

Management of Extrahepatic Biliary Strictures Part I

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Introduction

- **The most common cause of extrahepatic biliary stricture is malignancy.**
- While the most common cause of extrahepatic biliary stricture is malignancy, **benign pathologies should always be considered and all efforts should be made to get a histopathological Dx before proceeding to surgery (however reaching a definitive dx is not always possible).**
- In the next few slides, we are going to discuss the recent guidelines for the management and diagnosis of biliary strictures which have been **published by the British Society of Gastroenterology (Jan 2024) and the American College of Gastroenterology (March 2023).**
- We will highlight the role of cross sectional imaging , endoscopy and different biliary drainage protocols.

Radiology

- **Before undertaking any endoscopic investigations for a suspected CCA**, all patients should have **undergone a triple-phase CT scan of the abdomen/pelvis and chest** along with dynamic MRI and MRCP if proximal biliary obstruction is suspected (thin slice CT acquisition with coronal and sagittal reconstruction).
- **It is quite important to perform all the radiological Ix before any intervention (EUS or ERCP) as post ERCP pancreatitis can change the whole imaging appearance and make the local assessment of vascular structure very challenging.**
- PET scan can be used for primary staging.

A- Stricture due to operable dCCA/Pancreatic CA with no evidence of Jaundice.

Recommendation 14: In a suspected case of operable distal CCA, in the absence of jaundice, a standalone EUS should be undertaken first, to avoid the complications of ERCP, which could delay or render the patient inoperable.

Diagnosis: extrahepatic stricture

Recommendation

1. In patients with an extrahepatic biliary stricture due to an apparent or suspected pancreatic mass, we recommend EUS with fine-needle sampling (aspiration or biopsy; FNA/B) over ERCP as the preferred method of evaluating for malignancy (strong recommendation, moderate-quality evidence).

B-Stricture due to operable dCCA with evidence of Jaundice.

Recommendation 13: Patients with operable distal malignant tract obstruction (DMTO) should undergo a combination of endoscopic US and endoscopic retrograde cholangiopancreatography (ERCP) to try to confirm a malignant histological diagnosis before proceeding to surgery.

B-Stricture due to operable dCCA with evidence of Jaundice.

Recommendation 15: In the presence of jaundice and DMTO, where EUS is not available, patients may only be able to have an ERCP and brush cytology in the first instance to confirm the presence of a CCA.

B-Stricture due to operable dCC with evidence of Jaundice.

Recommendation 18: The decision to drain preoperative jaundice in distal CCA causing DMT0 should be made in accordance with local HPB guidance. In cases where rapid access to surgery can be offered, it may be appropriate to bypass biliary drainage at ERCP to avoid ERCP-related complications and postoperative sepsis.

In selected patients, including those with acute cholangitis, severe pruritus, very high serum bilirubin levels, and those undergoing neoadjuvant therapy or experiencing another anticipated delay to surgery, preoperative biliary drainage is warranted.

Role of EUS

- **The first endoscopic objective** is to establish **the presence of malignant histology/cytology** to allow the patient to proceed to Whipple's resection with a confirmed cancer diagnosis if operable.
- That is, a distal malignant stricture, where the objective is to drain jaundice and acquire a pathological malignant diagnosis, **a combination of linear EUS fine needle biopsy (FNB) fine needle aspiration (FNA) and ERCP-directed trans papillary brushings and stenting should be undertaken.**
- **For suspected ampullary lesions, a side viewing duodenoscopy with surface biopsies** should establish the diagnosis and be considered the first-line investigation if suspected from the primary imaging.
- FNA can be taken from the stricture or any adjacent LNS.

