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Case Report

Hepatolithiasis following hepaticojejunostomy successfully treated with right hepatectomy: A case report ☆,☆☆

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ABSTRACT

Hepatolithiasis is a rare condition requiring multidisciplinary treatment approach. In this case report we present a case of multiple hepatolithiasis successfully treated with right hepatectomy. A 54 years-old asymptomatic female with previous history of hepaticojejunostomy for recurrent CBD stone was diagnosed with hepatolithiasis during routine follow-up. Hepatolithiasis has multifactorial causation one of which is thought to be previous biliary surgery. This case report highlights the importance of routine ultrasound imaging during follow-up of the patient with history of previous biliary surgery for early detection of hepatolithiasis thus, mitigating further complications.

Introduction

Gallstones, are occasionally seen in the intrahepatic bile ducts and are known as intrahepatic calculi, liver stones, or hepatolithiasis [1]. Intrahepatic stone are rare in the west, but they are common in Eastern Asia. Symptoms of intrahepatic stones range from asymptomatic to abdominal pain, fever, and jaundice which is best described as cholangitis-like features [2]. Supportive treatments for cholangitis and surgery are the mainstay of treatment. Surgery has shown to be the most effective so far, in which the affected liver segment or segments are removed to prevent further stone development and worsening of hepatocellular damage [3]. Previous biliary

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Fig. 1 – Figure showing hepaticojejunostomy site and hepatolithiasis (white arrow).

surgery has been correlated with stricture formation leading to formation of hepatolithiais [4]. Intrahepatic cholangiocarcinoma is closely related to hepatolithiasis as various reports state that it occurs in 5% to 13% of cases with hepatolithiasis [5].

In this case report we present a case of 54-year-old female with multiple hepatolithiasis treated with right hemi hepatectomy.

Case presentation

A 54-year-old asymptomatic female under routine follow up had ultrasonography findings of hepatolithiasis with dilatation of right intrahepatic biliary radicles.

At the time of presentation, she was asymptomatic. There was no history of abdominal pain, fever, vomiting, yellowish discoloration, anorexia, weight loss. Her bowel habit and bladder functions were normal.

On asking history we found that she had undergone multiple surgical interventions in the past for recurrent biliary stones. Her first surgery was laparoscopic cholecystectomy for symptomatic cholelithiasis 17 years back. Ten years after the surgery she started having right upper quadrant pain associated with bilious vomiting. Radiological studies (USG and MRCP) revealed primary CBD stones which were managed with ERCP. The patient remained well till 2 years after ERCP.

After 2 years she developed right upper quadrant pain which was associated with fever, bilious vomiting and generalized yellowish discoloration of body. After going through her past medical records and discharge summary it was found that she had developed ascending cholangitis due to recurrent primary CBD stones. Excision of extrahepatic biliary tract with Roux-en-Y hepaticojejunostomy was performed.

She was on regular follow up with USG and LFT reports. During her recent visit for follow up her USG report revealed hepatolithiasis with dilatation of right intrahepatic biliary radicles. LFT showed slightly elevated level of ALP whereas serum bilirubin (total and direct), ALT, AST and serum albumin were within normal limits.

On examination, she was well built with BMI 24.6 kg/m^2 with stable vitals. There was no pallor, icterus, cyanosis, clubbing, dehydration and lymphadenopathy. Abdominal examination showed previous scar mark of about 15 cm in length in right subcostal region with normal abdominal findings. CECT showed hepatolithiasis in right hepatic duct with dilated intrahepatic bile ducts and severely atrophied V-VIII segments of right hepatic lobe which is shown in Figs. 1 and 2.

Right open hemi hepatectomy was performed. During hepatectomy previously done hepaticojejunostomy was preserved and right intrahepatic duct was ligated at its base.

Histopathological examination revealed cirrhotic changes with reactive lymphadenitis and there was no evidence of malignancy. Stone analysis showed bile salts-50%, cholesterol-30%, and biliverdin-20%. Post operatively she was managed with fluids, antibiotics, analgesics and other supportive treatment. Her postoperative period was uneventful and hemodynamically stable. As her condition gradually improved, she was discharged on her eighth postoperative day. The entire timeline of interventions performed on the patient is shown in Fig. 3.

Discussion

In this study we presented a rare case of hepatolithiasis with severe atrophy of segment V to VIII of right lobe of liver managed by resection of right lobe of liver. Even though cases of hepatolithiasis are common in South Asia compared to western world, cases reported from Nepal are rare [2]. A retrospective study conducted in a tertiary care center of Nepal showed 0.34% prevalence of hepatolithiasis among biliary surgeries

Fig. 2 – Figure showing dilated intrahepatic bile ducts and severely atrophied V-VIII segments of right hepatic lobe (white arrow).

