

# Stent removal using novel balloon catheter after rupture of stent for EUS-guided pancreatic duct drainage

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EUS-guided pancreatic duct drainage (EUS-PD) for pancreatic duct obstruction has been reported as a rescue procedure after failed ERCP.<sup>[1-4]</sup> After this procedure, continuous stent exchange may be needed to keep the fistula and preventing stent obstruction. Usually, because main pancreatic duct is relatively narrow compared with bile duct, straight plastic stent may be used. Recently, to prevent stent migration, novel plastic stent (Type IT, Gadelius Medical Co., Ltd., Tokyo, Japan) has been reported.<sup>[5]</sup> Herein, we report a case of stent rupture during exchanging the stent of EUS-PD and describe technical tips for re-intervention.

A 52-year-old woman was admitted to our hospital due to abdominal pain and elevation of pancreatic enzyme. On computed tomography, large pancreatic pseudocyst and pancreatic duct stones were seen. To perform decompression of the pancreatic duct, ERCP was attempted. However, ERCP catheter could not be advanced beyond the stones. Therefore, we selected EUS-PD as rescue procedure. First, the dilated pancreatic duct was punctured, and the contrast medium was injected. After fistula dilation, stent deployment from the pancreatic duct to the stomach was performed using Type IT (7 Fr, 12 cm, Gadelius Medical Co. Ltd., Tokyo, Japan). This stent has four flanges; two in the distal end and two at the

proximal end. A pigtail is present at the proximal end, and the distal end is tapered.<sup>[5]</sup> After this procedure, pancreatic pseudocyst was completely resolved. After 1 month, ERCP was attempted because of stent occlusion. First, the guidewire was inserted into the fistula [Figure 1], and the stent removal was attempted using grasping forceps. However, stent rupture occurred [Figures 2 and 3].

Because any devices such as the guidewire or balloon catheter could not be inserted into the fistula, the guidewire was inserted into the ruptured stent [Figures 4 and 5]. Next, fine gauge balloon catheter (4 mm, REN biliary dilation catheter; KANEKA, Osaka, Japan,) was inserted into the ruptured stent [Figure 6]. The tip of this balloon catheter is only 3 Fr and tapered. In addition, this balloon catheter is coaxial with the guidewire, therefore, can be easily inserted within the plastic stent. Finally, we successfully removed the ruptured stent, and new plastic stent could be placed. The stent, which was used in this case, has double side hole in the proximal end, therefore, this site may be easily ruptured compared with conventional stent. It may be important to grasp the more distal end from this site.

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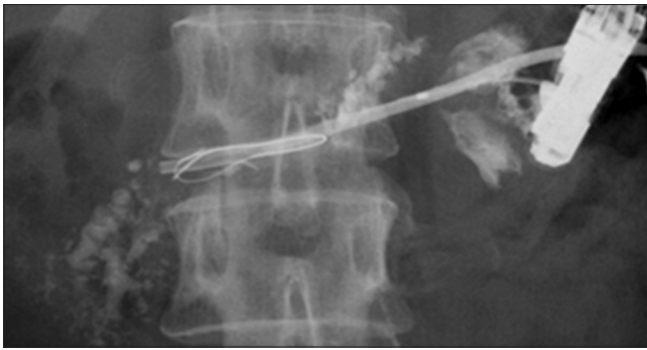
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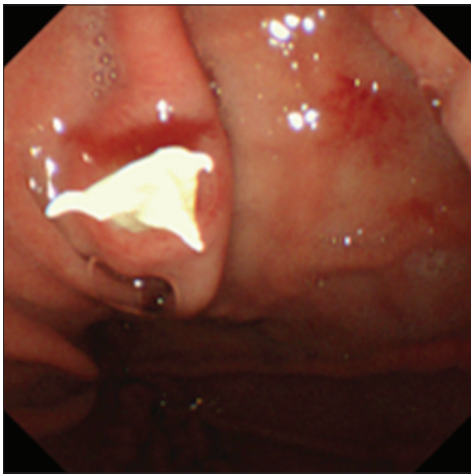
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**Figure 1.** The guidewire is inserted into the pancreatic duct through the fistula



**Figure 2.** Stent rupture is occurred



**Figure 3.** Complete rupture is seen in endoscopic view



**Figure 4.** Endoscopic retrograde cholangiopancreatography catheter is inserted into the ruptured stent



**Figure 5.** The guidewire is inserted into the ruptured stent, and balloon catheter is also inserted into the ruptured stent



**Figure 6.** Stent removal is successfully performed, and the new plastic stent is also placed

This adverse event may be critical, and fine gauge balloon catheter is useful not only as dilation but also reintervention device.

#### *Declaration of patient consent*

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and

initial will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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#### *Conflicts of interest*

There are no conflicts of interest.

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