

### Introduction

- Endoscopic retrograde cholangiopancreatography (ERCP) is both diagnostic and therapeutic mainstay for evaluating and treating post-cholecystectomy bile leaks.
  - The goal is to decompress the biliary system by diverting the flow of bile away from the defect site to allow the leak site to heal.
- In this case series, we present 5 cases of post-cholecystectomy bile leaks with Jackson-Pratt (JP) drains in situ during their initial ERCP
- On review of the ERCP fluoroscopic images, we confirmed that the tip of the JP drains were in proximity (within 1 cm) or right against the site of contrast extravasation in all 5 cases.

### Table Summary of Cases

Case Index	Patient demographic	Type of Bile leak	1 <sup>st</sup> ERCP Interventions	2 <sup>nd</sup> ERCP Interventions	3 <sup>rd</sup> ERCP Interventions	4 <sup>th</sup> ERCP
1	42 YO female	Strasberg A BL from CD	BES + Single PS (JP drain left in place)	Persistent BL on ERCP 4 weeks later. SEMS placed. (JP drain left in place)	Persistent BL on ERCP 4 weeks later. Single PS placed (JP drain retracted by endoscopist.)	*BL resolved on ERCP 4 weeks later
2	58 YO male	Strasberg A BL from CD	BES + Single PS (JP drain left in place)	Persistent BL on ERCP 1 week later. Two PS placed. (Surgical team retracted JP drain)	*BL resolved on ERCP 4 weeks later.	N/A
3	75 YO female	Strasberg A BL from CD	BES + Single PS (JP drain left in place)	Persistent BL on ERCP 6 weeks later. SEMS placed. (Surgical team retracted JP drain)	*BL resolved on ERCP 23 weeks later.	N/A
4	69 YO male	Strasberg A BL from CD	7Fr Single PS (JP drain left in place)	Persistent BL on ERCP 1 week later. BES+ 10 Fr Single PS placed. (JP drain removed by surgeon on same day post ERCP.)	*BL resolved on ERCP 5 weeks later.	N/A
5	72 YO male	Strasberg D BL from CHD	BES + incomplete stone extraction + Single PS (JP drain left in place)	Persistent BL on ERCP 1 day later. Stone extraction with Spyglass with EHL + Two PS (JP drain left in place)	Persistent BL on ERCP 8 weeks later. SEMS + two PS placed. (Spyglass cholangioscopy found abutting JP drain had eroded into CHD. Surgeon repositioned the JP drain on same day.)	*BL resolved on ERCP 22 weeks later.

YO: Years old. CD: Cystic duct. CHD: Common hepatic duct. BES: Biliary endoscopic sphincterotomy. PS: Plastic stent. SEMS: Self-expandable metal stent. EHL: Electrohydraulic lithotripsy. JP: Jackson Pratt. BL: Bile leak. \*Jackson Pratt drain was removed prior to time of ERCP.

