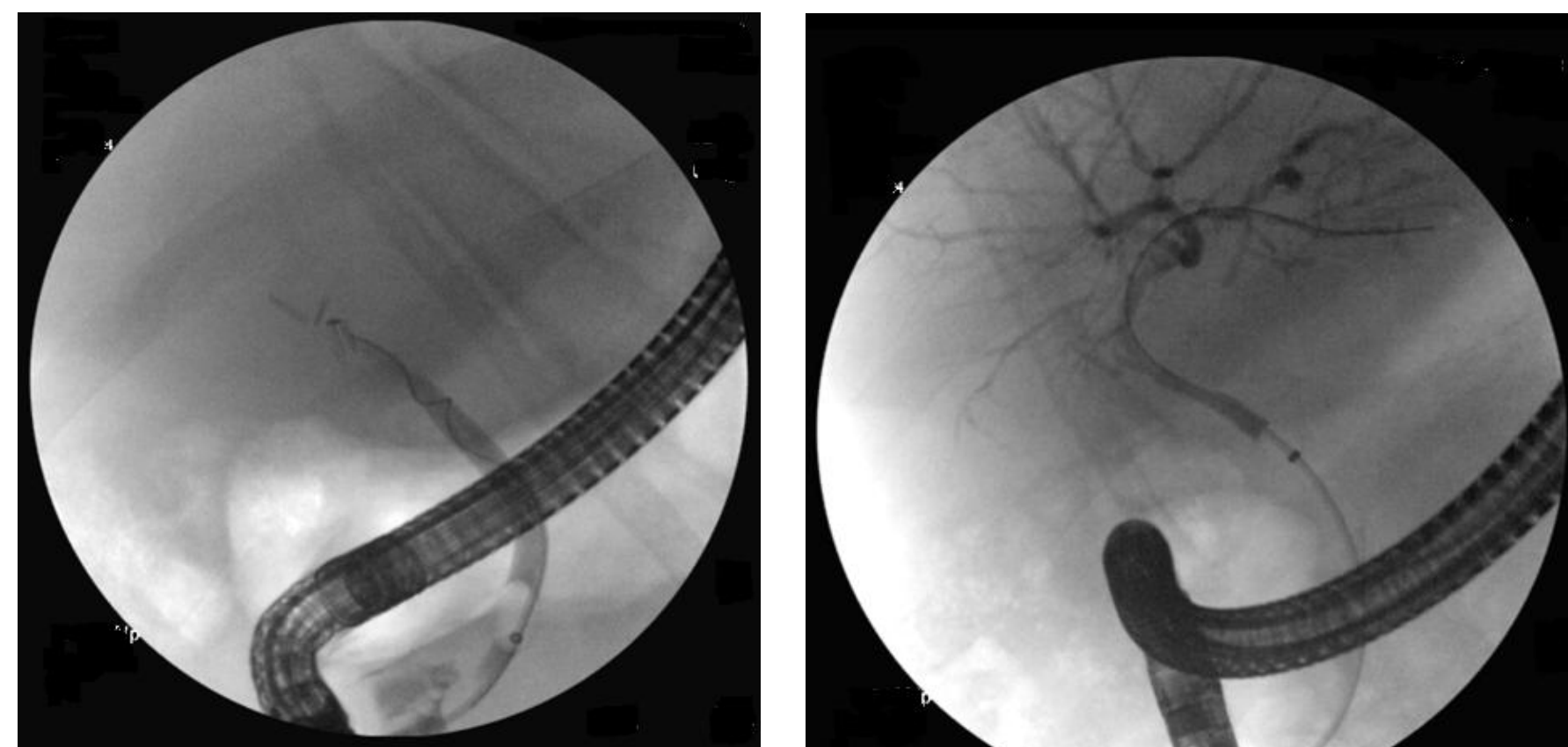


Abstract

Common bile duct (CBD) occlusion secondary to inadvertent application of surgical clip is usually managed with endoscopic or surgical exploration. In this case-series, we describe a novel approach of management of these patients by simultaneous endoscopic and laparoscopic method. **Methods:** Three consecutive patients diagnosed with complete or near-complete obstruction of CBD following laparoscopic cholecystectomy (LC) were identified for inclusion. **Results:** All the patients presented between 5- 7 days following LC. The diagnosis of obstructed CBD was established by ERCP. The guidewire failed to negotiate across the obstruction in one of these patients. In another patient, guidewire could be passed, but a biliary stent could not be deployed across the obstruction. In a third patient, only a single biliary stent (7F x 15) could be placed across the obstruction. Simultaneous ERCP and laparoscopy was performed immediately to remove the clips and/ or sutures from the bile-duct followed by the placement of biliary stents in all the