Endoscopic resection of a duodenal web in an 11-month-old infant with multiple malformations

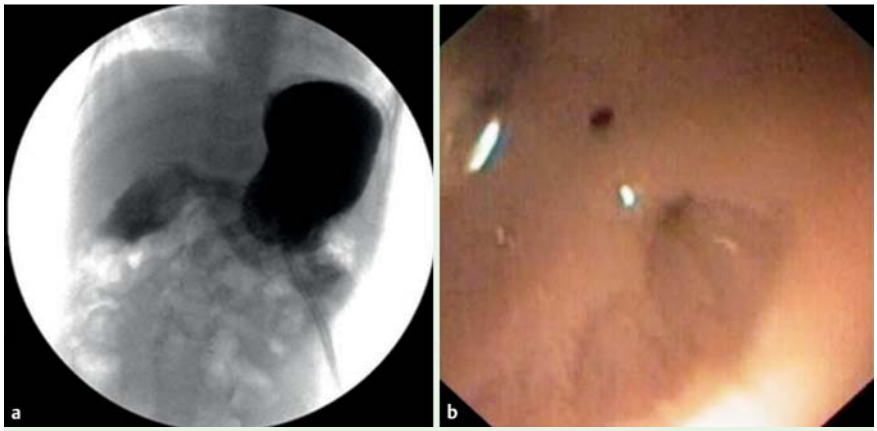

Fig. 1 **a** Preoperative upper gastrointestinal series in an 11-month-old infant with multiple malformations, including a duodenal web. **b** Diagnostic endoscopy reveals the web in the second portion of the duodenum.

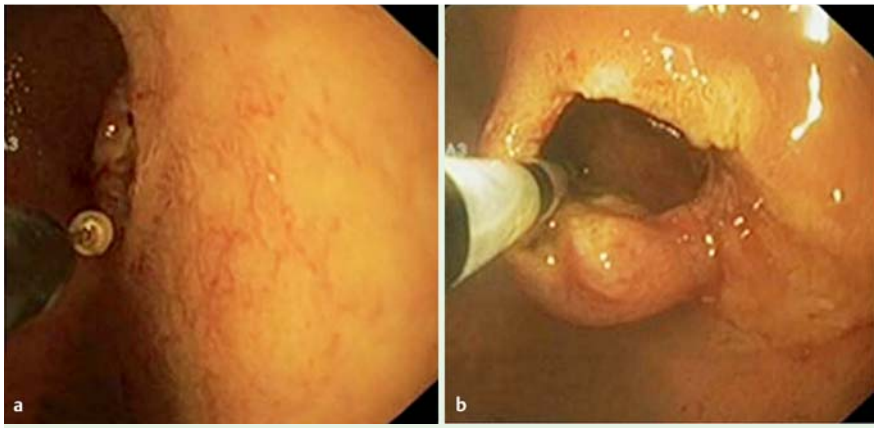

Fig. 2 **a** Electrosurgical knife with a protected spherical tip, used for resection. **b** Web resection.

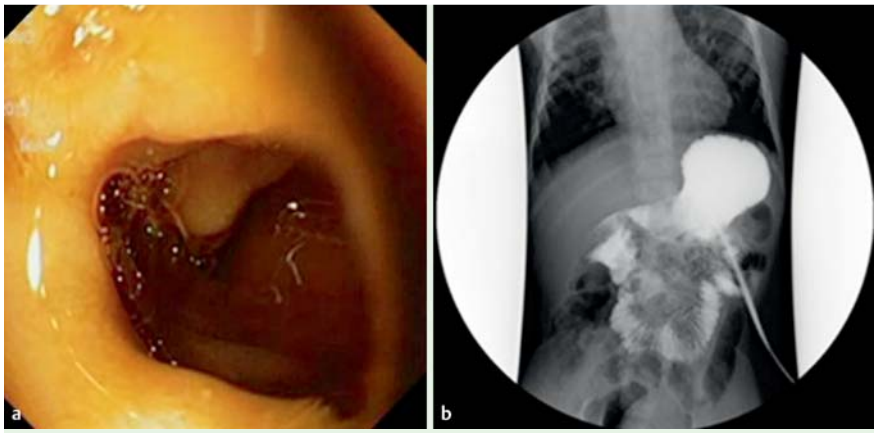

Fig. 3 **a** Endoscopic view after resection. **b** Contrast radiograph after web resection.

Duodenal atresia and duodenal stenosis are rare causes of intestinal obstruction in the newborn; the prevalence of intrinsic duodenal obstruction (atresia, web, or severe stenosis) is 1 in 6000 [1,2]. The webs are thin, consisting of mucosa and submucosa and usually lacking a muscular layer. The clinical presentation of affected patients includes intermittent, recurrent bilious vomiting and upper abdominal distension [3,4].

In the present case, the diagnosis was delayed until the patient was 11 months of age because of an association with long-gap esophageal atresia. Enteral feeding via gastrostomy was poorly tolerated. After correction of the esophageal atresia, oral feeding caused several episodes of nonbilious vomiting, and it proved difficult to increase the patient's nutrition. Diagnostic endoscopy revealed a duodenal web in the second portion of duodenum (**Fig. 1 a, b**).

We resected the web endoscopically. The instruments used were a flexible endoscope (GIF-Q180 series; Olympus America, Center Valley, Pennsylvania, USA) and a disposable electrosurgical knife with a protected spherical tip, similar to an insulated tip (IT)-type knife (Olympus) (**Fig. 2 a, b**).

The web appeared thin, and this feature made it possible to distinguish it clearly from the duodenal wall. Therefore, we made "freehand" radial incisions, starting from the web hole, applying traction to the web on the side opposite to the supposed location of the ampulla, and keeping a safe distance from the duodenal wall. These incisions were gradually enlarged to reach a luminal caliber, which facilitated transit of the endoscope (**Video 1**). In this way, we were able to locate the ampulla of Vater, and to continue and complete the resection safely (**Fig. 3 a, b**). To avoid a further reduction of visibility and workspace, we did not inject any "protective" submucosal solutions.

Reported experience in the endoscopic treatment of duodenal webs in children is limited and dated. Methods of endoscopic correction have included various tech-

Video 1

Endoscopic resection of a duodenal web in an 11-month-old infant born at 30 weeks' gestation with multiple malformations: esophageal atresia, duodenal atresia, laryngotracheal stenosis (laryngeal web type IV), and proximal hypospadias.

niques, such as laser, papillotome or sphincterotome, and biopsy forceps. Nowadays, we have at our disposal tools that are safe and designed to fit pediatric patients [5,6].

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Competing interests: None

Cosimo Bleve[1], Lorenzo Costa[1], Valeria Bertoncello[2], Francesco Ferrara[1], Elisa Zolpi[1], Salvatore Fabio Chiarenza[1]

[1] Department of Pediatric Surgery, San Bortolo Hospital, Vicenza, Italy
[2] Department of Digestive Endoscopy, San Bortolo Hospital, Vicenza, Italy

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Corresponding author
Cosimo Bleve, MD
Pediatric Surgery Department
San Bortolo Hospital
Vicenza
Italy
Fax: +39-444-752642
cosimo.bleve@ulssvicenza.it