The role of interventional radiology in acute pancreatitis

Dr Tim Fotheringham
Barts Health NHS Trust
Pancreas update 2017
Acute pancreatitis

- **Mild**  80%
  - Self limiting
  - Uneventful recovery
  - Organ failure lasting <48hrs

- **Severe**  20%
  - Organ failure lasting >48hrs
  - High morbidity and mortality
  - Prolonged hospital stay
  - Acute and chronic complications seen
  - Frequent imaging and intervention required
CT evaluation in acute pancreatitis

- Peri-pancreatic stranding
- Fluid collections
- Ileus
- Pancreatic infarction
- Splenic and portal vein thrombosis
- Splenic infarction
- Biliary dilatation
- Haemorrhage and false aneurysms
CT findings
Grade II

• Laceration disrupting the main duct in the body or tail
False aneurysm
Portal vein and splenic vein thrombosis
Prognosis

- Age
- Comorbidity
- BMI
- Metabolic derangement
- APACHE II
- Organ failure
- Pancreatic necrosis 17% mortality
- Treated infected necrosis 30% mortality
Collections organise with time
Royal London Hospital audit on necrotising pancreatitis

- March 2007 – December 2016
- 72 patients
- Mean age 50.4
- M 45 F 27
Audit

- Aetiology
  - Gallstone 32 44%
  - Alcohol 12 16.7%
  - Hyperlipidaemia 4 5%
  - ERCP 3 4.5%
  - Perforated duodenum 1
  - Idiopathic 20 27.8%
Audit

- Transferred from another unit: 54, 70%
- Mean stay: 70.4 days
- Mortality: 26.4%
Audit

• Drainages
  – 296 drainage procedures performed
  – 21 additional drains inserted in 15/54 transferred patients
  – Mean no of drains 2.54%
  – Major complication rate 1.4%
  – 4 patients required necrosectomy
    • 50% mortality in necrosectomy group
Audit

• Other interventions
  – Pleural effusions  26
  – Ascites  11
  – Biliary drainage  6
  – Embolisation  12
  – Nephrostomy  1
  – Gastrostomy  3
  – Duodenal stenting  1
Algorithm

Septic and collection on CT > 2/52

CT Guided drainage

Sepsis improves?

Yes

Fluoroscopic drain exchanges every 2/52

No

Drain upsized/exchanged

CT +/- additional drains
Drainage technique

- Performed with anaesthetic support
- CT guided insertion
  - Retroperitoneal approach preferred
  - 18-28F drain inserted
- Drain flushed and aspirated 50ml saline daily
- Fluoroscopic drain exchange at 2/52
Seldinger technique chest drain
Is the drain correctly sited?

Is the drain working?

Applying the laws of physics, the drain cannot be working.
After drain exchange
Fluoroscopic drain exchange

- Anaesthetic support
- Drain and collection opacified with contrast
- Drain exchanged/upsized
- Manipulation of drain into undrained components
- Withdrawn if bowel fistula seen
Septic week 7
Upsizing of drain week 8
Haemorrhage via drain week 8

Covered stent inserted occluding GDA
“resistant collections”
Surgical necrosectomy
Necrosectomy

• Necrotic tissue should be removed
• Significant morbidity and mortality associated with necrosectomy
• Minimally invasive techniques associated with decreased morbidity and mortality
• Well maintained large calibre drains also allow necrotic material to drain in many patients
Management of non infected collections

- Fluid collection seen on imaging
- No signs of sepsis
- Treatment for symptoms due to mass effect
- Pain
- IR treatment to deal with collection not injury to main pancreatic duct
Pseudocyst: single stage cystogastrostomy
Non infected pancreatic collections requiring treatment

• Pancreatic fluid collection, usually in lesser sac
• Organised inflammatory vascular wall
• Associated with a leak from main pancreatic duct
• Symptoms secondary to:
  – Mass effect
  – Haemorrhage
  – Infection
  – Pain
Pseudocysts treatment options

• Endoscopic drainage

• Percutaneous drainage
  – Direct cyst puncture can cause a persistent sinus
  – Transgastric drainage preferred
  – Stent placed between cysts and post stomach wall
  – Stent placement can be performed as a single stage procedure

• Surgical approach
Radiological drainage

- Initially carried out as two stage procedure
  - Stage 1 Percutaneous transgastric drainage
  - Stage 2 stent placement and drain removal
  - Procedures typically one week apart
- Single stage procedure preferred
  - Gastropexy performed to reduce anterior leak

Percutaneous cystgastrostomy as a single-step procedure.
Curry L, Sookur P, Low D, Bhattacharya S, Fotheringham T. CVIR 2009 Mar;32(2):289-95
Symptomatic lesser sac pseudocyst as seen on CT
Gastropexy

- Gastric puncture
  - 18g needle

- 2 sutures used
Cyst puncture and stent insertion
Lateral as well as AP fluoroscopy useful
Angling the sheath facilitates proximal deployment
Post procedure CT confirming stent position
Cyst resolution
Current approach

• Symptomatic collection on CT
• Choice of device
  – Plastic JJ
  – Covered metal stent 20x14mm
    • Requires endoscopic removal <6/12
• US to determine if complex collection
• Covered stent now preferred for more complex collection or early in disease when infection risk is high
Conclusion

• Wide range of image guided procedures frequently on patients with necrotising pancreatitis
• Percutaneous drainage preferred initial treatment for infected collections
• Drains need to be monitored and exchanged or upsized regularly
• Anaesthetic support required
• Necrosectomy seldom required