pancreas resulting from acinar cell injury.

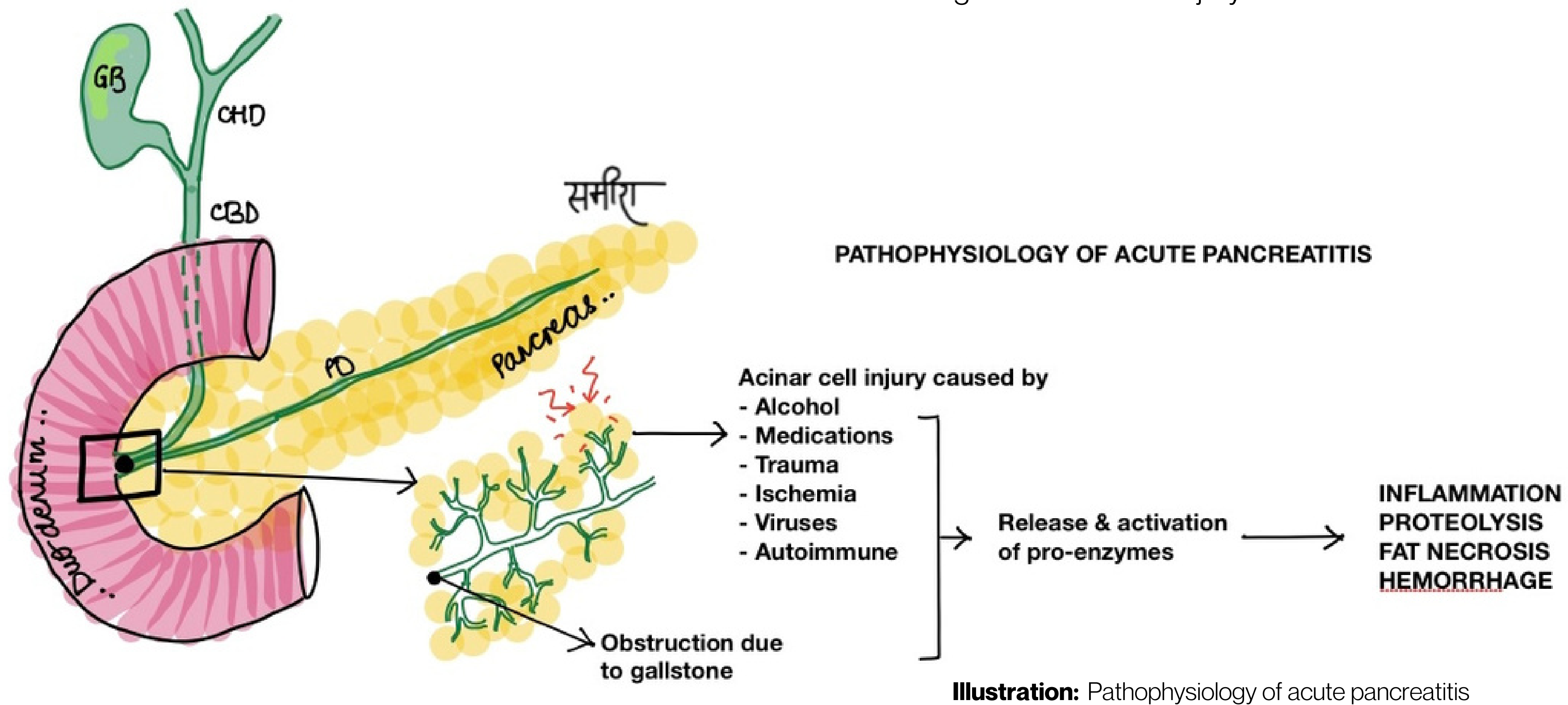


Illustration: Pathophysiology of acute pancreatitis

Common causes - **I GET SMASHED**

- Idiopathic
- Gallstones
- Ethanol
- Steroids
- Mumps/Malignancy
- Autoimmune (IgG)
- Scorpion sting
- HyPERtriglyceridemia/ HyPERcalcemia
- Endoscopic Retrograde CholangioPancreaticography
- Drugs (Metronidazole, Azathioprine, etc)

Presentation -

- Epigastric pain (Sudden, Severe, progressive and radiating to back)
- Nausea/vomiting

