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Inpatient Management of Post-ERCP Complications

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Disclosures

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• No financial relationships to disclose
Endoscopic Retrograde Cholangiopancreatography

- Endoscopic technique in which a specialized side-viewing upper endoscope is guided into the duodenum, allowing for instruments to be passed into the bile and pancreatic ducts.

https://gi.org/topics/ercp-a-patients-guide/.
Indication for ERCP

- Jaundiced patient suspected of having biliary obstruction, acute biliary pancreatitis with concomitant cholangitis or biliary obstruction
- Without jaundice with clinical and biochemical or imaging data suggest pancreatic duct or biliary tract disease
- Suspected malignancy
- Duct disruptions
Pancreatitis

Hi Pancweas!

I maked these!

you like dem?
Case #1

38 year old AAF

PMH: Asthma, anxiety and HTN
PSH: None

Presented to ER for sudden onset RUQ abdominal pain

Work-up
Case #1 Results

Intermittent chest pain that randomly radiates into her abdomen since miscarriage 9 months ago
Non-bloody emesis
Pain worsening since eating a taco yesterday

AST 21, Tbili 0.3, Dbili <0.1, Alk phos 63, WBC 6.2, lipase 51
(reference range 0-60 IU/L) afebrile, hemodynamically stable

BP 130/60 | Pulse 77 | Temp 37.1 °C (98.8 °F) | Resp 18 | Ht 1.549 m (5' 1") | Wt 77.1 kg (170 lb) | LMP 11/12/2019 (Exact Date) | SpO2 99% | BMI 32.12 kg/m² | OB Status Having periods | Smoking Status Never Smoker | BSA 1.76 m²
Case #1 Results

**RUQ US IMPRESSION:**
Cholelithiasis without sonographic evidence of acute cholecystitis. The liver is sonographically unremarkable.

**Physical exam:** Positive for chest pain, abdominal pain, nausea, emesis, and back pain

**12 lead EKG:** Sinus Brady 49 BMP, normal QT and QRS interval
Case #1 Continued

- Treatment
- Plan
- Follow up
Case #1...

10 days later presented to the ER for 10/10 substernal chest pain radiating into upper abdomen (R>L)

BP 183/86 | Pulse 86 | Temp 36.6 °C (97.9 °F) | Resp 18 | LMP 12/27/2019 (Exact Date) | SpO2 98% |

Lipase 36 (reference range 0-60), AST 757, ALT 446, Tbili 1.7, Dbili 0.9, Alk phos 90, WBC 4.5
Case #1...

- Imaging
- Treatment
- Plan/Follow up
Intraoperative Cholangiogram Images
Case #1...

- ERCP consent
Case #1
Case #1
Case #1

- A retroperitoneal microperforation was seen after sphincterotomy.
- Treated by placing a transpapillary fully covered metal stent and further closing the defect with 3 hemostatic clips.
| Case #1 | Liver enzymes downtrending | Negative for peritoneal signs | Diet advanced | Discharged home with GI follow up |
Case #2

71-year-old male
PMH: HTN, HLD, OSA, GERD, Cholecystectomy 10 years prior

Presented to PCP with anorexia and weight loss for the past 2-3 weeks

ALT 542, AST 324, T bili 2.6, ALP 1556, lipase 56 (reference range <82 IU/L), Acute hepatitis panel negative
Ultrasound: The common bile duct measures 1.0 - 1.6 cm
Case #2

Short segment focal stricturing of the mid to distal common bile duct with associated moderate intrahepatic biliary ductal dilatation
Case #2

- **ERCP**
  - Severe biliary stricture was found in the middle third of the main bile duct; this is concerning for malignancy
  - Biliary sphincterotomy performed and a small amount of sludge swept from the duct
  - A single fully covered metal stent was placed into the common bile duct with avid flow of bile after deployment
Case #2

8/10 abdominal pain that radiates to both flank sides and lower back, is sharp, nausea and vomiting

WBC 12, ALT 516, AST 324, Tbili 5.6 (direct 3.3), ALP 1151, lipase 1370 (reference range <82 IU/L)

