Quality in Endoscopy: ERCP

ERCP in altered anatomy

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CO2 as insufflation gas

- Reduces post-procedure pain
- Reduces in-procedure bowel distension
- Improves the intubation efficacy in balloon enteroscopy
- Eliminates explosion hazard of diathermic current
Post ERCP bowel distension

Bretthauer et al, Endoscopy 2007
BAE intubation depth (cm)

- Upper:
  - CO2: 293 cm
  - Air: 223 cm

- All:
  - CO2: 223 cm
  - Air: 177 cm

Domagk et al, Endoscopy 2007
Surgical twists to consider

- Billroth-II resection
- Standard Whipples resection
- Pylorus-sparing Whipple
- Roux-Y and hepaticojejunostomy
- Roux-Y post gastric resection/B-II
- Gastric bypass bariatric surgery
- (Duodenal switch bariatric surgery)
Billroth II sphincterotomy
Whipples resection
Altered anatomy
- general issues

• Balloon-assisted enteroscopy allows access to previously inaccessible anatomy

• Accurate knowledge of actual surgery performed is crucial
  – Type of anastomoses
  – Lengths
  – Time of surgery (if recent)
  – Surgeon...

• Recent surgery and adhesions may limit DAE navigation
Roux-Y hepaticojejunostomy
Enterocanastomosis in hepaticojejunostomy
Roux-Y
Roux-y positioning
Anastomosis – typical en-face aspect
Narrow anastomosis at an angle
Anastomotic necrosis
Anastomotic necrosis
Anastomotic necrosis
Stent for stricture
Balloon dilation
Bariatric surgery and upper GI endoscopy

• B-II from hell...
• Options: Gastric bypass or duodenal switch
• Gastric bypass
  – Most prevalent procedure
  – Access to biliary tree and excluded stomach difficult but possible from above or below
• Duodenal switch
  – For the extremely obese
  – Access to gastric remnant easy
  – Access to biliary tree impossible (?)
Gastric bypass issues

- Easy going initially
- Lengthy travel down to entero-enteric anastomosis
- No directional issues, if the view is clear
- Lengthy roux-Y limb, including Treitz passage
- Cumbersome access to intact papilla of Vater.
- Access to the gastroduodenal lumen also relevant
Gastric bypass bariatric surgery
Negotiating an intact papilla
Negotiating the intact papilla
Endotherapy

• Increasingly adapted equipment available
• Even with good accessories: Limited navigational precision
• Added utility with retractable endoscope
  – Removal of multiple fragments (polyposis or piecemeal resections)
  – Fluoro-guided SEMS placement
  – Exchange to adapted endoscope
Current ERCP accessories

- Extra length 600cm 0.035 guidewire
- Cannulation catheter
- Wire sphincterotome
- Needle knife sphincterotome
- Plastic stents (7fr)
- Dilation balloon
- Extraction balloon
- Extraction basket (foreign body basket)
- (cap)
Altered anatomy ERCP

Annual activity (N=153)

- Projected
- Actual

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Balloon assisted ERCP

Access numbers

• 153 procedures in 94 patients
• Median age 54 (range 1,8 – 81)
• Enteric loop access: 136/153 (89%)  
• Biliary access: 108/153 (70%)
• Attempts:
  – 1: 62
  – 2: 13
  – 3: 13
  – 4: 5
  – 6: 1
## Balloon-assisted ERCP

**Surgical situation**

- Roux-Y hepaticojejunostomy: 102 (liverTX 72)
- Standard roux-Y: 20 (bariatric 11)
- Whipple resection: 16
- Gastric bypass roux-Y: 13
- Billroth II: 2
Balloon-assisted ERCP

Indications

• Gallstone disease 36
• Anastomic stricture 26
• Cholestasis/stenosis 26
• Cholangitis 22
• Stent exchange/removal 14
• Leak/fistula 7
• Pancreatic disease 2
• Misc 20
Balloon-assisted ERCP Therapy

- Balloon dilatation 24
- Stent removal 21
- Stone extraction 18
- Stent insertion 13
- Sphincterotomy 12
- Needle knife access 5
- Misc 4
- No therapy 41
About surgery…

- Male 70; previous cholecystectomy (1958), postop leak and roux-Y diversion
- Recently cholangitis, MRCP consistent with stones
- Referred for roux-Y ERCP
Conclusions

- Balloon-assisted enteroscopy has improved our access to previously "impossible" anatomy
- Most Roux-Y loops are readily available
- Bariatric surgery remains a challenge
- Improved tools are needed for enteroscopy ERCP.

- Alternatives should be considered (PTC, laparoscopy...)

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"Not that balloon you idiot..."