Examination -

- Tenderness in epigastrium + peritonism
- Signs of Systemic Inflammatory response syndrome

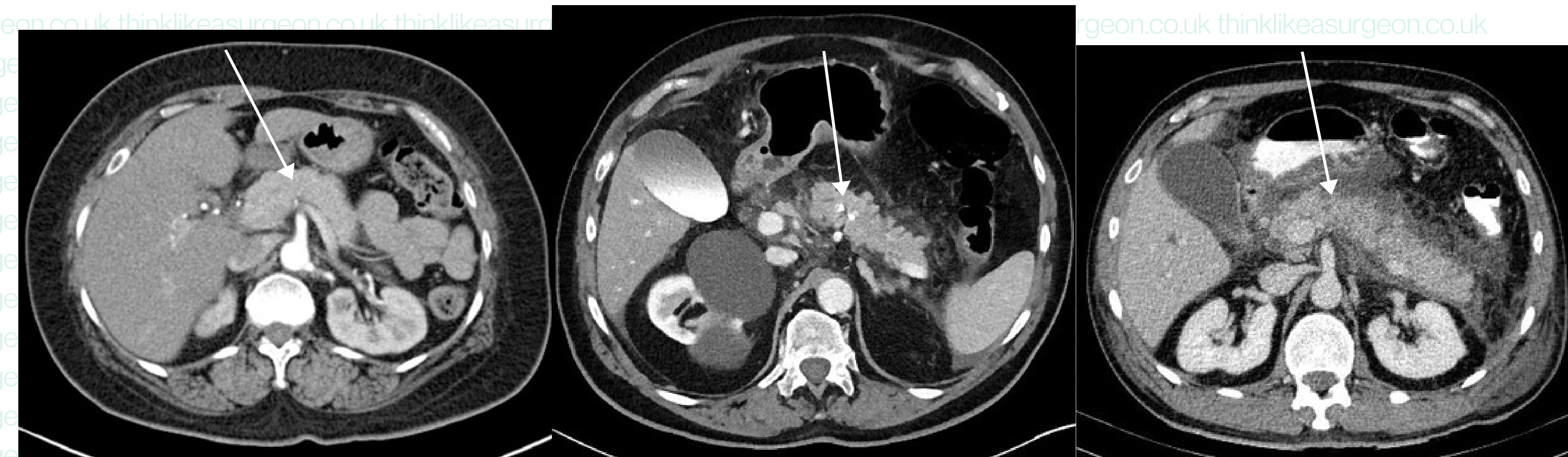
Diagnosis is based on ATLANTA classification : Two out of Three should be PRESENT

1. Typical epigastric abdominal pain
2. Serum Amylase/Lipase activity > 3X upper limit of normal
3. Contrast enhanced CT AP evidence of pancreatic inflammation

