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Retrieval of Surgical Clip from Common Bile Duct by Endoscopic Retrograde Cholangiopancreatography: A Rare Complication of Laparoscopic Cholecystectomy

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ABSTRACT

Laparoscopic cholecystectomy has become the standard procedure for the surgical management of symptomatic cholelithiasis. Laparoscopic cholecystectomy is generally considered a safe procedure although a few complications such as major bleeding, wound infection, bile leakage, biliary and bowel injury are well known. We are reporting a case of a thirty-seven year old male who presented with abdominal pain, three weeks after laparoscopic cholecystectomy. Abdominal ultrasound revealed a filling defect in common bile

duct with deranged liver function tests. With an impression of choledocholithiasis, his endoscopic retrograde cholangiopancreatography (ERCP) was done which revealed a surgical clip impacted in the ampulla. The surgical clip was retrieved successfully by ERCP. Intraductal clip migration is a rarely encountered complication after laparoscopic cholecystectomy. Appropriate management requires timely identification and retrieval during ERCP.

Keywords: Cholecystectomy; Surgical Clip; Endoscopic Retrograde Cholangiopancreatography

INTRODUCTION

Surgical cholecystectomy is the treatment of choice for the management of symptomatic gall bladder stones. Laparoscopic cholecystectomy has become the standard procedure for the surgical management of symptomatic cholelithiasis. More and more centers are adapting this laparoscopic technique in this modern era which mostly involves 3-port or 4-port technique [1]. Laparoscopic cholecystectomy is generally considered a safe procedure although a few per operative complications such as major bleeding, wound infection, bile leakage, biliary and bowel injury are well known. Long-term post-cholecystectomy complications are post-cholecystectomy syndrome and recurring complaints owing to bile duct stones that are either retained postoperatively or recur due to stasis of infected bile.

A few cases of surgical clip migration following

cholecystectomy have been reported in the literature [2], although the precise pathophysiological mechanism responsible for clip migration remains uncertain. The migrated clip can serve as a nidus for stone formation ("clip cholelithiasis") and common bile duct (CBD) stones. Clip cholelithiasis has even been reported many years after laparoscopic cholecystectomy [3]. We are reporting a case of a young man who presented with recurrence of abdominal pain just three weeks after laparoscopic cholecystectomy. Abdominal ultrasound reported choledocholithiasis. During endoscopic retrograde cholangiopancreatography (ERCP), a cholecystectomy clip was found in the CBD which was retrieved.

CASE REPORT

A thirty-seven-year-old obese male was admitted to a local hospital with right hypochondriac pain

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and fever. He was diagnosed with cholecystitis and cholelithiasis. He underwent an uneventful laparoscopic cholecystectomy and he was discharged two days after surgery. Three weeks after surgery he again developed severe abdominal pain, vomiting, and fever. Physical examination revealed marked tenderness in the right hypochondriac and umbilical region. His initial workup was as follows: hemoglobin 11.6 gm/dL, white blood cell $12 \times 10^9/L$, platelets $329 \times 10^9/L$, total bilirubin 2.1 mg/dl, alanine aminotransferase (ALT) 107 IU/L, alkaline phosphatase (ALP) 393 IU/L. His abdominal ultrasound examination revealed a dilated CBD of 11 mm with a filling defect in the distal CBD. The working diagnosis at this stage was cholangitis and obstructive jaundice likely secondary to a retained stone in the common bile duct.

During ERCP, a metallic object was seen impacted in the ampulla obstructing the cannulation (Figure 1). A pre-cut incision was done over this object and CBD was cannulated. Cholangiogram showed a dilated CBD without any stone. After sphincterotomy, a surgical clip was seen impacted in the ampulla and lower CBD (Figure 2). A plastic stent of 10Fr x7 cm was placed in the CBD to prevent any possibility of leakage and to make sure the patency of the common bile duct in case of any bleeding. (Figure 3) The surgical clip was retrieved from the CBD with the help of a forceps (Figure 4).

