

BACKGROUND

- Cholangioscopy in surgically altered anatomy can be technically challenging.
- Most common approach for patients with a Whipple undergoing single-operator cholangioscopy → through a percutaneous biliary drain placed by interventional radiology.
- We present a case in which a modified therapeutic upper endoscope (1T scope) was used for single-operator cholangioscopy in a patient with prior pancreaticoduodenectomy.

CASE DESCRIPTION

- 64-year-old female with Gardner syndrome requiring colectomy and classic pancreaticoduodenectomy for an ampullary adenoma 10 years prior presented for surveillance endoscopy.
- Previously underwent EMR + RFA of adenomatous tissue at HJ anastomosis. She then developed an anastomotic stricture needing sequential dilations.
- A 1T scope was used and advanced to the HJ anastomosis.
- After biliary cannulation, cholangioscopy was performed and revealed abnormal biliary mucosa 2 cm below the bifurcation, raising concern for intraductal extension of adenomatous tissue (Figure 1).
- Cholangioscopy-directed biopsies were obtained. Pathology revealed tubular adenoma.
- Intraductal RFA is planned in the future.

Endoscope	Advantages	Limitations
Conventional Side-Viewing Duodenoscope	<ul style="list-style-type: none"> ✓ Largest channel size ✓ Allows for more therapeutic interventions ✓ Side-view to facilitate locating hepaticojejunostomy 	<ul style="list-style-type: none"> ✗ Challenging to reach biliary limb due to acute small bowel angulations and stiffness
Adult & Pediatric Colonoscope	<ul style="list-style-type: none"> ✓ Largest working length ✓ Variable stiffness to help reduce looping ✓ Forward view to facilitate reaching anastomosis 	<ul style="list-style-type: none"> ✗ Smaller and longer working channel (certain accessories incompatible) ✗ Inability to perform short wire technique
Single Balloon Enteroscopy	<ul style="list-style-type: none"> ✓ Ability to advance to longer lengths ✓ Forward viewing camera ✓ Similar tip angulation to adult or pediatric colonoscopy 	<ul style="list-style-type: none"> ✗ Less maneuverability ✗ Smaller working channel (certain accessories incompatible) ✗ Inability to perform short wire technique
1T Therapeutic Upper Endoscope	<ul style="list-style-type: none"> ✓ More maneuverable and flexible than previous therapeutic gastroscope ✓ Working length of 103 cm, Channel size of 3.7 cm ✓ Accommodates almost all accessories as conventional side-viewing duodenoscope ✓ Forward viewing ✓ Allows for short wire technique ✓ Allows for single operator cholangioscopy in prior pancreaticoduodenectomy 	<ul style="list-style-type: none"> ✗ Lack of an elevator ✗ Occasional inability to reach biliary limb and HJ anastomosis due to its length

Table 1: Advantages and Limitations of various endoscopes in surgically altered anatomy



Figure 1: Intraductal extension of adenomatous tissue seen on cholangioscopy

DISCUSSION

- ERCP can be challenging in patients with prior Whipple surgery.
- Various endoscopes used for ERCP in altered anatomy have different advantages and limitations (Table 1).
- Colonoscopes and balloon enteroscope do not allow for performing single-operator cholangioscopy due to the length of the scope or the width of the accessory channel.



1T endoscope allows for performing single-operator cholangioscopy in patients with prior pancreaticoduodenectomy when the HJ anastomosis can be reached.

