

Longitudinal follow-up of patients with double duct dilatation following endoscopic ultrasound

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Background

- **Double duct dilatation (DDD)** refers to dilatation of both the common bile duct (CBD) and pancreatic duct (PD)
- It can be a sign of underlying **pancreaticobiliary malignancy**
- The follow-up of patients with DDD after initial assessment with endoscopic ultrasound (EUS) lacks consensus
- This study conducted a longitudinal review of patients with DDD following index EUS that did not show malignancy

Aims

Identify the **prevalence** of malignant pancreaticobiliary pathology in patients with DDD after negative index EUS

Identify other potential predictors of pathology from patient characteristics and risk factors

Methods

- **Retrospective analysis**
- Tertiary care centre
- Patients with DDD on **EUS** between **2015** and **2021**
- Review of: imaging reports / procedure reports / clinical notes / clinic letters
- Definitions of duct dilatation
 - $CBD \geq 8\text{mm}$
 - $PD \geq 4\text{mm}$

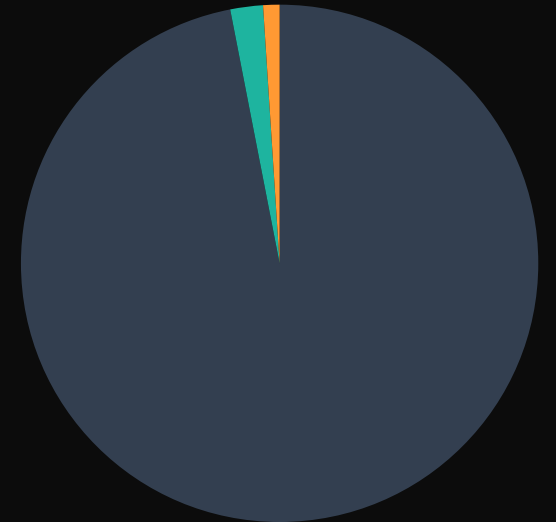
Methods

Baseline characteristics

- Age
- Sex
- Clinical features at presentation
 - Jaundice
 - Biliary pain
 - Weight loss
 - LFTs
 - CA19-9

Results

- **97** patients referred for EUS following DDD on cross-sectional imaging with no visible mass
- Following negative index EUS, pancreatic adenocarcinoma was subsequently identified in 3%
 - In 2% this was via re-investigation of new clinical findings (no follow-up investigations performed prior to presentation with new clinical features)
 - In 1% this was through follow-up surveillance imaging
- Patients with malignancy had at least one of **biliary pain / weight loss / jaundice**



Results: Follow-up period

- Median follow-up period was 37 months (range 2-85 months)
- Time from index EUS to malignant diagnoses were 26 days, 98 days, and 35 months

Baseline characteristics

Presenting symptoms:

- Biliary pain (57%)
- Abnormal LFTs (44%)
 - **18% of these also had jaundice**
- Weight loss (28%)
- Jaundice (12%)

Other risk factors:

- Opioid use (35%)
- Previous cholecystectomy (25%)
- Previously diagnosed chronic pancreatitis (8%)
- Previous ERCP (6%)

Results

Benign pathology identified:

- Benign ampullary stenosis (30%)
- Benign papillary fibrosis (9%)
- Microlithiasis (9%)
- IPMN (6%)
- Chronic pancreatitis (4%)
- Benign hypertrophy (3%)
- Choledocholithiasis (3%)
- SOD type 1 (2%)

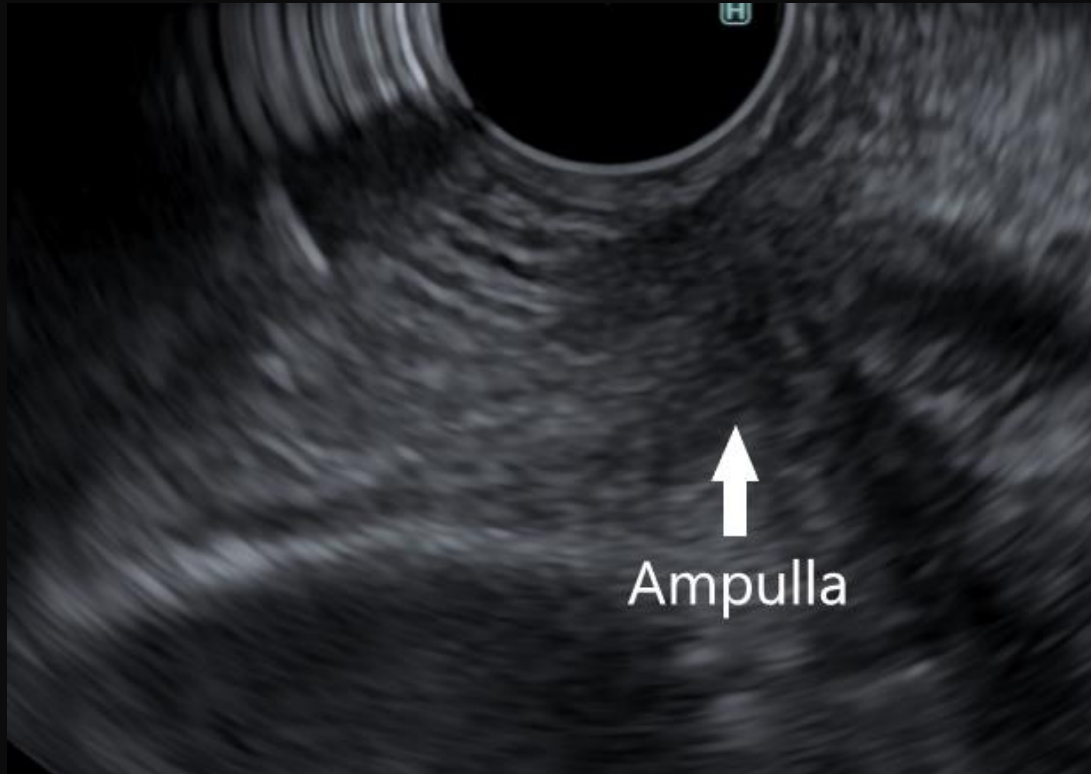
3% of patients had subsequent malignant diagnosis during follow-up period