DISCUSSION

Use of the laparoscopic equipment is increasing in Pakistan. Proper training of the surgeons and

Figure 1: Metallic object impacted in Ampulla

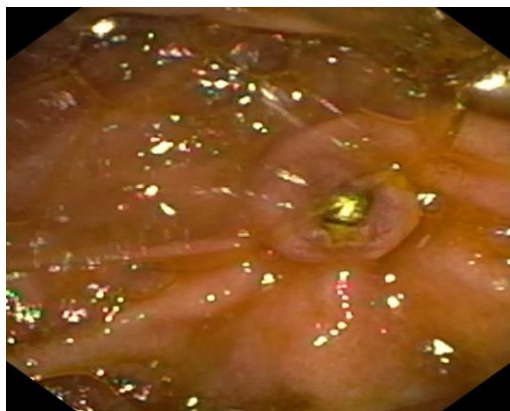


Figure 3: CBD stent with the surgical clip in the CBD

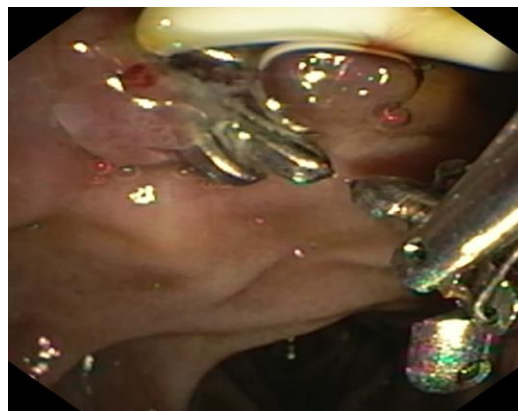
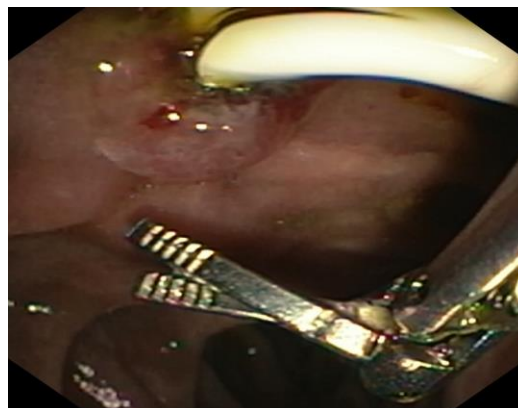


Figure 2: CBD cannulation after pre-cut



Figure 4: Surgical clip retrieved from the CBD



recognition of the potential complications is important for the proper utilization of this advanced surgical technique. Many cases of CBD injuries and leakage are being reported. The precise mechanism responsible for clip migration remains unclear, although it has been suggested that compression of the clipped cystic duct (CD) stump over time by adjacent structures (in particular the liver) can lead to invagination of the CD and clips into the CBD [4]. Clip migration into the CBD has been reported, at times previously, but mostly it had been reported after a gap of months and years. Mostly it is clip cholelithiasis where clip acts as a nidus for the formation of new stone [5]. In our case, an early ERCP was done with a suspicion of retained CBD stone and we were able to retrieve the clip (Figure 4).

Operative factors are likely to play an important role and logically a short CD stump with clips applied in close proximity to the CD/CBD junction may result in a greater risk of subsequent clip migration. Furthermore, accurate clip placement during surgery may prevent loosening, dislodgement, and ultimate migration of clips. It should be noted that biliary clip migration is not restricted to internalization into the CBD; poor clip application to the CD can lead to clip dislodgement and resultant biliary peritonitis [5]. Our patient was lucky that his clip was migrated into the CBD without any obvious damage, peritonitis or biliary leakage. A review of the literature reveals that clip migration after cholecystectomy can also lead to other gastrointestinal complications; for example, cases of clip migration into the duodenum have been described which has led to duodenal ulceration[6]. Due to these reports, some authors have suggested the use of absorbable suture material in place of metallic surgical clips [7]. Although clip migration is a rare post cholecystectomy complication of unknown mechanism, it should be recognized early and can be managed through ERCP.

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