Management of pancreatic cystic lesions Full clinical guideline

Reference no.: CG-GASTRO/2023/027

Pancreatic cystic lesions are often an incidental finding on CT or MRI. There is currently great uncertainty amongst non-HPB specialists about who to investigate further.

Differential diagnosis of pancreatic cystic lesions:

- Non-neoplastic cysts (80%) - pseudocysts
  - retention cysts
  - simple or congenital cyst

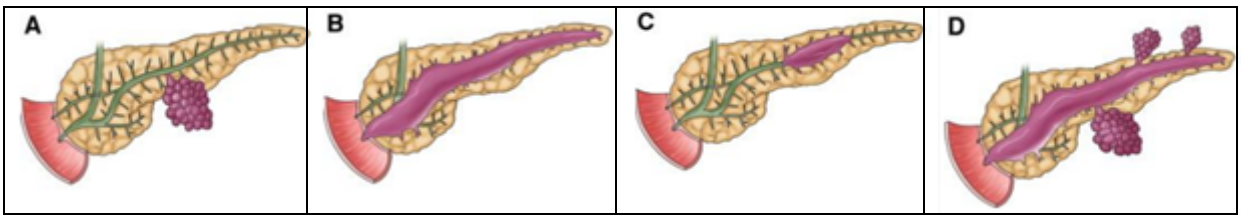
- Neoplastic cystic neoplasms (20%, but proportion increases with age)
  - Mucinous cystic neoplasms - Mucinous cystic neoplasm (MCN)
    - Intraductal papillary neoplasm (IPMN)
  - Non-mucinous cystic neoplasms - Serous cystic neoplasm (SCN)
    - Solid pseudopapillary neoplasm (SPN)
    - *Cystic neuroendocrine tumour*
    - *Acinar cell cystic neoplasm*

Characteristics of neoplastic cystic neoplasms:

	MCN	IPMN	SCN	SPN
Typical patient	Female, 5th decade	Male, 7th decade	Female, 7th decade	Female, 3rd decade
Imaging	Unifocal, unilocular	Diffusely or segmentally dilated tortuous pancreatic duct with filling defects	Conglomerate of multiple small cysts (30% have central scar)	Mixed solid and cystic components (30% will have calcification in the wall)
Cystic fluid	Thick, mucin +	Thick, mucin +	Clear	
CEA†	High	High	Low	Usually low
Amylase*	Low	High	Low	Low
Malignant potential	Up to 1/3 contain cancer but size matters (< 0.4% of those < 3cm and no nodule contain cancer)	High in main duct IPMN (70% harbour in situ or invasive carcinoma); Branch duct (10%)	Rare (1% incidence of malignancy)	These are low grade malignant neoplasms – can metastasize
Surgery recommended	Yes (invasive cancer in 15% of resected cysts)	Yes (main duct) Branch duct (depending on patient age)	No (unless symptomatic or > 4cm)	2-15% incidence of malignancy – surgery recommended

***** A raised amylase indicates connection with the pancreatic duct. Principally seen in pseudocysts and IPMN
† A raised CEA (> 192 ng/ml) is seen due to secretion from a mucinous epithelium – MCNs and IPMNs

- Benefit of surgery needs to take into account 2-6% postoperative mortality and major morbidity of 30% from pancreatic resection surgery



A = Branch duct IPMN B=Main duct IPMN C = Segmental D = Mixed

Segmental and main duct IPMN are managed as per Main duct and should be consider for surgery
Branch duct IPMN are mostly seen in the elderly and the annual rate of progression to high grade dysplasia or invasive carcinoma is low (1.4-6.9%). Depending on patient age surveillance only may be appropriate.

