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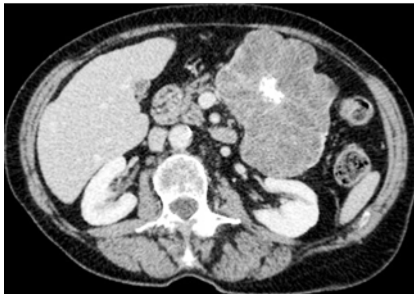
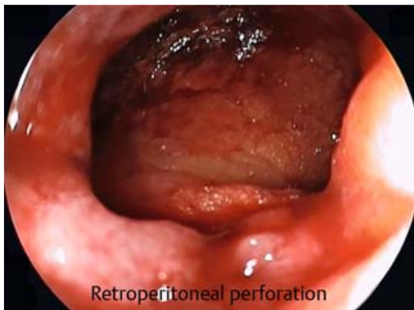
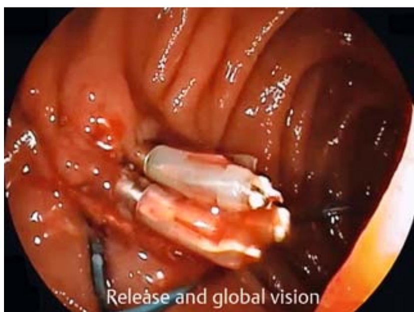
Successful closure of a complicated endoscopic ultrasound-related duodenal perforation



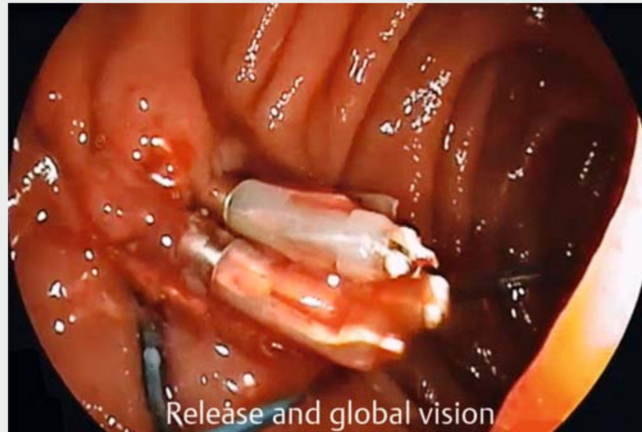
▶ **Fig. 1** Tomographic image of an abdominal mass with numerous confluent cysts in a central lobulated calcified area of large proportions.



▶ **Fig. 2** Endoscopic image of a perforation caused by the passage of a linear transducer from the echoendoscope to the second duodenal portion.



▶ **Fig. 3** Endoscopic image after endoloop closure with all clips interposed one on top of the other, with coaptation of the margins of the perforation.



Video 1 Closure of an endoscopic ultrasound-related large duodenal perforation using a combination of an endoloop and endoclips.

The incidence of duodenal perforation during endosonography (EUS) ranges from 0% to 0.04% [1]. The tip of the linear endoscope may perforate the duodenum as a consequence of angulation and the presence of stenosis or diverticula [1,2]. Unfortunately, in general, surgical repair is needed [3].

We report here an extensive perforation of the second duodenal portion after linear EUS, treated in an original and successful manner by the use of an endoloop and metallic endoclips [4]. The procedure was performed in a 72-year-old woman with abdominal and lumbar pain, a mass in the left hypochondrium, a 3-kg weight loss, and an expansive injury to the body/tail of the pancreas measuring about 10.7 × 8.9 × 7.2 cm, suggesting the presence of a serous cystadenoma upon computed tomography (▶ **Fig. 1**).

EUS was indicated for the assessment of vascular invasion. During the procedure, retraction and deformity were observed in the duodenal bulb with reduced distensibility, and an attempted transposition resulted in a large perforation of the duodenal wall (▶ **Fig. 2**). The perforation was closed with endoclips, which were applied to the entire circumference of the lesion, involving the margin of the lesion and an endoloop (▶ **Video 1**). The endoloop was then closed in order to obtain coaptation of the edges of the perforation (▶ **Fig. 3**). A nasoenteral tube and nasogastric tube were positioned for feeding and drainage, respectively.

The patient recovered well and was discharged from the hospital on the 4th postoperative day. The nasogastric and nasoenteral tubes were removed on the 3rd and 20th postoperative days, respectively.

Endoscopic repair using only clips could be technically difficult due to the tangential angle between the bulb and the second portion, the diameter of the lesion, and the accommodation of the margins of the perforation between the rods of the clip. The use of clips for the fixation of an endoloop to the margins of the lesion provided complete obliteration of the perforated area and good results after their activation. This technique, used in cases of perforation after endoscopic retrograde cholangiopan-

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creatography [4, 5], appears to be an alternative for the repair of perforations caused by endoscopic procedures.

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Competing interests

None

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