# Endoscopic membrane resection using a scissors-type knife in a pediatric patient with congenital duodenal membranous stenosis

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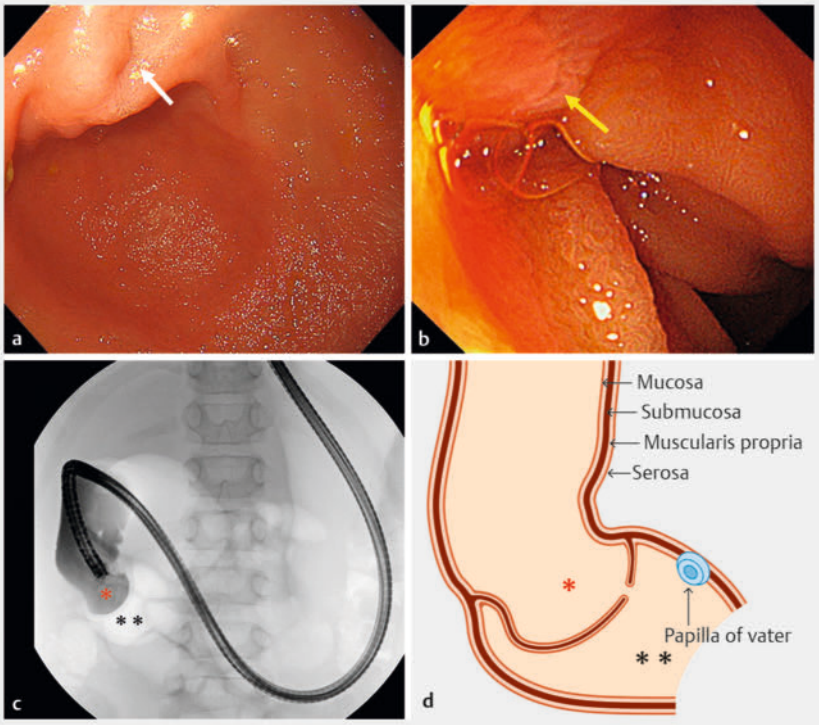
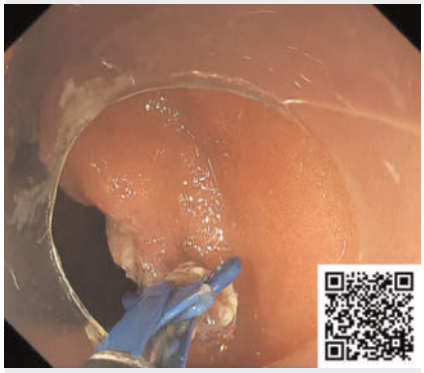



▶ **Fig. 1** The pre-treatment appearance on: **a** endoscopy, showing a membranous stenosis in the descending part of the duodenum (white arrow), with dilatation on its oral side (the duodenum on the anal side could not be observed using a conventional scope); **b** endoscopy using an ultrathin endoscope, showing the papilla of Vater (yellow arrow) on the anal side of the membranous stenosis; **c** duodenography, showing contrast retained above the membranous stenosis (red asterisk), with no flow to the anal side (black asterisks) owing to obstruction in the descending portion of the duodenum; **d** a schema, showing the congenital duodenal membranous stenosis separating the oral (red asterisk) and anal lumens (black asterisks).



▶ **Video 1** Congenital duodenal membranous stenosis in a pediatric patient is treated with an endoscopic procedure using a scissors-type knife.

Congenital duodenal membranous stenosis (DMS) is a narrowing of the lumen caused by formation by the mucosa of membrane-like structures; it is a rare disease with a frequency of 1 in 10.000–40.000 [1]. Notably, some endoscopic treatments for congenital DMS have been reported [1–4]; however, the endoscope's maneuverability in pediatric patients' duodenums is limited because of their small physique. Herein, we present a case of congenital DMS in which a scissors-type knife was successfully used to treat the membranous stenosis.

A 5-year-old boy with frequent vomiting underwent esophagogastroduodenoscopy (EGD) under general anesthesia. EGD and duodenography with a contrast agent revealed DMS in the descending part of the duodenum, and the papilla of Vater was observed on the anal side of the DMS (▶ **Fig. 1**).