Important considerations are:

- **80% pancreatic cysts** are non-neoplastic and **do not require intervention or follow up** – retention, congenital and small pseudocysts. The remaining 20% **require categorisation** to identify those with malignant potential.
- **Surgery is the only accepted treatment for malignant/pre-malignant cystic pancreatic lesions** and so patients unsuitable for surgery should not be further investigated. This group includes those not willing to undergo surgery and those whose age and/or comorbidity (performance status of ≥2) precludes a laparotomy/GA. Benefit of surgery needs to take into account 2-6% postoperative mortality and major morbidity of 30% from pancreatic resection surgery.
- The outcomes for all malignant pancreatic lesions are poor and the **identification and treatment of pre-malignant (mucinous) lesions may offer hope of an improved outcome**.
- **Dedicated pancreatic cross sectional imaging can identify without the need for EUS assessment some patients** with cystic lesions requiring **surgery** (those with main duct Intraductal Papillary Mucinous Neoplasm – IPMN and Solid Pseudopapillary neoplasm - SPN) **and others who can be reassured and discharged** without further investigation with low malignant potential (serous cystic neoplasm/ adenoma –SCN).
- **EUS assessment and sampling can differentiate those cysts that cannot be confidently labelled on cross-sectional imaging** such as mucinous cystic neoplasm - MCN (early surgery) from small side branch IPMN (surveillance) and non-neoplastic unilocular cysts (discharge)

Questions to be answered:

1. Is the patient a candidate for (performance status 0-1) and willing to consider major pancreatic surgery? If no then do not proceed
2. What type of cyst is it?
   Good quality dedicated pancreatic protocol cross-sectional imaging can reliably diagnose serous cystadenoma SCN, solid pseudopapillary tumour SPN and main duct or mixed IPMN. See appendix 1. EUS not usually required to further characterise these lesions.
3. Is the cyst already malignant?
   Presence of high-risk features – see flowchart - discuss surgery
4. If not, what is its malignant potential?
   If not confidently identified as SCN, SPPN or main duct/mixed IPMN then offer EUS and cyst aspiration in all cysts >2cm diameter. EUS reporting must identify presence/absence of the listed worrisome features. Aspiration must report the string sign and send for CEA assessment. Amylase and cytology may also be requested ONLY if sufficient fluid aspirated.

Three stage MDT approach

Stage 1: Referral vetted by HPB CNS or Cons against agreed criteria.

Ask referrer to organise a dedicated pancreatic scan (MRI under 50, CT over 50) if not already done and track result within MDT forum

Arrange EUS in surgical candidates with cysts >2cm if:

