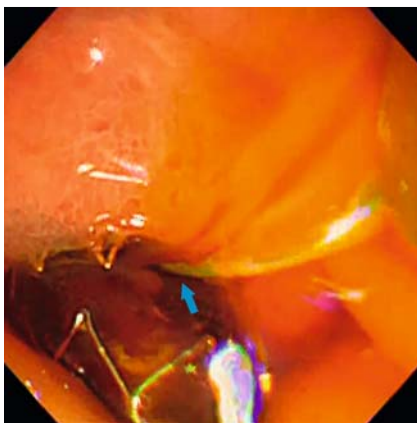


## Successful re-intervention through stent mesh after novel antireflux covered metal biliary stent placement

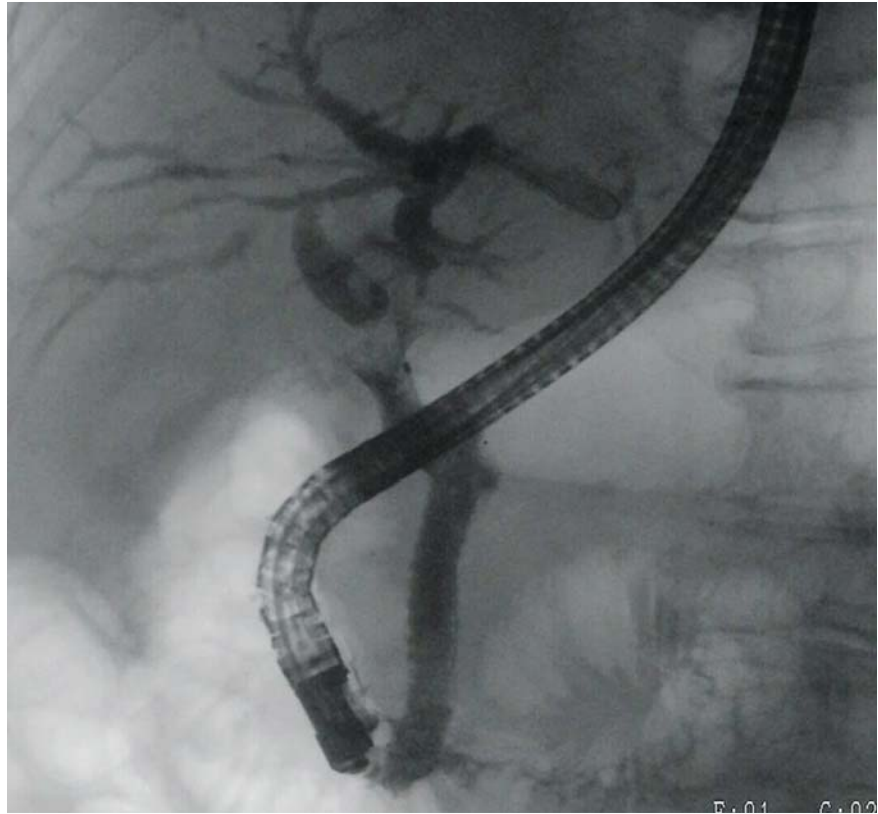


► **Fig. 1** Photograph showing the novel antireflux covered metal biliary stent (Kawasumi Duckbill Biliary Stent) with a duckbill-shaped antireflux valve attached to the stent's duodenal end. The valve is closed except when bile is flowing out.



► **Fig. 2** Penetration of the stent cover membrane with a 0.025-inch guidewire was successful, and a catheter was inserted into the bile duct (blue arrow).

A novel antireflux covered metal stent (Kawasumi Duckbill Biliary Stent; Kawasumi Laboratories, Inc., Tokyo, Japan) has recently become available for malignant biliary obstruction in Japan. This is a



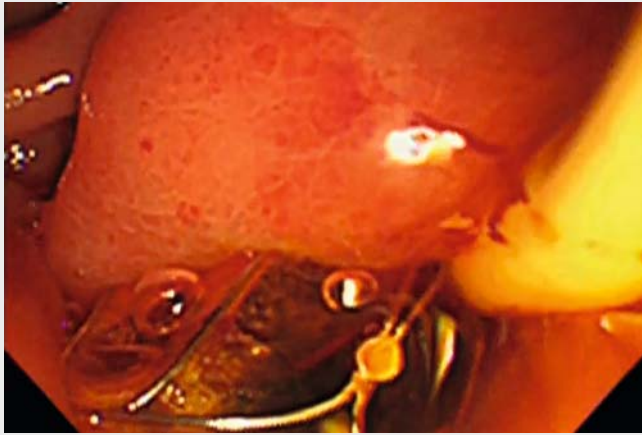
► **Fig. 3** On cholangiography through the stent mesh, neither tumor ingrowth nor food impaction could be identified; stenosis of the hilar bile duct was revealed.

laser-cut covered self-expandable metal stent (SEMS) with a duckbill-shaped antireflux valve attached to the duodenal end (► **Fig. 1**). The valve is closed except when bile is flowing out; it can therefore prevent reflux of duodenal contents into the bile duct. However, this design makes re-intervention via the duodenal end of the stent challenging. Here, we describe a successful re-intervention through the stent mesh after this novel SEMS was in place.

A 94-year-old man was admitted to our hospital with obstructive jaundice. Two months prior, a fully covered SEMS with a duckbill-shaped antireflux valve (Kawasumi Duckbill Biliary Stent) was placed for distal biliary cancer.

Re-intervention through the duodenal end of the stent was impossible due to the antireflux valve, so re-intervention through the stent mesh close to the papilla was attempted.

Penetration of the stent cover membrane with a 0.025-inch guidewire (VisiGlide 2; Olympus Medical Systems, Tokyo, Japan) was successful, and a catheter was inserted into the bile duct (► **Fig. 2**). On cholangiography, neither tumor ingrowth nor food impaction was present, but stenosis of the hilar bile duct was revealed (► **Fig. 3**). The guidewire was placed into the left and right bile ducts with an uneven double-lumen cannula (UDLC; PIOLAX, Kanagawa, Japan). Because of the open cell structure of the laser-cut covered SEMS, a 7-Fr plastic stent was



**▶ Video 1** Re-intervention through the stent mesh of a novel antireflux covered metal biliary stent.

placed into the left and right bile ducts without dilation of the stent mesh (**▶ Video 1**).

The “through-the-mesh” technique, which has been reported as a useful re-intervention method following endoscopic ultrasound-guided hepaticogastrostomy [1], could also be a useful re-intervention option after placement of this novel SEMS.

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### Competing interests

The authors declare that they have no conflict of interest.

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