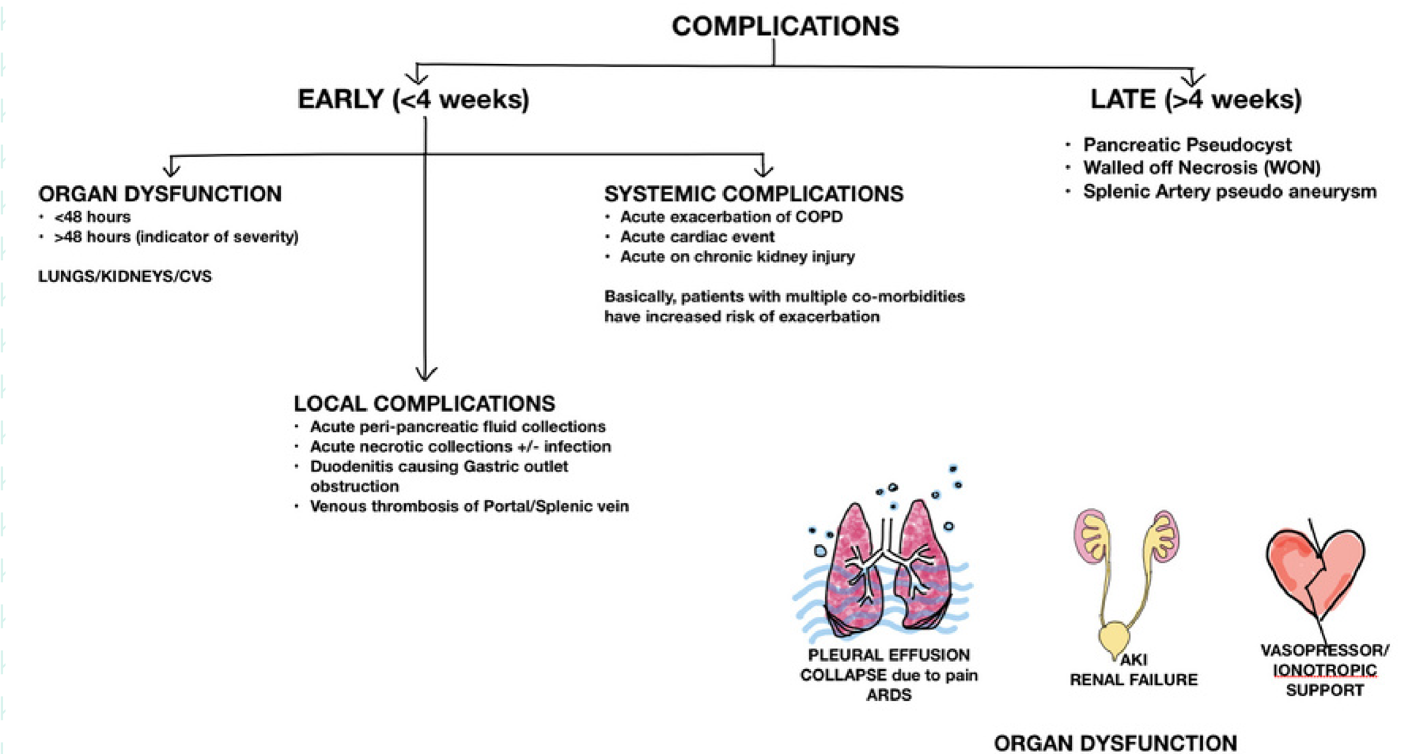
GLASGOW IMRIE SCORE

Investigations -

- Abdominal ultrasound (Helpful to assess gall stones - radio-opaque)
- CT A.P with I.V contrast helps identify complications



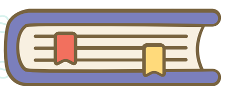
Images: Left - **Normal pancreas** (Case courtesy of Dr Ian Bickle, Radiopaedia.org, rID 51444), **Centre** - **Oedematous pancreatitis** (Case courtesy of Dr Michael P Hartung, Radiopaedia.org, rID 67123) and **Right** - **Necrotising pancreatitis** (Case courtesy of Dr Mohammad Taghi Niknejad, Radiopaedia.org, rID 62613)



Management of pancreatitis -

Assess severity based on organ dysfunction - **Modified Marshall score**

1. **Analgesia**
2. Encourage oral intake unless vomiting (Consider Ryles tube if vomiting)
3. I.V Fluids (1.5 - 2L stat followed by maintenance fluids)
4. Manage organ dysfunction:
   - **Renal** - I.V Fluids, STRICT I/O charting, Stop nephrotoxic medications
   - **Cardiovascular -** I.V FLuids, Monitor CVP, Vasopressors
   - **Respiratory** - Oxygenation, Incentive spirometer, N.I.V
5. I.V Antibiotics ONLY if signs of sepsis/ infected collection
6. Keep a low threshold for escalation to H.D.U



WORTH A READ - ATLANTA

AN INTERESTING CASE

ACID PEPTIC DISEASE - EMERGENCIES

Acute Inflammation of gastric mucosa commonly resulting in simple inflammation or ulcer formation.

GASTRITIS/OESOPHAGITIS

1. **Medication induced**

- Medication review + STOP (NSAIDs, Corticosteroids, Bisphosphonates, Calcium channel blockers, etc)
- Start **full dose PPi** for 8 weeks

2. **H.Pylori** testing -

- Testing - Serum/Stool H. Pylori antigen
- Treatment - **First line treatment**

Investigation of choice - Endoscopy - 6-8 weeks after starting treatment

- Persistent ulcer - take biopsies (Rule out malignancy)
- Barretts Oesophagus
- Symptom recurrence - low dose PPi as needed
- Lifestyle advice - smoking cessation, alcohl reduction

