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Case Report

Rare case of removal of intrabiliary retained broken PTBD wire with redo-hepaticojejunostomy

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ABSTRACT

This is a rare case of surgical removal of intrahepatic retained broken wire of percutaneous transheaptic biliary catheter, which caused cholagitis and severe pain in a 59-year-old female who had undergone percutaneous transhepatic biliary dilatation of stricture hepaticojejunostomy in past. This is rare case ever reported of surgical removal of a broken PTBD wire retained inside left biliary system, post percutaneous transhepatic biliary dilatation of biliary stricture. Patient also underwent redo-hepaticojejunostomy for treatment of stricture hepaticojejunostomy in same sitting. This guidewire was put by interventional radiologist for dilatation of hepaticojejunostomy stricture. Patient had developed stricture in hepaticojejunotostomy which was done in year 2007 along with choledochal cyst excision by some other Gastrosurgeon. But one reoperation as well as one interventional approach had failed to retrieve the wire retained in biliary system. After that we successfully operated this challenging case and cured her of stricture hepaticojejunostomy, cholagitis and removed the foreign body in one surgery. Postoperatively we followed her up of 2 yrs. Patient is afebrile ,free of jaundice and has normal LFT on 2 yrs of follow up.
Broken guidewire during percutaneous intervention in obstructed biliary system is an emergency as it acts as foreign body, removal with reansatomosis gives a fair chance of cholangitis free survival to patient.

Keywords: Choledochal cyst, Cholangitis, Guidewire, Hepaticojejunostomy, Left hepatic duct, PTBD wire, Prcutaneous transheaptic biliary drainage, Redohepatcojejunostomy

INTRODUCTION

Hepaticojejunostomy is routinely done after excision of type 4a choledochal cyst, but it has high chances of stricture formation due to thin walled duct or due to bad surgical technique.[1] When strictured, first approach is radiological dilatation of the stricture with help of guidewire and dilators, by interventional radiologists. In rare instance guidewire can break in the biliary system and cause cholagitis and pain due to intrabiliary retained foriegn body. This type of foreign body can be removed percutaneously,and if percutaneous technique fails then surgical removal is advised.[2,3] This is a rare case of surgical removal of intrahepatic retained broken wire of percutaneous transheaptic biliary catheter, which caused cholagitis and severe pain in a 59 years old female who had undergone percutaneous transhepatic biliary dilatation of stricture hepaticojejunostomy in past.

CASE REPORT

This 59-year-old female was suffering from recurrent cholangitis for 5 months, when she was referred to author's department for treatment of cholangitis. She had cholagitis due to stricture hepaticojejunostomy which occurred after 6 yrs of excision of cholecdocal cyst type

4a with hepaticojejunostomy done by another Gastrointestinal surgeon. On presentation she was having severe pain, fever and features of cholagitis for last 5 months. Investigations done were X ray abdomen, plain CT abdomen, MRCP, LFT and routine blood investigations. Her investigations revealed stricture hepaticojejunostomy with retained PTBD guidewire in left hepatic hepatic duct. Author initially managed conservatively with antibiotics and analgesics and referred patient for interventional radiologists' opinion for removal of retained broken guidewire non-surgically, who then declared patient high risk for bleeding due to possibility of secondary biliary cirrhosis and patient was referred back to our centre. Author evaluated again after 20 days and planned surgical exploration with plan of using intraopeartive ultrasound to locate the retained wire in case of difficulty. Case was discussed in detail with radiologist about location, depth and possibility of wire being in biliary system. The broken wire was totally intrahepatic and was not reaching liver surface.

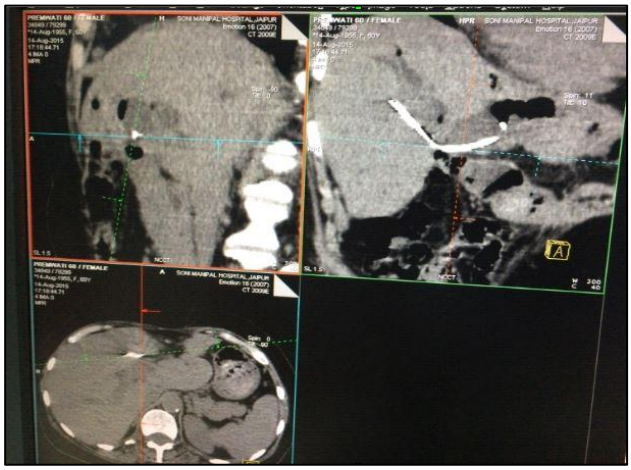

Figure 1: Plain CT abdomen showing metallic wire in biliary system.

Figure 2: X ray abdomen showing metallic wire in biliary system.