Endoscopic treatment was performed after informed consent had been obtained (▶ **Video 1**). A guidewire was placed over the DMS as a landmark for the lumen (▶ **Fig. 2 a**). First, an incision was made using an ITknife nano (Olympus Co., Tokyo, Japan) with a therapeutic endoscope, while avoiding the papilla of Vater (▶ **Fig. 2 b**). However, the patient's narrow duodenum limited the working space, making it difficult to move the endoscope precisely. Therefore, we switched to performing the procedure using a scissors-type knife (SB Knife Jr2; SB-Kawasumi, Kanagawa, Japan), which is able to rotate without moving the endoscope (▶ **Fig. 2 c**). As a result, the DMS was successfully incised, and the endoscope could be passed easily through the lumen (▶ **Fig. 2 d**). The patient was asymptomatic 2 months after the procedure.

To our knowledge, no previous reports of the treatment of congenital DMS using scissors-type knives exist. An endoscopic procedure using a scissors-type knife is a safe and effective treatment option for congenital DMS, even where endoscopic manipulation in the duodenum is difficult.

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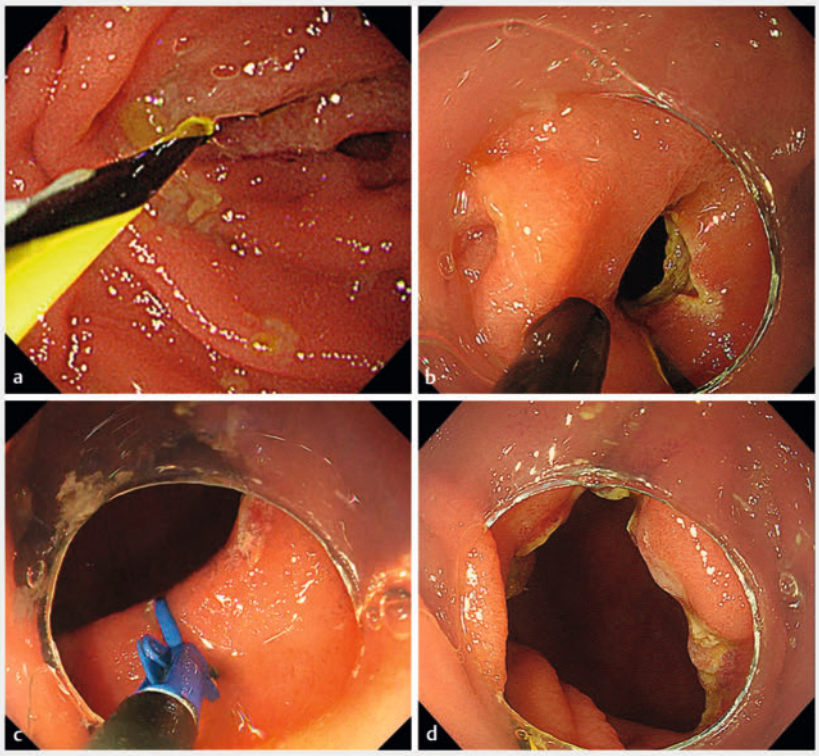


▶ **Fig. 2** Endoscopic images during the treatment showing: **a** a 0.025-inch guidewire passed beyond the membranous stenosis to identify the position of the lumen; **b** the initial incision of the duodenal membranous stenosis made using an ITknife nano, with poor endoscopic maneuverability making continuation difficult; **c** the scissors-type knife, which can be rotated without moving the endoscope, being used to continue the incision; **d** the widened lumen after endoscopic treatment, through which the endoscope could easily be passed.

## Conflict of Interest

The authors declare that they have no conflict of interest.

## The authors

**Jun Nakamura[1,2], Takuto Hikichi[1], Hideaki Tanaka[3], Minami Hashimoto[1,2], Tsunetaka Kato[1,2], Takumi Yanagita[1,2], Hiromasa Ohira[2]**

1 Endoscopy, Fukushima Medical University Hospital, Fukushima, Japan
2 Gastroenterology, Fukushima Medical University School of Medicine, Fukushima, Japan
3 Pediatric Surgery, Fukushima Medical University Hospital, Fukushima, Japan

## Corresponding author

**Takuto Hikichi, MD, PhD**
Department of Endoscopy, Fukushima Medical University Hospital, Hikarigaoka 1, 960-1295 Fukushima, Japan
takuto@fmu.ac.jp

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