### Fluoroscopic Images of Case Index 1

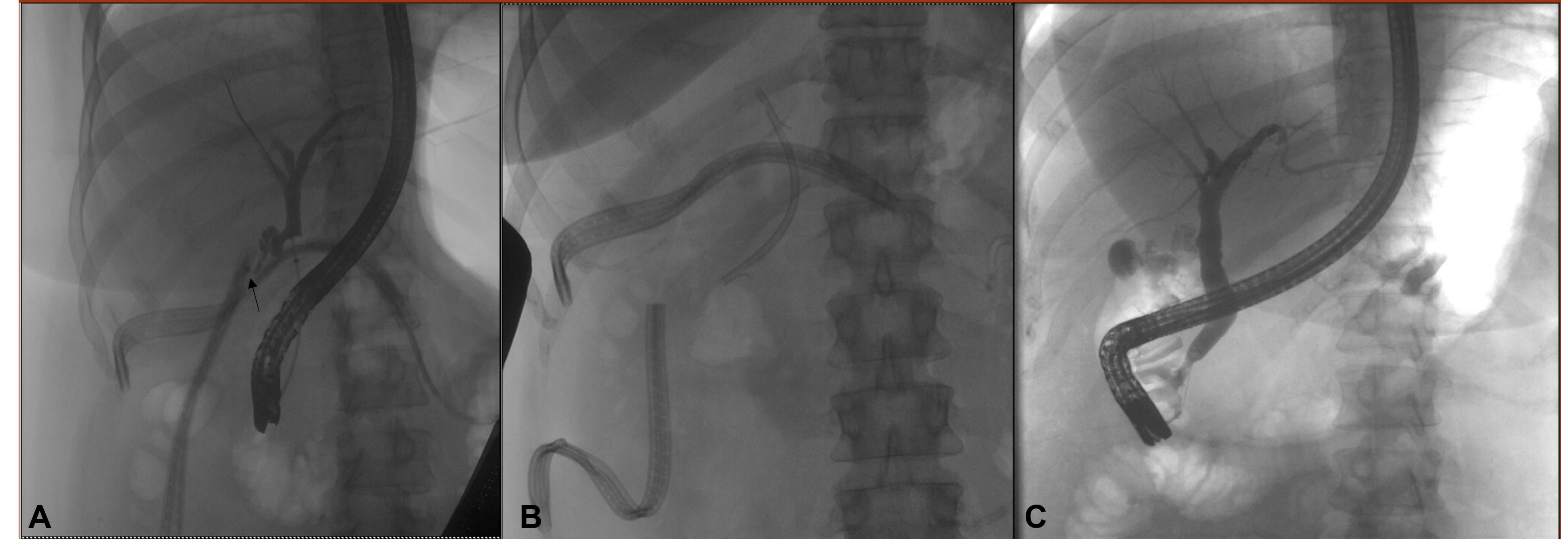


Image A : A persistent bile leak is seen at the cystic duct stump (arrow) draining directly into the Jackson Pratt drain with its tip abutting the site of leakage during the patient's 3<sup>rd</sup> ERCP. The biliary metallic stent had been removed at time of this fluoroscopic image.  
 Image B: A plastic biliary stent was placed. The Jackson Pratt drain was pulled back.  
 Image C: The cystic duct bile leak resolved during the 4<sup>th</sup> ERCP. Prior to this ERCP, the patient had both abdominal drains removed by her surgical team due to low output.

### Endoscopic Images of Case Index 5

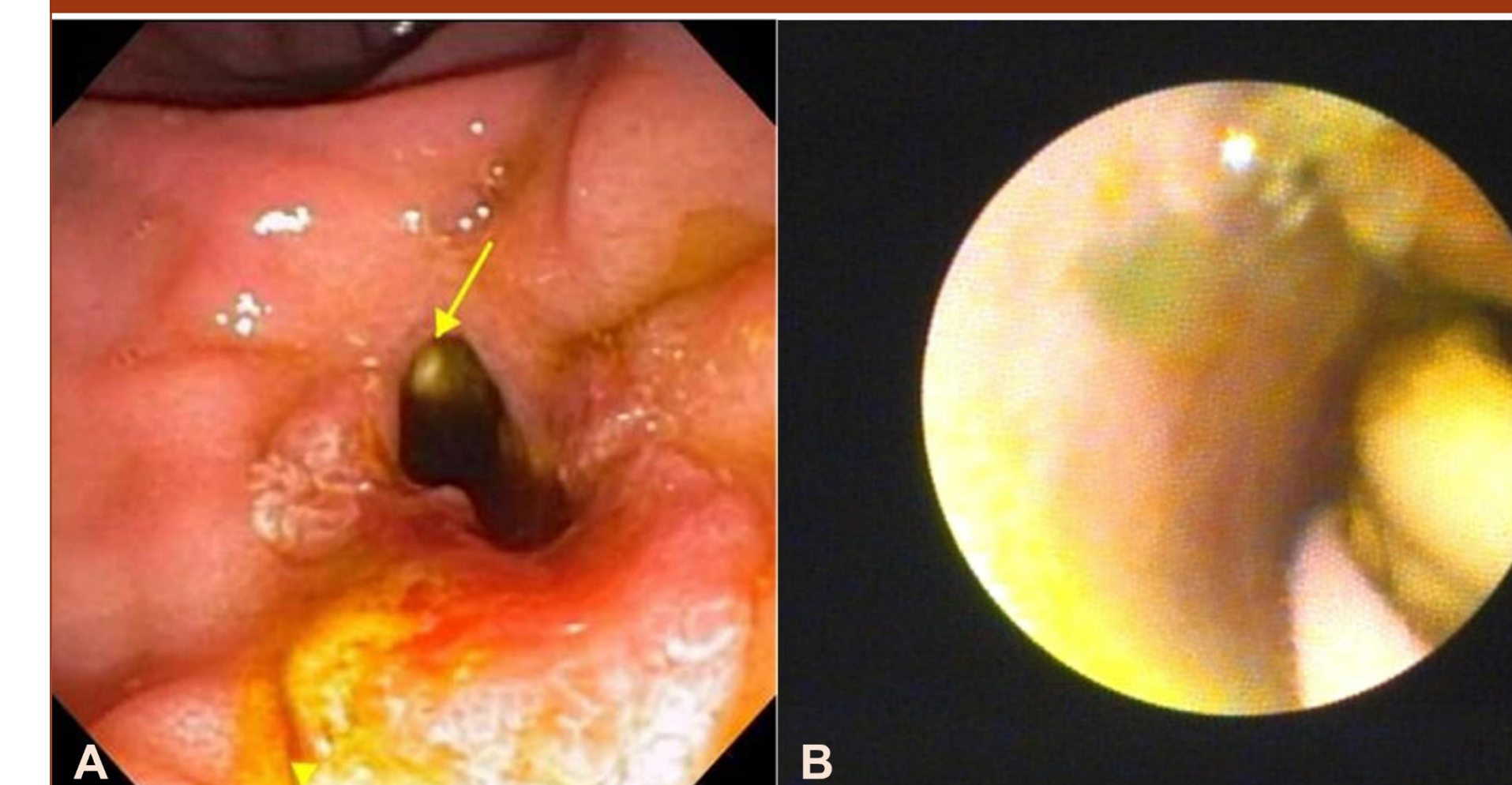


Image A: Abdominal drain visible within the common hepatic duct (yellow arrow).  
 Image B: Abdominal drain visible within the common hepatic duct on Spyglass cholangioscopy.

### Discussion

- From these cases, we observed that a JP drain abutting onto the site of BL can create a bigger pressure gradient between the bile duct defect and the drain, making ERCP interventions less effective for promoting transpapillary bile flow. This can be remedied by withdrawing the JP drain by 1-3cm.