Brush Cytology

- For those patients proceeding to ERCP, the simplest method of tissue sampling (is to acquire a cytological diagnosis using biliary brushings and cytological examination.
- Recent meta-analysis suggests that brush cytology provides, at best, the correct cytological diagnosis **with a sensitivity of 45% and a specificity of closer to 99%** .
- It is recommended that **the stricture is brushed more than five times with one brush** to improve cellular yield and that additionally, **the brush is flushed out to optimise** cellular yield.
- Another method of **sampling the bile duct during ERCP is to obtain intraductal forceps biopsy** specimens of the stricture by either wire guidance or fluoroscopic guidance. These samples are placed straight into formalin and, like brushing, **offer sensitivity of around 50%, but in combination with brushings a higher sensitivity may be reached.**

C. Inoperable dCCA

Recommendation 19: Patients with DMTO with inoperable disease from distal CCA should undergo an EUS/ERCP or standalone ERCP to confirm a pathological diagnosis and have their jaundice palliated.

Drainage

- In patients with an extrahepatic stricture due to a **benign condition, we recommend fully covered self-expanding metallic stent (fcSEMS) placement over multiple plastic stents (MPSs)** in parallel to reduce the number of procedures required for long-term treatment.
- An extrahepatic biliary stricture due to benign **condition should be treated for 12 months when using multiple plastic stents and for at least six months when using fcSEMS**, although some evidence suggest that 12 months of fcSEMS is advantageous. **When aiming for 12-month fcSEMS dwell time, stent exchange at 6 month mark should be considered to reduce risk of embendement.**
- In patients **with benign biliary strictures and GB insitu, endoscposists should consider placing multiple PS over fcSEMS if the cystic duct orifice can not be avoided** by metallic prosthesis due to possible increased risk of cholecystitis.

Drainage

- Various etiologies found that the fcSEMS was non-inferior to the MPS in **terms of stricture resolution (92.6% vs 85.4%) but was associated with faster time (181 vs 225 days) and fewer ERCPs to resolution.**
- **This same study demonstrated more complications associated with fcSEMSs, largely attributable to post-ERCP pancreatitis, which can be due to the lack of biliary sphincterotomy before self-expanding metallic stent (SEMS) placement,** thus, biliary sphincterotomy in this context may be advisable.
- **MPSs continue to play an important role for the treatment of benign strictures in several scenarios:**
 1. **Strictures close to the hepatic hilum (within 1–1.5 cm);**
 2. **When the gallbladder is present, but the cystic duct orifice cannot be avoided by the fcSEMS**
 3. **Previously migrated fcSEMSs or not well tolerated**
 4. **When recurrence after fcSEMS removal has occurred (vs repeat fcSEMS with longer dwell or surgical referral).**

EVALUATION OF BENIGN STRICTURE AFTER STENTING

- Cholangiographic resolution of the stricture—**defined as a residual diameter of the stricture no less than 75% the size of duct above and below**—has been shown to be an independent predictor of long-term response and was used as the primary outcome.
- Other investigators have proposed **complete disappearance of the stricture and/or the ability to maneuver an extraction balloon across the region of the stricture with minimal to no resistance** (especially in the upstream direction) as an indicator of treatment success.
- **Absence of a mechanically relevant stenosis at the time of stent removal**, has emerged as the preferred end point.

Malignant Stricture

- In patients with a malignant extrahepatic biliary stricture that is **unresectable or borderline resectable, we recommend SEMS placement over PS placement**. This recommendation also applies to patients with extrahepatic biliary stricture **attributable to a resectable malignancy who will undergo pre-operative neoadjuvant therapy**.
- **A diagnosis of malignancy should be confirmed before placement of an uncovered SEMS (uSEMS) across a biliary stricture.**
- In patients with a malignant extrahepatic biliary stricture who are potential candidates for pancreaticoduodenectomy and undergo uSEMS placement, we suggest placing the proximal (upstream) end of the prosthesis at least 1.5 cm below the biliary confluence.
- In patients with a malignant extrahepatic biliary stricture that is unresectable or borderline resectable, the evidence is insufficient to recommend for or against uSEMS vs fcSEMS placement.

References

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