DUODENAL ULCER - PERFORATION

Usually a result of chronic trans-mural injury to the duodenal wall

Common causes and risk factors - (To name a few)

- Peptic ulcer disease (most common cause is H. Pylori infection & NSAID use)
- Iatrogenic injury (E.R.C.P or therapeutic upper G.I. Endosocpy)
- Hypersecretory conditions - Zollinger Ellison syndrome
- Age >65yrs, Chronic excess smoking and alcohol excess

Presentation - Sudden onset severe epigastric pain

Usually, quite unwell with haemodynamic ocmpromise

Investigation of choice -

- Chest Radiograph - Air under right hemidiaphragm
- CT AP with I.V contrast - To assess location and contamination

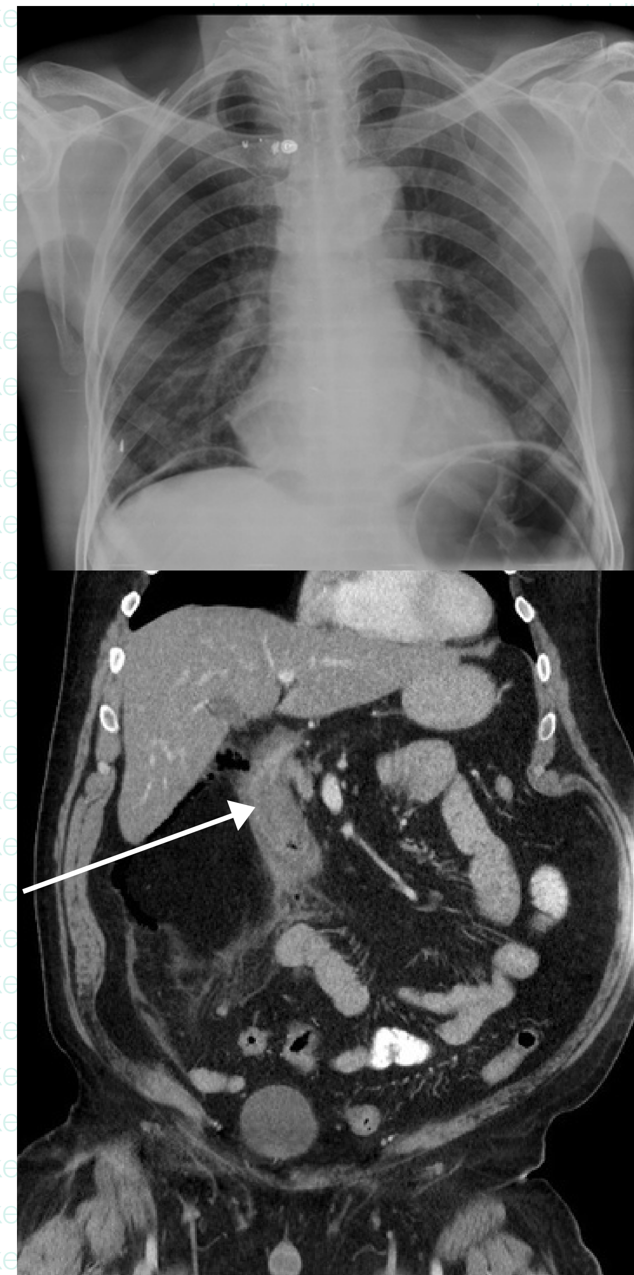
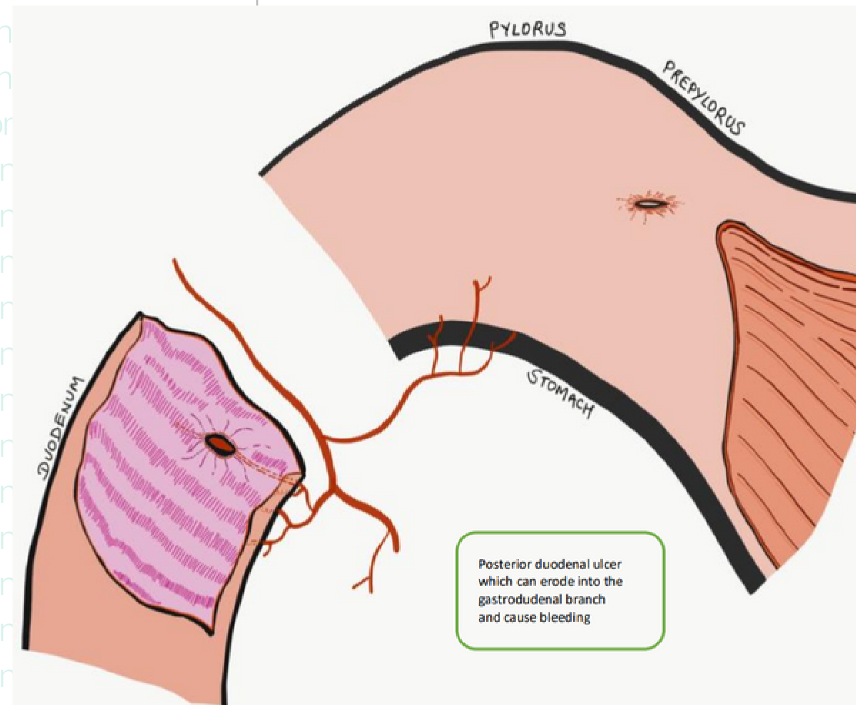


