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LETTER TO EDITOR

Recurrent intestinal stones in the Roux-en-Y limb after Kasai operation in an infant with biliary atresia☆

We read with great interest the article by Sookpotarom et al.[1] The authors reported the short-term outcome of patients with biliary atresia (BA) treated by Kasai operation without any antireflux procedure. In our institute, we also routinely perform Kasai operation without any antireflux procedure for patients with BA. We herein report a rare postoperative complication after Kasai operation in an infant with BA.

A female infant underwent Kasai operation without any antireflux procedure at 56 days for type-III BA. Two months after surgery, she experienced two occurrences of cholangitis. During the second episode, ultrasonography (US) revealed a 2-cm stone in the Roux-en-Y (RY) limb just proximal to the portojejunostomy (Fig. 1a). One month later, the stone was spontaneously egested with feces. We retrieved it (Fig. 1b) and found that the stone was composed of calcium bilirubinate with a core of suture thread from a previous operation (Fig. 1c).

Thereafter, US revealed new stones and bile pooling in the same region one week after the event (Fig. 1d). We diagnosed the patient with cholestasis in the RY limb due to kinking in the same. Open laparotomy was performed when the patient was 6 months old. The RY limb proximal to the portojejunostomy had become kinked due to adhesion (Fig. 1e), so we performed segmental resection and reconstruction of the RY limb. During the operation, we removed two soft stones from the RY limb. The cores of the stones were surgical staples that had been used in the previous operation (Fig. 1f). After the operation, no further stones or bile pooling in the RY limb were identified on US.

Stone formation after Kasai operation is an uncommon complication encompassing intrahepatic stones or stones in the intestinal conduit. Stone formation in the intestinal conduit is particularly rare, and only three cases have been reported in the English literature.[2–4] The etiology of the stone formations is thought to involve several factors. Mainly, bile stasis is thought to be lithogenic. All previously reported cases had some cause of bile stasis in the intestinal conduit. Furthermore, two out of three of the previously reported cases involved some kind of antireflux mechanism in the intestinal conduit.[2,3] Our patient had no anti-reflux mechanism, but the RY limb that became kinked due to adhesion caused bile stasis. Foreign bodies are also associated with stone formation. In our patient, surgical suture threads and staples played a role in stone formation and were found in the stones' cores. The treatment of stone formation in the intestinal conduit after Kasai operation requires surgical intervention. All previously reported cases involved surgical procedures, such as enterotomy, to remove the stones, reconstruct the RY limb, and release bile stasis within the intestinal conduit.[2–4]

Based on our experience, when performing Kasai operation, it is important to make the RY limb as straight as possible in order to avoid kinking, which may later lead to bile stasis.

☆ Consent for publication: Consent to publish is obtained from parents of the patient.

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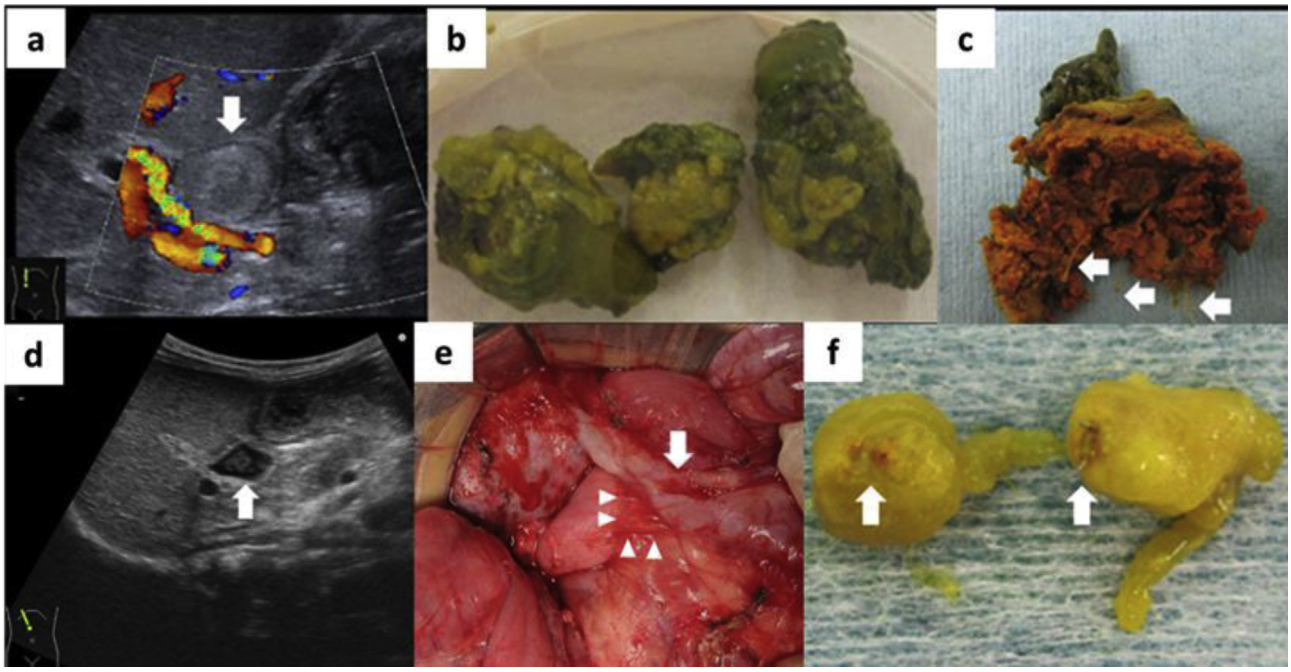


Fig. 1 First stone formation demonstrated on ultrasound in the Roux-en-Y (RY) limb proximal to the porta hepatis (a). The egested stone was retrieved from the patient's feces (b). Its core was composed of suture thread (arrow) used for Kasai portoenterostomy (c). Ultrasound showed recurrent stone formation and pooling of bile in the same lesion (arrow) (d). The RY limb proximal to the porta hepatis had been kinked (arrow) due to adhesion (arrowhead) (e). The core of the stone was composed of surgical staples (arrow) used for the Kasai operation (f).

Conflicts of interest

All authors including corresponding and co-authors do not have any conflicts of interests in this report.

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