



**ORIGINAL RESEARCH PAPER**

**Surgery**

**A CASE SERIES ON COMPLICATIONS OF FORGOTTEN BILIARY ENDOPROSTHESIS**

**KEY WORDS:**

<b>Dr. K. Senthil Kumar MS*</b>	Institute of general surgery, RGGGH & MMC Chennai - 600003 Tamil Nadu, India.*Corresponding Author
<b>Prof. Dr. P. Thangamani MS</b>	Institute of general surgery, RGGGH & MMC, Chennai - 600003 Tamil Nadu, India.
<b>Dr. D. Priyanka</b>	Post graduate Institute of general surgery, RGGGH & MMC, Chennai - 600003, Tamil Nadu, India.
<b>Prof. Dr. R. Kannan</b>	MS, Director, Institute of general surgery, RGGGH & MMC, Chennai - 600003, Tamil Nadu, India.

**ABSTRACT**

**AIM :** To study the complications and management of long term retained biliary stents Endoscopic biliary stenting is a common procedure in routine gastroenterology practice. Plastic stents are the most common type of stents used and are indicated mainly for short-term biliary drainage. Prolonged indwelling plastic stents can result in disastrous complications such as cholangitic abscess, cholangitis, stentolith, etc. In our institute, 3 cases of biliary obstruction treated with temporary biliary stenting had defaulted follow up. These cases presented after varying time periods with complications of retained CBD stent. These cases that were admitted to our institution during a span of 12 months (2021 January – 2021 December), were investigated and managed with endoscopic and surgical intervention. ERCP and biliary stenting are widely accepted treatment modalities for CBD stones and other causes of obstructive jaundice. It treats 85-90% of patients with biliary tree obstruction. Failure to remove the stent beyond 12-16 weeks lead to complications that are managed endoscopically. When endoscopic treatment fails, patients need surgical management.

**INTRODUCTION:**

Endoscopic retrograde cholangiopancreatogram (ERCP) with endoscopic sphincterotomy (EST) and stone extraction is considered the treatment of choice for a patient with obstructive jaundice, in order to relieve the biliary obstruction. Endoscopic treatment is successful in 80%-95% of the cases [1-4]. Biliary stents are tubular devices made of plastic or metal. They are used primarily to establish patency of an obstructed bile duct caused by malignancy, benign biliary strictures, or bile duct stones. (5) The stents are a temporary measure for biliary drainage. They maintain the patency for about 3-4 months. When stents are not removed or replaced, long-term complications such as occlusion, stent migration or cholangitis occur. Hence, replacement or removal of the biliary stents are recommended after 3-6 months. (6)

**AIM:**

To study the complications and management of long term retained biliary stents

**Case Reports:**

3 cases with complications of retained Biliary stent that were admitted to our institution during a span of 12 months (2021 January - 2021 December). These cases have been investigated and managed with endoscopic and surgical intervention has been discussed here.

1. 26 year old female, presented with complaints of abdominal pain, fever and jaundice for 10 days. She had history of passage of clay coloured stools and yellowish urine. Patient has a past history of Acute cholecystitis with choledocholithiasis in 2019, for which ERCP and CBD stenting was done followed by interval laparoscopic cholecystectomy in 2019. Patient had defaulted follow up for stent removal. Patient was readmitted 2 years later as a case of obstructive jaundice with cholangitic abscess. Patient was treated with Intravenous antibiotics, analgesics and anti inflammatory drugs. Radiological investigations revealed a distal CBD stricture. Patient was subjected to ERCP and CBD stent exchange was performed. But patient failed to improve with

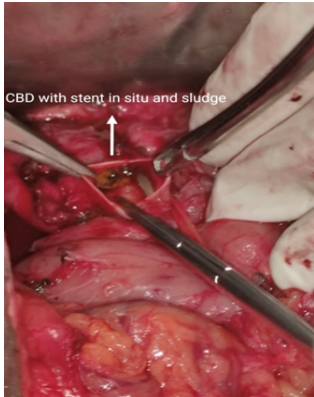
conservative management and had recurrent attacks of cholangitis and hence taken up for surgical management (Choledochoduodenostomy). Post operatively patient improved well and was discharged on POD 13.