Image: Left - Pneumoperitoneum with gas under right diaphragm (Case courtesy of Dr Ayush Goel, Radiopaedia.org, rID 32812) and **Right** - Arrow at area of inflammation with surrounding air (Case courtesy of Dr Michael P Hartung, Radiopaedia.org, rID 65708)



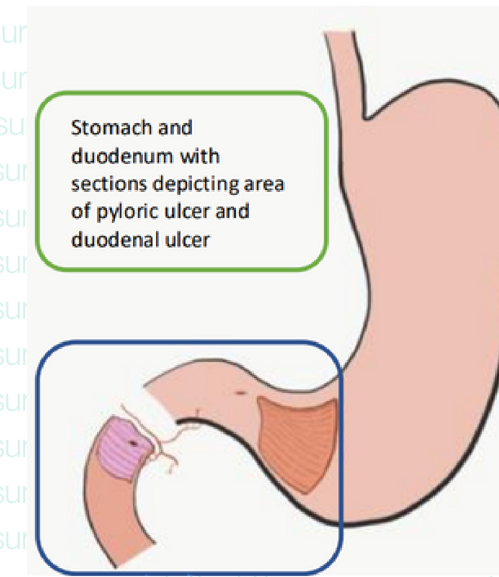
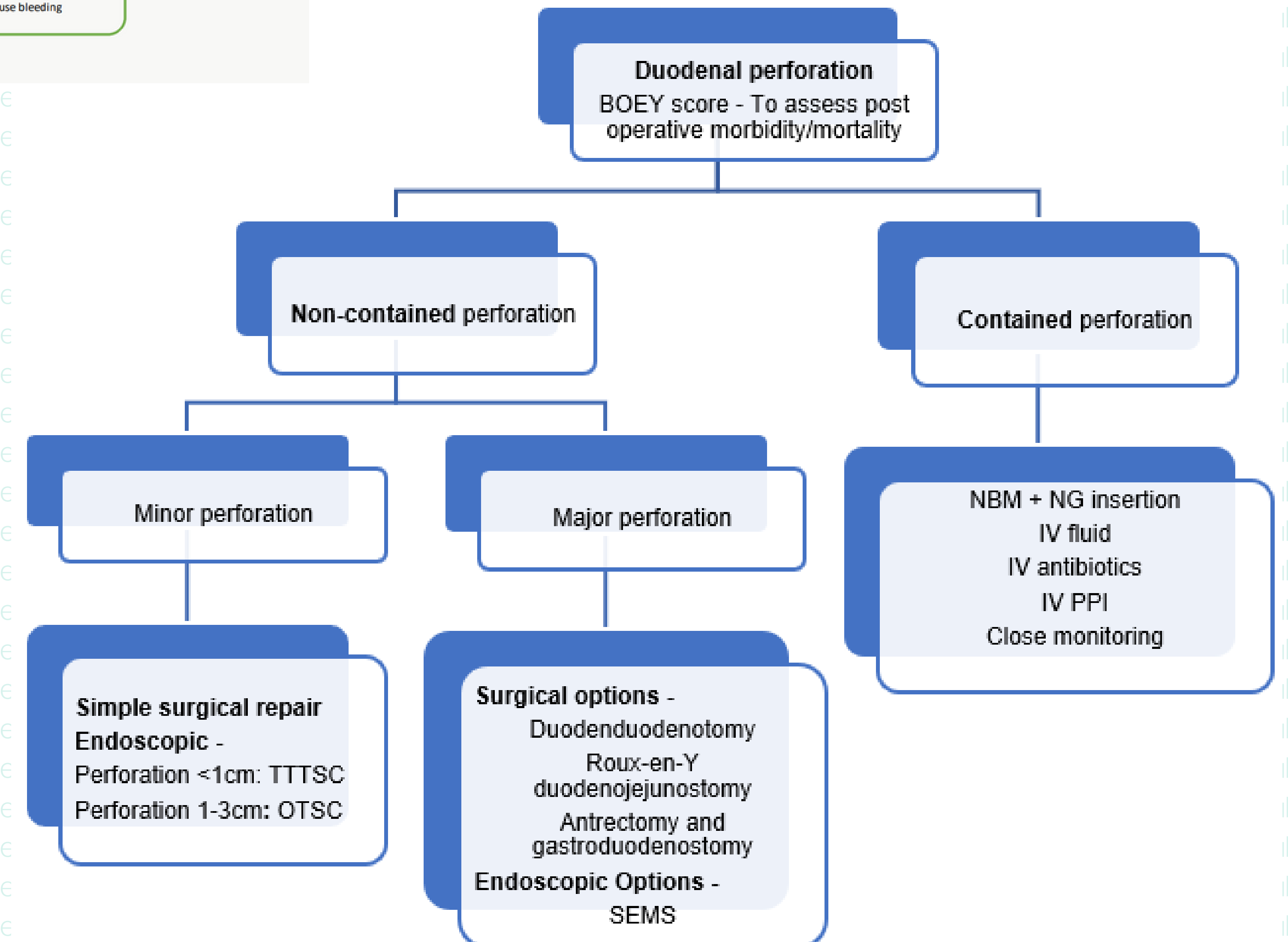