- **pancreatic duct adenocarcinoma** (2%)
- **adenocarcinoma of the ampulla of Vater** (1%)

Case A

- Presented with new onset **jaundice** and **abnormal LFTs**
- **Bili** 111 **ALT** 314 **ALP** 504
- Background: prostate cancer treated with SABR radiotherapy
- No mass or metastatic disease on cross-sectional imaging
- EUS showed DDD, diagnosed with **gallstones**, microlithiasis
- Jaundice did not resolve after ERCP and had surveillance via **monitoring of LFTs**
- Developed secondary cholecystitis requiring percutaneous drainage
- Ongoing symptoms → repeat EUS ampullary biopsies diagnosis adenocarcinoma within **26 days** of index EUS

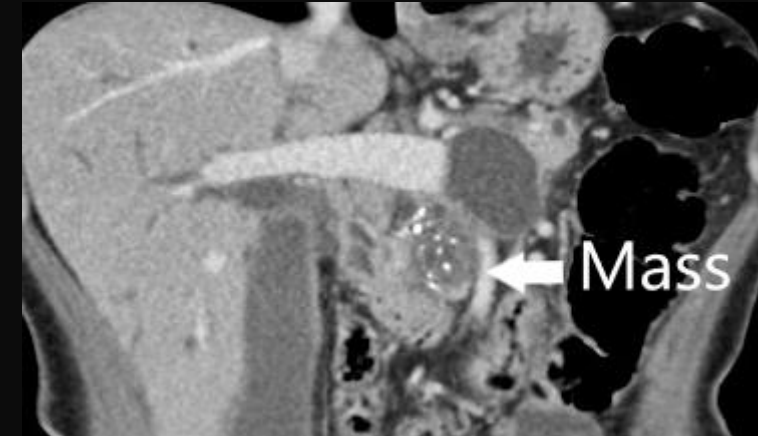
Case A



EUS and endoscopic views of abnormal ampulla after patient represented with symptoms

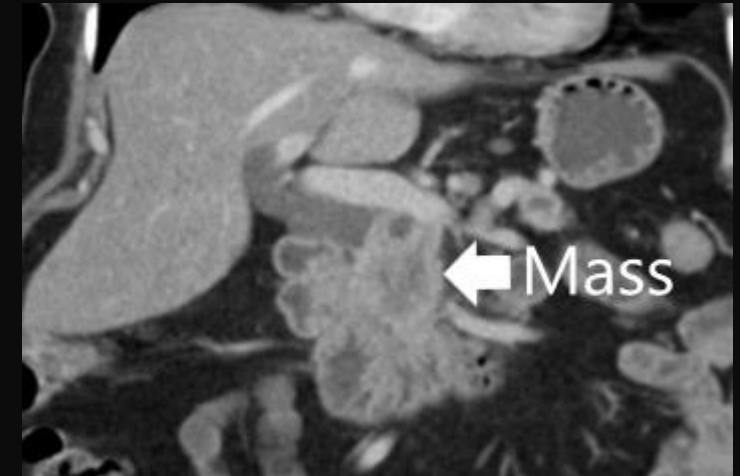
Case B

- Referred via GP under 2 week wait with **unexplained weight loss**, reduced appetite, recurrent nausea, **change in bowel habit**, PR bleed
- Cross-sectional imaging and subsequent EUS both suggested **chronic pancreatitis**
- Re-presented within **98 days** with a 3 week history of **pruritus** and **jaundice** with deranged LFTs, repeat CT abdomen **showed** progressive changes concerning of a **mass lesion**
- Diagnosed with adenocarcinoma of the pancreatic head



Case C

- **Incidental finding** of DDD on cross-sectional imaging found on CT thorax for work-up of longstanding cough
- Index EUS showed **benign papillary stenosis**
- Managed conservatively as asymptomatic and discharged without further follow-up
- Re-presented **34 months** later with upper abdominal pain
- CT abdomen at this time showed T3N1M1 adenocarcinoma of the pancreas with hepatic metastasis



Discussion

- DDD is a concerning sign for underlying pancreaticobiliary malignancy
- Health service **increasingly dependent** on cross-sectional imaging with increasing number of incidental findings of DDD
- For patients with no obvious mass at index EUS (making malignancy less likely) - lack of guidance on evaluation and monitoring

Discussion

- The likelihood of malignant pancreaticobiliary pathology following isolated DDD and negative index EUS is **low**
- Most cases are due to **benign** disease
- Low threshold for reassessment is advised for new clinical or biochemical findings

Areas for further research

- Test ways to help establish **a calculatable risk** based on risk factors in patients with DDD on imaging
- Future research could support this study with a multi-centre or nationwide cohort study with a larger sample size

Conclusion

3%

Headline finding of **3%** of patients in this study with DDD developing malignant pancreaticobiliary pathology in the follow-up period

Low threshold needed for reinvestigation if new clinical / biochemical findings

References

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