patients. All the patients were asymptomatic at the follow-up ranging from 6-12 months. **Conclusion:** Concurrent endoscopic and laparoscopic approach for the management of acute iatrogenic CBD obstruction is associated with improved and rapid recovery.

Introduction

Common bile duct (CBD) occlusion secondary to inadvertent application of surgical clip is one of the serious complications of cholecystectomy. Diagnosis is usually established during Endoscopic retrograde cholangiopancreatography (ERCP), however if diagnosed in early post-operative period, multiple sessions of endoscopic therapy is often required. Failure of initial attempt at endoscopic therapy warrants either percutaneous transhepatic cholangiography and/or surgical exploration. In this case-series, we describe a novel approach of management of these patients by simultaneous endoscopic and laparoscopic method.



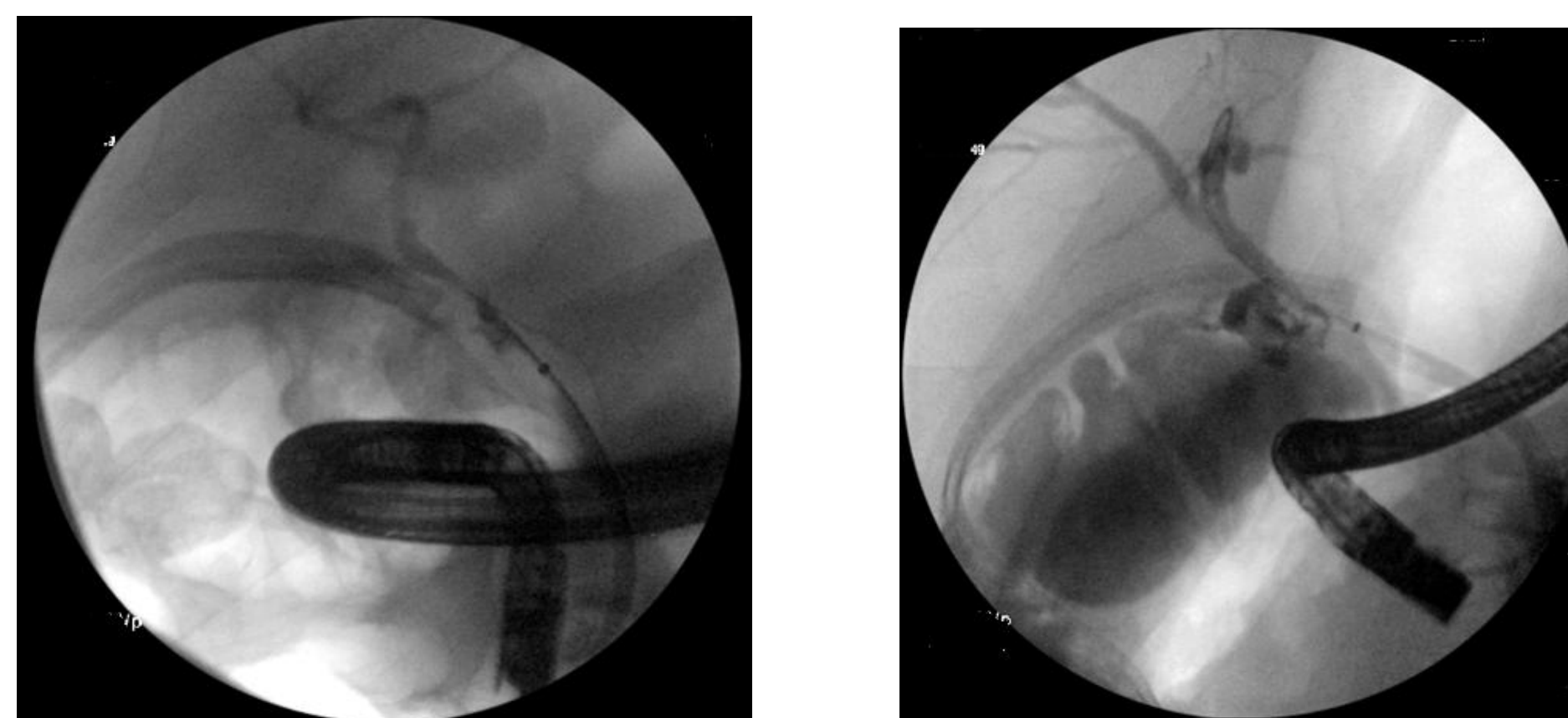
1a
Fig.1a: Complete occlusion of CBD at the level of surgical clips.
b: ERCP following laparoscopic removal of surgical clips demonstrates bile leak at the site of surgical clips.

