



Bile Duct Strictures and Cancers (Cholangiocarcinoma)

Bile Duct Strictures

Symptoms:

- Jaundice: Yellowing of the skin and eyes due to impaired bile flow.
- Pruritus (itching): Bile salt buildup in the skin can cause itching.
- Dark urine: A result of bilirubin excretion in the urine.
- Pale stools: Due to lack of bile in the intestines.
- Abdominal pain: Often in the upper right quadrant, due to bile duct inflammation or obstruction.
- Weight loss and anorexia: In advanced cases.
- Fever and chills: If an infection (cholangitis) is present.

Causes:

- Chronic inflammation:
- Post-surgical or post-procedural complications:
- Bile duct stones:
- Infections:
- Trauma:
- Tumors:

Chronic biliary diseases: Chronic bile duct infections or cholelithiasis (gallstones).

- Liver fluke infections: Cirrhosis:
- Tobacco use:
- Chronic hepatitis B or C infection:
- Obesity:
- Age and gender:

Diagnosis and Investigation of Bile Duct Strictures and Cancers

- Blood test: Liver function tests (LFTs), Tumor marker CA 19-9, Complete blood count (CBC)
- Abdominal Ultrasound
- CT scan (Contrast-enhanced)
- MRI/MRCP
- Endoscopic Ultrasound (EUS)
- Endoscopic Retrograde Cholangiopancreatography (ERCP)
- Positron Emission Tomography (PET) Scan
- Biopsy



- Fine Needle Aspiration (FNA)
- Brush cytology

Management of Bile Duct Strictures

- Endoscopic therapy
- Surgical intervention
 - Biliary bypass surgery
 - Stricture resection
- Steroid therapy
- Malignant Strictures
- Palliative stenting

Surgical resection

- Surgical resection is the only potential curative option for early-stage cholangiocarcinoma.

Advanced Robotic/Laparoscopic surgery

Whipple procedure (pancreaticoduodenectomy)

Benefit of Robotic surgery:

1. Smaller Incisions & Less Trauma

Robotic surgery uses small keyhole incisions rather than a large open cut.

Benefits:

- Less damage to muscles and tissues
- Reduced postoperative pain
- Lower risk of wound infections

2. Greater Precision and Dexterity

The robotic system provides surgeons with:

- High-definition 3D magnified vision
- Wristed instruments that mimic the human hand with greater rotation
- Tremor filtration for extremely delicate movements

3. Reduced Blood Loss

Better visualization and instrument control often lead to:

- Fewer intraoperative injuries
- Lower need for transfusions

4. Shorter Hospital Stay

- Hospital stays are often shorter compared with open surgery
- Faster return to normal activities

5. Lower Risk of Certain Complications

- Reduced wound complications
- Fewer pulmonary complications
- Lower surgical site infection rates

6. Better Lymph Node Retrieval in Some Cases

Robotic systems may allow more meticulous lymph node dissection, which is important for accurate cancer staging and potentially better outcomes.

7. Improved Surgeon Ergonomics:

- Better surgeon endurance during long pancreatic operations
- Potentially improved surgical performance

Liver resection

Chemotherapy and Radiotherapy

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