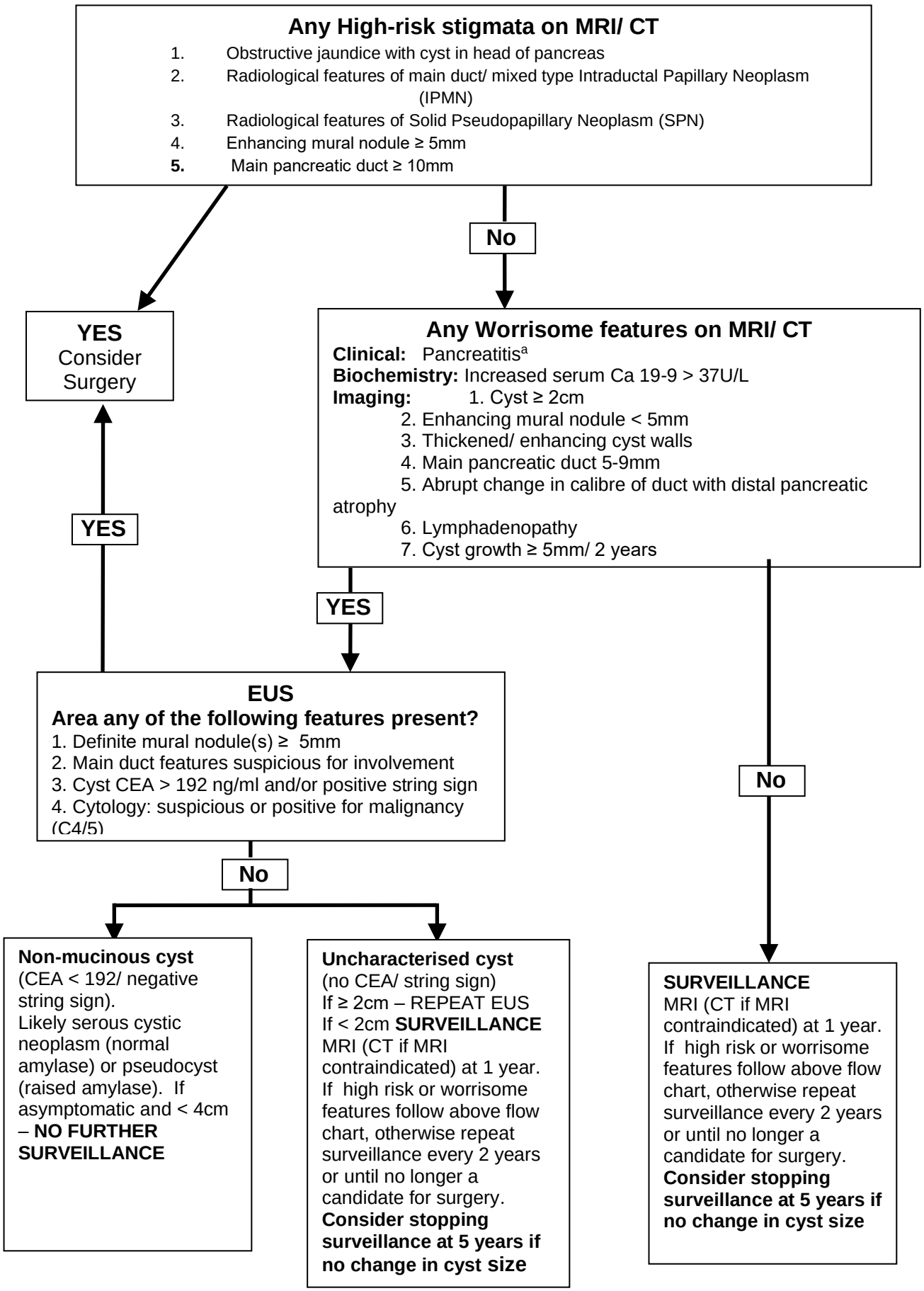
High risk stigmata requiring immediate consideration of surgery **are absent** AND cannot on CT/MR be confidently labelled SCN, SPPN or main duct/mixed IPMN

Stage 2: EUS standard: String sign, cyst fluid for CEA, amylase and cytology in that order

Stage 3: HPB MDT discussion

Management of pancreatic cystic lesions in patients who are potentially an operative candidate

(such patients are typically < 80 years with no significant co-morbidity and performance status 0 or 1)



Documentation Controls **(these go at the end of the document but before any appendices)**

Reference Number CG-GASTRO/2023/027	**Version:** 2		**Status** Draft or Final	Final
Version / Amendment History	Version	Date	Author	Reason
	2	2022	Liver Management Group	Previous version of guideline expired
Intended Recipients: All clinicians managing patients with liver disease				
Training and Dissemination: Forms part of liver handbook which is disseminated to all clinicians rotating through Hepatology				
Development of Guideline: **Job Title: Dr A Lawson (Consultant Hepatologist)**				
Consultation with: Liver management group – Cross-site teams				
Linked Documents: State the name(s) of any other relevant documents				
Keywords: Pancreatic cysts, pancreas, cyst, IPMN				
Business Unit Sign Off:			**Group:LMG + cross-site teams** **Date: 24.03.2023**	
Divisional Sign Off			**Group:Medicine Division** **Date:Nov 23**	
Date of Upload			November 2023	
Review Date			November 2026	
Contact for Review			Dr A Lawson	