Inflammation of the pancreatic head and uncinate process may be related to recent ERCP with stent placement. Peripancreatic fat stranding. Adjacent inflammation of the second and third part of the duodenum.
## Risk Factors for PEP

### Independent risk factors for post-ERCP pancreatitis identified with multivariable analysis

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>Odds ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient-related</strong></td>
<td></td>
</tr>
<tr>
<td>Prior post-ERCP pancreatitis</td>
<td>8.7 (3.2 – 23.86)</td>
</tr>
<tr>
<td>Female sex</td>
<td>3.5 (1.1 – 10.6)</td>
</tr>
<tr>
<td>Previous recurrent pancreatitis</td>
<td>2.46 (1.93 – 3.12)</td>
</tr>
<tr>
<td>Suspected sphincter of Oddi dysfunction</td>
<td>1.91 (1.37 – 2.65)</td>
</tr>
<tr>
<td>Younger patient age (&lt;40 years old) 30 vs 70 years old</td>
<td>1.8 (1.27 – 2.59) 2.14 (1.413.25)</td>
</tr>
<tr>
<td>Absence of chronic pancreatitis</td>
<td>1.87 (1.003.48)</td>
</tr>
<tr>
<td>Normal serum bilirubin</td>
<td>1.89 (1.222.93)</td>
</tr>
<tr>
<td><strong>Procedure-related</strong></td>
<td></td>
</tr>
<tr>
<td>Difficult cannulation (&gt;10 minutes)</td>
<td>1.76 (1.13 – 2.74)</td>
</tr>
<tr>
<td>Repetitive pancreatic guidewire cannulation</td>
<td>2.77 (1.79 – 4.30)</td>
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<tr>
<td>Pancreatic injection</td>
<td>2.2 (1.60 – 3.01)</td>
</tr>
<tr>
<td>Pancreatic sphincterotomy</td>
<td>3.07 (1.64 – 5.75)</td>
</tr>
<tr>
<td>Endoscopic papillary large-balloon dilation of an intact sphincter</td>
<td>4.51 (1.51 – 13.46)</td>
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</tbody>
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Case #2

Treatment

Monitoring

Follow up
Case #3

69 year old Caucasian male

PMH: No significant past medical history
PSH: inguinal hernia repair, colonoscopy, tonsillectomy

Presented to ER with complaints of abdominal pain x 3 weeks and blood in his urine
Case #3

Work up

Imaging vs Endoscopy
The Role of Endoscopy in the Evaluation of Suspected Choledocholithiasis

Symptomatic patients with cholelithiasis

Likelihood of CBD stone based on clinical predictors

- Low
  - Laparoscopic cholecystectomy
  - No cholangiography

- Intermediate
  - OR
  - Laparoscopic IOC or Laparoscopic ultrasound

- High
  - Preoperative ERCP

If positive or if unavailable

Negative

Positive

OR

Laparoscopic cholecystectomy

Laparoscopic common bile duct stone exploration

Post-operative ERCP

Preoperative EU5 or MRCP
Case #3

- MRI/MRCP
Case #3
Case #3

POD 1 C/O bloody BM this morning and lightheadedness

<table>
<thead>
<tr>
<th></th>
<th>HOD 1</th>
<th>HOD2</th>
<th>HOD 3</th>
<th>HOD 4</th>
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<tbody>
<tr>
<td>WBC</td>
<td>6.7</td>
<td>7.7</td>
<td>10.3</td>
<td>14.8</td>
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<tr>
<td>RBC</td>
<td>5.86</td>
<td>5.43</td>
<td>5.40</td>
<td>4.00</td>
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<tr>
<td>Hgb</td>
<td>18.1</td>
<td>16.5</td>
<td>16.6</td>
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<td>HCT</td>
<td>54.1</td>
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<td>Plt</td>
<td>169</td>
<td>168</td>
<td>202</td>
<td>217</td>
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</tbody>
</table>
Case #3
Other Potential Complications...

INFECTION

STENT INDUCTED
Adverse events associated with ERCP