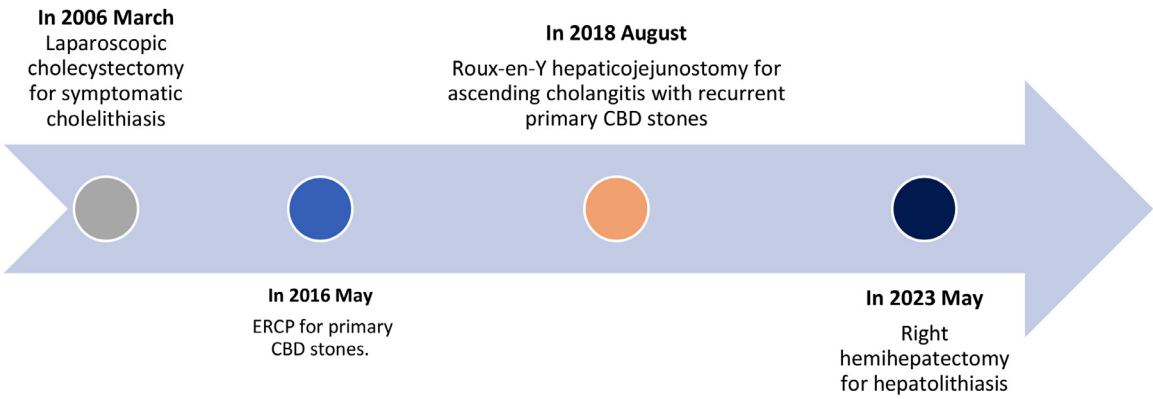

Fig. 3 – Timeline of interventions underwent on the patient.

[6]. Hepatolithiasis has variety of presenting complains ranging from abdominal pain to cholangitis-like features or it can be found incidentally as reported in our case [7–9].

Hepatolithiasis is more common in left lobe as compared to right lobe of liver. A retrospective study reported 70%-90% of the cases of hepatolithiasis had left lobe involvement [8] as it is common consensus that the left hepatic duct makes acute angle with common bile duct facilitating stasis of bile in case of stricture formation [2,9]. However in contrast to this our case had right lobe involvement.

Previous biliary surgery has been highly linked with cases of hepatolithiasis [4] but a clear consensus regarding this has not been reported. However, it can be stated that previous biliary surgeries can lead to stricture formation which ultimately leads to stasis of bile leading to formation of biliary stones [2].

Imaging modalities aim to visualize the precise location of intrahepatic stones, presence of strictures, and cholangiocarcinoma. Ultrasound is the screening imaging modality for detecting the presence of intrahepatic stones following which MRCP and CT scan are used to accurately detect the locations of stones and strictures in hepatolithiasis [5,10].

Hepatectomy is the surgical intervention of choice for cases associated with unilobar involvement and atrophy of the lobe of liver [5]. Various nonsurgical approaches (PTC with or without lithotripsy, ERCP with or without lithotripsy) are also available for management of hepatolithiasis but studies show that due to presence of stricture in most of the cases these approaches had difficulties in extraction of the stone and hence, there was higher rate of recurrence. However, in cases with multilobar involvement nonsurgical approaches

are explored for management of hepatolithiasis [4–6,11,12]. A study reported that on long term follow- up there has been reports of stone recurrence in 30.9% across all form of treatment modalities [6].

Reconstruction of hepaticojejunostomy by involving 2 hepatic ducts (CBD and duct from resected lobe) has been reported by a case report. They further advocated that following this method recurrence of stone can be prevented, as well as future endoscopic management will be easier [7]. However since our case had no evidence of stricture formation, our approach did not address the issue of double hepaticojejunostomy reconstruction.

Cases with hepatolithiasis have shown significant correlation with development of intrahepatic cholangiocarcinoma with incidence reported from 5% to 13 %. Also, development of intrahepatic cholangiocarcinoma during the follow up period have been reported in 1.6% to 9.9% cases [5]. So regular follow up with imaging is advised for the patient with history of hepatolithiasis.

Conclusion

Hepatolithiasis following previous biliary surgery can be a life-threatening hidden condition if not treated early. Thus, regular follow-up imaging has importance in detecting the case of hepatolithiasis early. Management of hepatolithiasis has multidisciplinary approach including resection of lobe of liver as well as endoscopic removal of stones. Following management of hepatolithiasis, it is also important to follow-up regularly for early detection of cholangiocarcinoma.

Ethical approval

The study is exempt from ethical approval in our institution.

Provenance and peer review

Not commissioned, externally peer-reviewed.

Role of generative AI

None.

Patient consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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