Common bile duct stones after liver transplantation: an unusual cause

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CASE REPORT

52-yr-old male presented with low-grade fever (100°F) for 3-4 days. He had DCD (donation after cardiac death) donor liver transplant with duct-to-duct anastomosis 2 months ago for hepatitis C related cirrhosis and hepatocellular cancer. Explant pathology revealed T1N0M0 stage. Postoperatively, immunosuppressive regimen used was steroids and tacrolimus as per protocol. Physical examination was unremarkable. Laboratory investigations revealed normal white cell count but increased serum bilirubin from 1.1 to 5.2 (0.3–1.2 mg/dL). Other liver tests revealed AST 72 (15–41 U/L), ALT 167 (17–63 U/L) and alkaline phosphatase 143 (32–91 U/L). Renal function studies showed BUN of 16 (6–20 mg/dL) and serum creatinine of 0.78 (0.64–1.27 mg/dL). Ultrasound and Doppler examination showed non-dilated bile ducts and normal velocities in the portal vein and hepatic artery. Endoscopic retrograde cholangiopancreatography (ERCP) was performed based on clinical suspicion of biliary anastomotic stricture. Cholangiogram was obtained which showed a moderate sized filling defect in the mid CBD area (Fig. 1). There was no anastomotic leak and no obvious structure. A sphincterotomy was performed and the bile duct was swept with 8.5 mm biliary extraction balloon. About 1.5 cm of solid debris with stone/sludge was removed (Fig. 2). A closer look revealed surgical sutures in the removed stone/sludge complex (Fig. 3). Occlusion cholangiogram revealed no further filling defects. Post procedure the patient had uneventful recovery with subsequent clinical improvement and normalization of serum bilirubin.

DISCUSSION

The exact etiology of biliary stone formation is not well defined, but it is believed that bile-salt crystallization leading to stones begins around a nidus. Silk suture acting as a nidus for stone formation after cholecystectomy was first described by Homans in 1897.[1] Other foreign materials reported to have been associated with bile duct stone formation after cholecystectomy include absorbable chromic catgut[2] and surgical clips.[3] It has been suggested that with the increased use of laproscopic cholecystectomy, upto one-third of recurrent post-cholecystectomy stones may be due to migration of surgical clips.[4]
due to biliary stone with the suture material being the nidus. The exact pathogenesis of this complication is not clear. In patients with cholecystectomy, it has been proposed that a localized inflammatory process at the site of surgical clip or suture may initiate the process of stone formation. There was no associated stricture or bile leak in our case. Tsujino et al.\(^5\) reported suture material removal from the bile duct 6 years after liver transplantation. They reported associated anastomotic stricture requiring endotherapy with balloon dilation and stenting. They also suggested that this suture related stone complication could have been avoided if the suture knots are outside the lumen. Whether associated anastomotic stricture, bile leak or ischemia contributes to this complication is unclear. Filling defects on cholangiogram in transplant patients also raise the possibility of biliary casts especially in DCD donors. Such casts are usually seen with associated strictures which were not seen in our case.

Although this suture migration and biliary stone formation is an uncommon complication after liver transplantation, it can be safely managed by endoscopic intervention. Whether surgical technique or choice of suture material contributes to this complication remains unclear.

**REFERENCES**