Illustration: Right - Distribution of peptic and duodenal ulcers. **Left -** Pathophysiology of bleeding in duodenal ulcers



Flowchart: Management of duodenal perforation (Daniel Ansari, William Torén, Sarah Lindberg, Helmi-Sisko Pyrhönen & Roland Andersson (2019) Diagnosis and management of duodenal perforations: a narrative review, Scandinavian Journal of Gastroenterology, 54:8, 939-944, DOI: 10.1080/00365521.2019.1647456)

Radiopaedia
AN INTERESTING CASE

WORTH A READ
DUODENAL PERFORATION

WORTH A READ - NICE
GASTRITIS/OESOPHAGITIS

Bibliography:

- Banks PA, Bollen TL, Dervenis C, Gooszen HG, Johnson CD, Sarr MG, et al. Classification of acute pancreatitis-2012: revision of the Atlanta classification and definitions by international consensus. [cited 2021 May 6]; Available from: http://dx.doi.org/10.1136/gutjnl-2012-302779
- Managing peptic ulcer disease in adults - NICE Pathways [Internet]. [cited 2021 May 6]. Available from: https://pathways.nice.org.uk/pathways/dyspepsia-and-gastro-oesophageal-reflux-disease/managing-peptic-ulcer-disease-in-adults
- Ansari D, Torén W, Lindberg S, Pyrhönen H-S, Andersson R, Tor W, et al. Scandinavian Journal of Gastroenterology Diagnosis and management of duodenal perforations: a narrative review Diagnosis and management of duodenal perforations: a narrative review. 2019 [cited 2021 May 6]; Available from: https://www.tandfonline.com/action/journalInformation?journalCode=igas20

Acknowledgement:

- **Radiopedia** – A big 'thanks' to the best radiology reference website for permitting us to link to their resources and cases. Without their valuable input, this book would be incomplete. If you wish to sign up (for free), please go to https://radiopaedia.org/?lang=gb

- **Radiology Masterclass** – A high-quality, world-class educational service providing free access to radiological tutorials. They also offer courses that cover the undergraduate imaging curriculum as specified by the Royal College of Radiologists. We have linked to a few of their courses throughout our book. If you want to further your radiological skills or get a certificate (for your portfolio) and CPD points, be sure to explore their website https://www.radiologymasterclass.co.uk/