

## Post Cholecystectomy Clip Migration: A Cat's Eye Calculi Case Report

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### Abstract

Surgical clip migration into the common bile duct, leading to stone formation, is a rare but recognized complication of cholecystectomy. We present the case of a 45-year-old woman who underwent laparoscopic cholecystectomy in 2018 and experienced epigastric pain and cholestatic jaundice one month prior to admission, as a result of a cholangitis caused by migration of a post-cholecystectomy clip.

**Keywords:** Surgical Clip Migration; Cholecystectomy; Endoscopic Retrograde Cholangiopancreatography (ERCP)

### Introduction

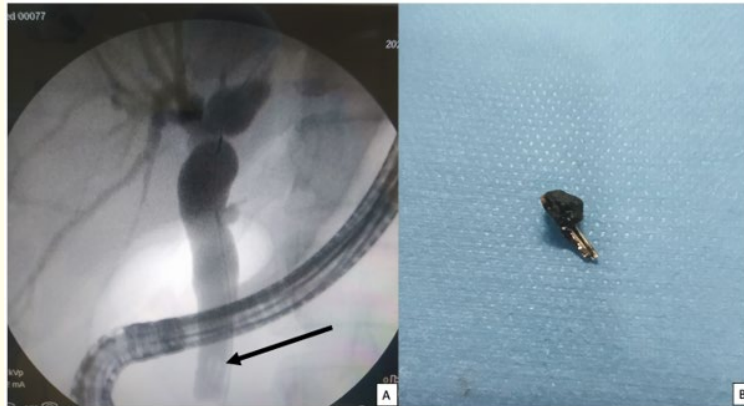
The migration of surgical clips into the bile ducts is a rare event. The reported case highlights the potential for clip migration into the biliary tract following cholecystectomy. These clips may serve as a nidus for calculus formation. Typically, the migrated calculus or clip is retrieved using endoscopic retrograde cholangiopancreatography (ERCP).

### Case Report

We report here a 45-year-old woman who underwent laparoscopic cholecystectomy in 2018, presenting one month before her admission an epigastric pain associated with a cholestatic jaundice, without fever or alteration of general condition.

The patient was clinically stable and exhibited signs of an infectious syndrome (CRP = 77.4 mg/l and white blood cells = 16,590 cells/mm<sup>3</sup>) as well as biological cholestasis (Alkaline phosphatase = 333 IU/L, Direct bilirubin: 35 mg/l). Liver function tests were normal.

A biliary MRI revealed a lower common bile duct stone (6 x 5 mm) with moderate dilatation of the main bile duct (10 mm in diameter), without dilatation of the intrahepatic bile ducts. The patient underwent endoscopic retrograde cholangiopancreatography (ERCP), which facilitated the extraction of a material consisting of a surgical clip located within an approximately 5 mm calculus (Figure 1).



**Figure 1:** a) ERCP showing filling defect in CBD. b) Surgical clip with stone material.

## Discussion

Cholecystectomy stands as a prevalent surgical procedure within clinical practice. With the advent of laparoscopic technique, laparoscopic cholecystectomy (LC) has risen to prominence as the foremost approach (gold standard) in the management of symptomatic gallstone disease [1].

Complications of LC can be classified as either early or late [2]. Early complications include bile duct injuries, hemorrhaging, and wound infections. Late complications comprise biliary strictures and postcholecystectomy clip migration (PCCM).

Postcholecystectomy clip migration (PCCM) has been suggested as a potential trigger for the development of primary common duct stones [3]. This phenomenon was initially documented in 1979 following an open cholecystectomy [4]. In 1993, Dr. William Wu introduced the term “cat’s eye calculi” because of the radiographic appearance [5].

The cause of PCCM has been theorized but not definitively established. In a study examining 69 cases in 2010, Chong and colleagues proposed that the clip’s intrusion into the bile duct wall might result in gradual erosion, ultimately leading to penetration into the duct. Another potential explanation he offered was the breakdown of the cystic duct closure, leading to the formation of biloma before migration occurred.

Furthermore, he observed a potential association between the use of multiple clips and clip migration.

In general, PCCM becomes symptomatic two or more years after the index procedure [3].

Our patient presented with jaundice associated with epigastric pain 5 years after her cholecystectomy.

Common presentations are obstructive jaundice, cholangitis, biliary colic and acute pancreatitis [6].

In addition to biliary tree migration, postcholecystectomy clip migration (PCCM) has been documented to result in additional complications, including duodenal ulceration or clip embolism [7,8].

Imaging modalities are essential for discriminating between post-cholecystectomy primary common bile duct stones and biliary complications associated with PCCM. Clips are visualized on plain X-ray abdomen, CT abdomen, or MRCP. However, on plain X-ray,

determining the precise positioning of the clip relative to the stone and the bile duct is challenging. Ultrasound abdomen is not recommended due to limitations in clip identification [6].

An ERCP was successfully performed on our patient, allowing for the removal of the clip from the common bile duct.

ERCP and surgery are the most common methods to remove common duct clips and associated stones. In our case, ERCP was successfully utilized. The success rate of managing these calculi using ERCP is almost 80% [4]. The remaining patients usually require surgical intervention.

### Conclusion

Postcholecystectomy clip migration is a rare event that can lead to biliary complications, such as common bile duct stone formation.

With the prevalence of laparoscopic cholecystectomy as the gold standard treatment for symptomatic gallstone disease, awareness of potential complications like PCCM is crucial for clinicians.

Imaging modalities play a key role in accurate diagnosis and ERCP is emerging as a viable therapeutic option with a high success rate.

Further studies and awareness efforts are warranted to enhance understanding and management of this rare yet significant postoperative complication.

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