Case-1

A 46 year old Caucasian male patient presented 6 days after laparoscopic cholecystectomy (LC) with upper abdominal pain and jaundice. Liver function tests (LFT) were suggestive of cholestasis. ERCP revealed complete obstruction of common hepatic duct (CHD). Guidewire could not be advanced across the obstruction despite multiple attempts. Laparoscopy for possible surgical staples removal on CBD combined with simultaneous endoscopic biliary stent placement was performed. Two clips applied on CBD were identified during laparoscopy and subsequently removed. This was followed by ERCP which revealed complete filling of biliary tree and bile leak at the site of surgical clips. Biliary stent (5F x 11) was placed through the CHD. He was asymptomatic 16 months after the procedure and LFT's were normal.

Case-2

A 61 year old Caucasian male patient was referred for bile leak 5 days after undergoing LC. Significant obstruction of CBD was seen at the level of cystic stump on ERCP. Guidewire could be passed, but a biliary stent could not be deployed across the obstruction.

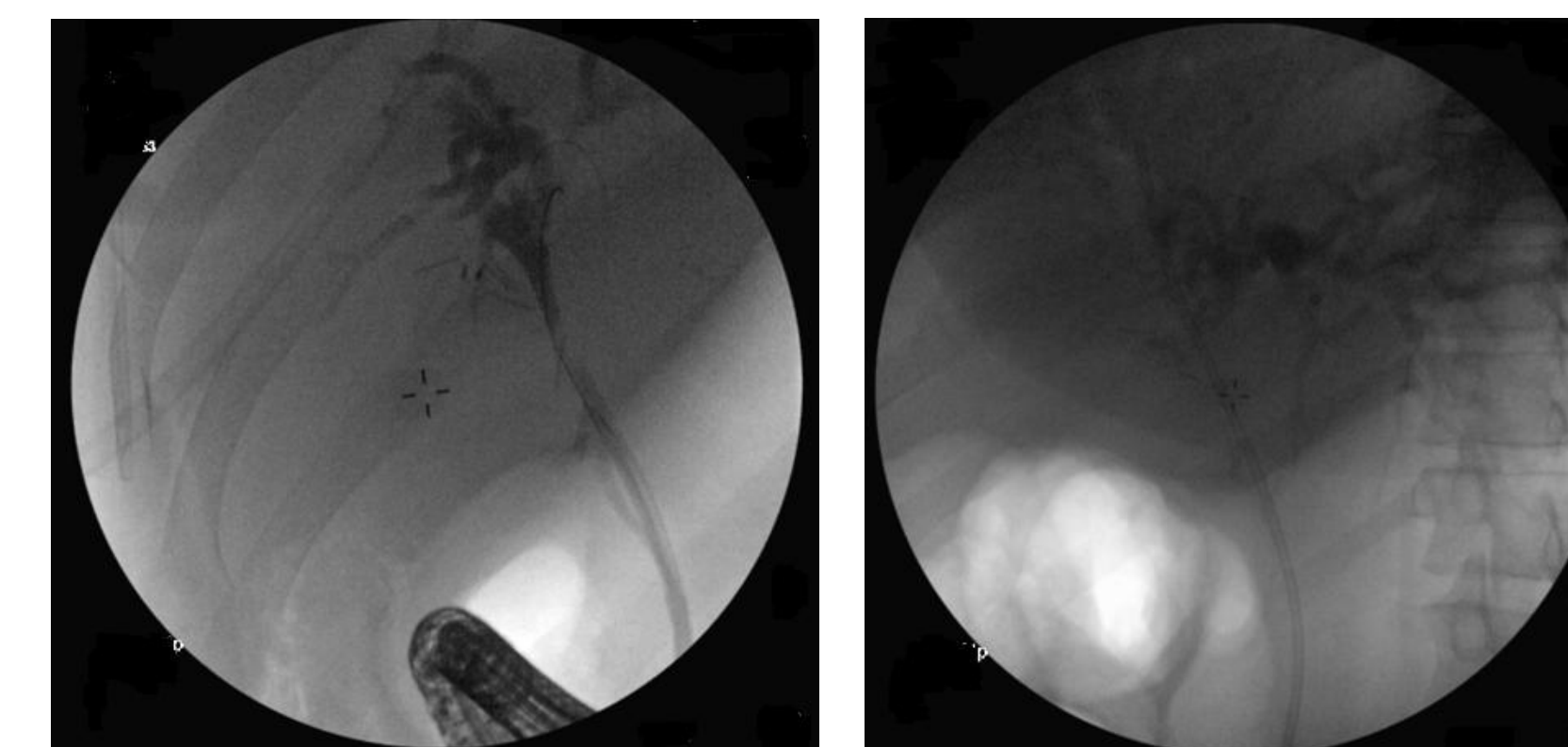


2a
Fig.2: a. ERCP demonstrates significant stricture of CBD secondary to surgical clip. **b:** Normal cholangiogram and deployment of bile stent after the removal of surgical staples.

Three prolene sutures were noted on CBD during exploratory laparoscopy which were removed. Repeat ERCP performed during laparoscopy revealed significant bile leak at the site of sutures after its removal but there was no stricture. Biliary stent (10F x 15) was placed in the CBD across the site of bile leak. The patient was asymptomatic at 20 months of follow-up and his LFT's were normal.

Case-3

Case-3: A 27 year old Caucasian woman was referred with jaundice 1 week after LC. ERCP revealed significant stricture of CBD caused by a surgical clip at the level of cystic duct. A single stent (7F x 11) could be placed across the stricture. Laparoscopy was performed and a clip was removed from CBD. Concurrent ERCP revealed resolution of the CBD stricture; Two bile stents were subsequently placed in the CBD. She was asymptomatic with normal LFT's at 22 months follow-up.



3a
Fig.3: a. ERCP demonstrates significant stricture of CBD secondary to surgical clip. **b:** Normal cholangiogram and deployment of bile stent after the removal of surgical staples.

Conclusion

Conclusion: Concurrent endoscopic and laparoscopic approach for the management of acute iatrogenic CBD obstruction is associated with improved and rapid recovery. It avoids the need for multiple ERCP's required with endoscopic approach alone in the management of these patients.