2. 45 years old male, came with complaints of abdominal pain, jaundice and fever. He had history of similar complaints 3 years ago. Patient was diagnosed as a case of cholelithiasis with choledocholithiasis with obstructive jaundice. Hence underwent ERCP and stenting of biliary tree followed by interval cholecystectomy in 2018. Patient defaulted follow up for stent removal. Patient had multiple episodes of fever associated with jaundice over a span of 3 years which were managed conservatively. He was readmitted 3 years later to our institution as a case of obstructive jaundice/ cholangitis with retained CBD stent. MRCP was done which revealed few calculi in Common bile duct, Common hepatic duct, confluence and left intrahepatic duct. Patient was treated with Intravenous antibiotics and analgesics. He underwent ERCP, but CBD calculi could not be retrieved and hence biliary stent exchange was performed. He was subsequently taken up for open CBD exploration and biliary drainage procedure (hepaticojejunostomy). Post operatively patient was stable and discharged on POD 20.
3. 55 year old male, came with complaints of Right upper quadrant pain and dyspepsia in march 2020. Radiological investigation revealed acute calculus cholecystitis with choledocholithiasis. Patient underwent ERCP and biliary stenting. He failed follow up for interval cholecystectomy. He was readmitted in 1.5 years later in our institution and diagnosed as a case of cholelithiasis/choledocholithiasis / cholangitis with retained CBD stent. Patient was managed conservatively with Intravenous antibiotics and biliary stent exchange. As he failed to respond to conservative management, he was taken up for surgical biliary drainage procedure.

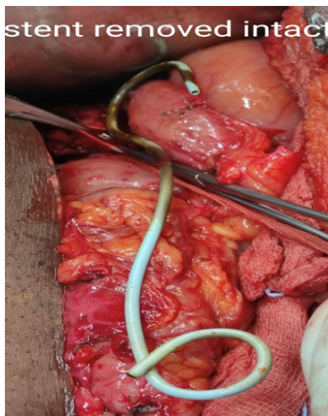
**RESULTS:**

All the 3 cases discussed above have presented with various complication of retained CBD stent such as cholangitis/ cholangitic abscess/ sepsis. They were all managed with endoscopic intervention initially. When endoscopic

management failed, they were taken up for open surgical biliary drainage procedures.



**Fig. 1 Stent In The Cbd With Biliary Sludge**



**Fig. 2 Stent Removed Intact (hepaticojejunostomy). Post operative period was uneventful and discharged on POD 10.**

**DISCUSSION:**

ERCP and biliary stenting is the standard treatment modalities for CBD stones and other causes of obstructive jaundice. (1) Biliary endoprosthesis is the temporary measure for biliary drainage which is later followed by a definitive surgical management for the cause. It is also used as an alternative in patients who are unfit for open surgical procedure. ERCP is an endoscopic procedure that is both diagnostic and therapeutic in terms of removal of the calculi by sphincterotomy/ balloon trawling or stent deployment in cases where the calculi are impacted, in order to aid biliary drainage. Deployment of a biliary endoprosthesis maintains the biliary flow thereby preventing complications such as cholangitis, cholangitic abscess in the liver, biliary sepsis, in cases of biliary obstruction(1). When the endoscopic management fails, patients are subjected to open biliary drainage procedures such as hepaticojejunostomy and choledochoduodenostomy (1-4). In elderly patients or patients with severe co-morbidities who are poor candidates for further endoscopic or surgical treatments, endobiliary stenting may serve as a permanent therapy. (1). There are two types of stents being used - plastic stent and Self expandable metallic stents (SEMS). There are no consensus that suggest the duration for which a stent can be retained(7). Duration of stent patency is largely dependent on the size of the inner diameter of the stent. Plastic stents(10Fr or higher) remain patent for 3 months and SEMS last for 6-12 months approximately (8). Beyond this duration the stent occlusion develops secondary to bacterial colonisation, sludge or tissue debris. The mean patency duration of the plastic biliary stent is about 6 months to 12 months for benign diseases (1,9,10). Replacement of plastic stents is therefore recommended every 3-6 months to prevent cholangitis(11). Long term biliary stents act as a nidus causing stone formation within the CBD - stentolith which eventually lead to obstructive

jaundice and cholangitis. Sometimes, the function of sphincter of Oddi is lost causing regurgitation of duodenal contents into the bile duct, resulting in bacterial growth in the bile duct. This causes ascending infection and is responsible for formation of brown pigment stones (1 , 12-14). Recent study of 5 cases of long-standing forgotten biliary stents with an average span of 45.5 months (range: 23-84 months) of stent retention reported that 4 of them required surgery for treatment.(15). Failure to remove the stent beyond 12-16 weeks lead to complications that are managed endoscopically. When endoscopy fails, patients need surgical management.

**CONCLUSION:**

To conclude, of the 3 cases studied in our institute, the most common complication of long term retained stent was cholangitis. One patient also developed stentolith due to retained stent in the CBD. All the cases in our study required surgical management for biliary drainage. Therefore, all the patients who undergo ERCP and CBD stent placement must be informed of the possibility of complications related to long term retention of stents. Patients are to be followed up and regular stent exchange or removal on time must be done. Endoscopic management of retained stents is considered as the first option, when failed, surgical management is required.

**Abbreviation:**

- CBD - Common bile duct
- CHD - Common hepatic duct
- ERCP - Endoscopic retrograde
- MRCP - Magnetic resonance cholangiopancreatography
- SEMS - Self expandable metallic stents

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