Complication of endoscopic papillary large-balloon dilation using double-balloon endoscopy for biliary stones in a postoperative patient

Recently, extraction of stones by endoscopic papillary large-balloon dilation (EPLBD) using CRE balloons (Boston Scientific Japan, Tokyo, Japan; 5.5 cm long, 10–12, 12–15, and 15–18 mm in diameter) has been shown to be an effective modality, which is being widely used in difficult situations for patients with normal anatomy [1,2]; however, few papers have reported on the use of EPLBD in patients with altered gastrointestinal anatomy [3–5], and fewer still on its complications.

In the present report, we describe a rare and instructive adverse event that was encountered during the procedure and was recorded on video as it occurred. These recordings show the development of an iatrogenic fistula.

A 71-year-old man with a history of gastric ulceration who had undergone a Billroth II gastrectomy 45 years previously was admitted with jaundice and acute cholangitis. He was referred for stone extraction using endoscopic retrograde cholangiopancreatography (ERCP) using a short-type double-balloon endoscope (DBE; EI-530B, Fujifilm, Osaka, Japan). The DBE advanced smoothly to the blind end and deep cannulation was successful (**Video 1**).

The cholangiogram revealed large biliary stones in the lower biliary duct. Therefore stone extraction was planned in combination with endoscopic sphincterotomy and EPLBD. After we had inserted a 0.035-inch guidewire (Jagwire; Boston Scientific Japan, Tokyo, Japan), a limited endoscopic sphincterotomy, involving one-third of the maximum incision of the papillary mound, was performed using a standard pull-type papillotome (Clevercut KD-V411M-3020; Olympus Medical Systems) (**Video 2**). Balloon dilation was performed slowly under fluoroscopy guidance until the notch disappeared (**Video 3**).

The complication occurred while we were performing EPLBD. An iatrogenic fistula developed, which was caused by a stone that was jutting out from the papillary mound and dilatation of the lower biliary duct due to overlooked stones (**Video 4**). Despite this adverse event, stone extraction was accomplished, and the procedure was completed by placement of an endoscopic biliary drain (ZEBD-5-4; Cook Medical, Bloomington, Indiana, USA) and nasal biliary drain (ENBD-5; Cook Medical) (**Video 5**). The patient improved with further conservative management. However, we note that if the fistula had developed on the pancreatic side, it could have caused compression of the pancreas leading to severe complications, such as acute or severe pancreatitis.

We believe stone extraction using EPLBD in patients with altered gastrointestinal anatomy is more difficult and poses a higher risk than it would in patients with normal anatomy. Therefore analysis of the adverse events is needed before this technique can be established as a safe procedure.

Video 1

The papilla was positioned in the 6-o'clock position on the monitor and biliary cannulation was performed using a straight-tipped catheter.

Video 2

After inserting a guidewire, we performed a limited endoscopic sphincterotomy, involving one-third of the maximum incision of the papillary mound, using a standard pull-type papillotome.

Video 3

Endoscopic papillary large-balloon dilation (EPLBD) was performed slowly until the notch disappeared under fluoroscopy guidance.

Video 4

While we were performing endoscopic papillary large-balloon dilation (EPLBD), an iatrogenic fistula developed due to a stone that was jutting out from the papillary mound.

Video 5

Stone extraction was accomplished and then the procedure was completed by placement of an endoscopic biliary drain and a nasal biliary drain.

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