The Challenges of Sump Syndrome. A Case Report and Literature Review

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Introduction

Sump syndrome is a rare complication of a side to side choledochoduodenostomy (CDD). After the introduction of endoscopic retrograde cholangiopancreatography (ERCP) in 1968(1), choledochoduodenostomy and its complications are seldom seen. The diagnosis of sump syndrome is further befogged by the lack of characteristic clinical or laboratory findings, the inability of the patient to provide medical records of their CDD and the fact that sump syndrome only presents decades after a CDD.
In a time where choledochoduodenostomy is rarely being chosen as a choice of treatment and it's complications are infrequently encountered, this case serves as a reminder that even in the ERCP era, complications of choledochoduodenostomy should still be well understood.

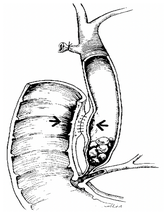


Case Report Information

This is a case of a 39 year old female who presented to our emergency department in Mubarak Al Kabeer Hospital with abdominal pain, mainly in the right upper quadrant with nausea for two days. She also had bouts of repeated vomiting, jaundice and pruritus. On admission her vitals were a heart rate of 78 beats per minute (BPM), a temperature of 37°C and a blood pressure of 130/80 mmHg. Her abdomen was tender in the right upper quadrant and epigastric regions and she had guarding in the former.

Her surgical history was significant for an open cholecystectomy (most likely due to symptomatic cholelithiasis) when she was fourteen years of age. She underwent three further procedures which were unknown at the time of presentation but after obtaining her medical reports, it was revealed that she had undergone an endoscopic retrograde cholangiopancreatography (ERCP), a common bile duct (CBD) exploration with an intra-operative cholangiogram (IOC) and a choledochoduodenostomy (for a CBD stone that could not have been removed by ERCP).

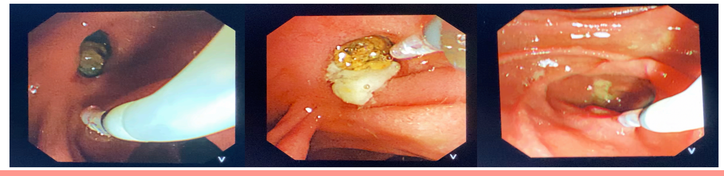
Initial laboratory investigations showed a white blood cell count (WBC) of 16.16 x 10^9/L, a total bilirubin of 38.5 mmol/L, direct bilirubin of 21, alkaline phosphatase of 298 IU/L, gamma glutamyl transpepsidase (GGT) of 564 U/L, aspartate transaminase/alanine transaminase (AST/ALT) of 150/107 U/L and an amylase of 101 U/L. Initial imaging studies of an abdominal x-ray was unremarkable, abdominal ultrasound revealed intrahepatic dilatation of 1 cm, pneumobilia and a normal CBD diameter. Computed tomography (CT) scan of the abdomen and pelvis with IV contrast revealed a large duodenal diverticulum in the second part of the duodenum causing a mass effect on the CBD, significant intra-hepatic dilatation, and the picture was consistent with ascending cholangitis.



Intervention/Treatment

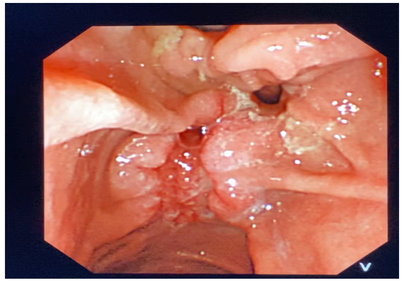
The patient was started on meropenem for cholangitis, intravenous (IV) fluids, paracetamol and tramadol (both IV) for controlling her abdominal pain. Within one day of her hospital admission, her clinical status worsened with a temperature of 38.5°C, a heart rate of 120BPM, and her blood pressure was 90/60. She had a rise in her WBC (to 19.3x 10^9/L), total bilirubin of 94.7, direct bilirubin of 65, alkaline phosphatase of 232, GGT of 421 and an ALT/AST of 80/75. She underwent a percutaneous transhepatic biliary drainage (PTBD) (right access) and she was admitted to the intensive care unit (ICU).

The patient's clinical status improved after the placement of the PTBD tube. She was discharged from the ICU. Her vitals normal with a normal heart rate, blood pressure and temperature. A magnetic resonance cholangiopancreatography (MRCP) was done on her third hospital day and revealed S/P choledochoduodenostomy with dilated biliary system and a beaded like appearance of the dilated biliary radicles. Her clinical status continued to improve with WBC counts and bilirubin counts trending down. The PTBD was draining around 400-800ml of bile per day. On her sixth admission day, she was able to get a report of her previous surgeries. After confirming that she had undergone a choledochoduodenostomy, an ERCP was done. The findings revealed 3 openings in the second part of the duodenum, feculant material was seen from what seemed to be a duodenal diverticulum which was cleared, the CBD was cannulated and she had extremely dilated intrahepatic radicles, a large filling defect was seen in the distal CBD and a sphincterotomy was done. The third opening was the choledochoduodenostomy anastomosis. After the ERCP, her bilirubin levels continued to trend down. Her ERCP was repeated with the presence of a hepatobiliary surgeon and a senior gastroenterologist present. The CBD was filled with debris, the debris was ascending all the way up to the intrahepatic radicles. The debris was cleared using a Dormia basket.



Results

After the second ERCP, her WBC, bilirubin and AST/ALT levels were back to normal levels. Her PTBD was clamped and her investigations remained unchanged. Her PTBD tube was removed and she was discharged with a diagnosis of sump syndrome complicated by ascending cholangitis.



Discussion

Sump syndrome has been managed as early as 1976 (2) with prevalence of 0-15.7% after a side to side choledochoduodenostomy, which was common in the pre-ERCP period (3), (4), making sump syndrome a rare complication of side to side choledochoduodenostomy (5). Anatomically, there will be a potential reservoir or "sump" between the anastomosis and the ampulla of Vater. Patients presenting with ascending cholangitis decades after a choledochoduodenostomy should raise the suspicion of sump syndrome with cholangitis developing due to build up of debris, stones or infected bile and a possible defect in the ampulla of Vater (6). ERCP has almost completely replaced CDD for addressing obstructive CBD disease(3)(7) and so complications of CDD including sump syndrome are now very rarely seen. If ERCP fails, laparoscopic/open CBD exploration are the first line surgical procedures performed (8). If drainage is not possible, choledochojejunostomy or hepaticojejunostomy are usually the procedures of choice making CDD and in effect sump syndrome very rarely seen. Furthermore, as seen with our patient, medical records may be difficult to obtain or lost and patients may not full understand what procedure they have undergone making it more difficult to diagnose sump syndrome. Even radiological images may miss a choledochoduodenostomy in the absence of a proper surgical history.
When sump syndrome is suspected, ERCP is the first line treatment (9), if sump syndrome recurs, a repeat ERCP is performed with good results, surgical intervention is not recommended considering the good results achieved by the ERCP(10). In some instances, ERCP may be difficult such as cases who have undergone a Roux-en-Y gastric bypass (11), or in cases where ERCP fails, for those circumstances, a hepaticojejunostomy or choledochojejunostomy is the treatment of choice.

Conclusion

In the current practice, little is known about sump syndrome due to the scarcity of its presentation however it is important to include it in the differential diagnosis of cholangitis. After the introduction of ERCP, CDD is now rarely performed, but patients may present decades later so it is important for the younger generation to understand its complications.

References

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