After full evaluation patient underwent surgery "Exploratory laparotomy with redo-hepaticojejunostomy with transbiliary removal of wire". The operative findings were -There were lots of perihepatic adhesion and stricture hepaticojejunostomy which was about 5mm size. On opening of anastomosis there was lots of pus, stones and wire completely blocking the bile passage from liver. After repeated efforts broken wire could be located inside the left hepatic duct approximately 2.5cm away from HJ site, a 20cm long wire was removed without causing any trauma to the left hepatic duct. Surgery lasted for 2 hours and estimated blood loss was 100cc. Redo roux-en-Y hepaticojejunostomy was done approximately 2.5cm size after extension of incision to left hepatic duct. Postoperatively patient's LFT improved, she remained stable, had serous drainage from drain which was removed on day 4, oral diet started on day 2 and patient was discharged on day 6.

Patient was followed up every 3 months for 1 yearr and every 6 months for 2nd year. On follow up she remained afebrile and normal LFT. She had symptoms of gastritis which were treated with medications.

DISCUSSION

Type 4a choledochal cysts are thin fusiform dilatation of common bile duct with intrahepatic extension. During surgery for such choledochal cysts, common hepatic duct and common bile duct is excised and end to side mucosa to mucosa hepaticojejunostomy is done to restore contuinity. Since the anastomostic success depends on many factors like wall thickness of CBD, presence or absence of cholangitis and techincal factors like size of anastomosis, vascularity of choledochal end and surgical expertise there are 3-5% chances of stricture of such anastomosis.[1]

In this case type 4a choledochal cyst was operated 7 yrs from these events. Patient developed stricture with biliary stasis and cholangitis and for that minimal invasive percutaneous dilatation was advised by the primary surgeon. In the attempt to dilate the biliary stricture, the guidewire needs to be inserted in right or left biliary system and is crossed through HJ till jejunal end and then dilators are inserted. Probably in first step of insertion, the guidewire broke intra-hepatically which lead to increased patient's symptoms in form of cholangitis and pain. More than that panic reaction about retained wire needed to be addressed.

Dislodged intrabiliary drainage devices, including catheters, endoprostheses, and stents, may further impair drainage and cause various local reactions, vascular and gastrointestinal tract complications. In the article by Hsien-Tzu L et al, endoscopic approaches for management of plastic biliary endoprostheses have been extensively discussed.[2] Intrahepatic bleed after percutaneous transhepatic procedures are well reported in literature but guidewire fracture is a rare complication of

PTBD and percutaneous coronary interventions.[2-4] Retained guidewire fragments in the coronary tree can cause thrombosis, embolic phenomena, dissection, perforation, and vessel occlusion. In an article by Datta G et al, the author has reported that the management of this complication is still debated and it involves conservative management of leaving wire alone, percutaneous retrieval of fractured fragment, use of second stent to crush the wire or open heart surgery in 3 different cases.[3] There are many reports of breakage of guidewire of coronary catheters and removal with percutaneous or surgical technique via video assisted thoracoscopic surgery. In percutaneous approaches to biliary system liver parenchyma needs to be traversed and there are also chancesc of bleed from major vasular structures in such attempts, these procedures are technically much more demanding than percutaneous approach to renal pelvicalyceal system.[4] There are also reports of breakage of guidewires in ureteric and pelvicalyceal system during minimal invasive procedures. In many such cases operative procedures could be avoided after successful percutaneous removal.[5] There are only few reports of percutaneous removal of broken PTBD wire in a liver transplant patients. But there are no reports of surgical removal of broken PTBD wire and doing simultaneous redo-hepaticojejunostomy in such case.[6] There are also rare reports of breakage guidewire in percutaneous endoscopic lumbar discectomy which requires immediate removal.[7] There are only few reports of managing these retained guidewires conservatively in cardiac cases only.[8]

Since there is paucity of literature on broken PTBD wire these reports which are available on cardiac guidewire guide us that these complications can be managed percutaneously as well as surgically depending on expertise available. There is only one case report mentioning radiological removal of fractured PTBD wire.[9] There are reported complications and difficulties in percutaneous retrieval of fractured guidewires mainly bleeding and technical failure due to bleeding.[10] But there are no cases reported on surgical management of broken PTBD wire and redo hepaticojejunostomy done simultaneously.

In author opinion it's possible to treat both conditions surgically in optimised patient, in this case the obstructing stones, pus was removed and foreign body casing obstruction was also removed. The basic pathology was strictured hepaticojejunostomy, for which all these measures were taken, was also addressed well by doing wide side to side mucosa to mucosa anastomosis of common hepatic duct with jejunum. In any case of strictured HJ, redo-hepaticojejunal anastomosis is long term treatment which keeps patient free from readmissions due to cholangitis and gives good quality of life. The reintervention rate of percutaneous biliary stricture dilatation of heapticojejunostomy is 48.7%.[11] Whereas surgery gives long term relief in stricture hepaticojejunostomy cases there is no such report in biliary case. Studied patient was followed up every 3 months in 1st year and every 6 months in 2nd year and had normal LFT and no cholagitis on follow up.

CONCLUSION

Stricture hepaticojejunostomy is rare complication of choledochal cyst excision, while treating this case one may prefer percutaneous approach to dilate the stricture and there are rare chances of breakage of guidewire, that needs to be removed and stricture needs to be dilated either percutaneously or surgically. If percutaneous expertise is not available or failed, surgical procedure can treat both conditions simultaneously in expert hands.

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