Application of a diathermic dilator for negotiating near-total antropyloric strictures

Three patients with caustic substance-induced near-total antropyloric obstruction with recurrent vomiting were found to have a totally blocked antropyloric region with no flow of contrast distally (**Fig. 1**). Patient characteristics, the treatment provided, and the outcome are summarized in **Table 1**.

After the patient had given informed consent, esophagogastroscopy was carried out with the patient under conscious sedation. The site of narrowing was identified as a dimple or depression. Attempts were made to pass a 6–8-mm wire-guided, through-the-scope balloon dilator (CRE; Boston Scientific Corp., Natick, Massachusetts, USA) into the duodenum. When this failed, it was followed by passing a hydrophilic 0.025-inch guidewire (Visiglide; Terumo Corp., Shibuya-ku, Tokyo, Japan) under fluoroscopy. A 6-Fr wire-guided coaxial diathermic dilator (Cysto-Gastro-Set; Endo-Flex GmbH, Voerde, Germany) was threaded over the guidewire under fluoroscopic guidance to the level of the stricture. It was used to traverse the cicatrized segment step by step by applying an intermittent diathermy current (cut mode, 40 W, ERBE electrosurgical unit (ERBE USA Inc., Marietta, Georgia, USA) until the dilator passed through the entire length of the stricture (**Video 1**). Subsequent dilations were carried out in an incremental manner, ranging from 6 mm to 15 mm, with wire-guided through-the-scope balloon dilators twice weekly as described previously, with a close watch for complications [1]. The patients were followed up periodically for 12 months and then imaging was repeated (**Fig. 1**).

Ingestion of caustic substances leads to gastric cicatrization and gastric outlet obstruction in 36%–44% of patients [2–4]. All three patients in this report had near-total antropyloric obstruction that was negotiated using a coaxial diathermy dilator followed by balloon dilation. To the best of our knowledge, this is the first report to describe the use of this technique in patients with caustic-induced gastric outlet obstruction. A review of the literature found that a similar diathermy catheter has been used to dilate tight bile duct and pancreatic duct strictures [5].

In conclusion, our case series describes for the first time the application of a coaxial diathermy dilator for the management of near-total gastric outlet obstruction.

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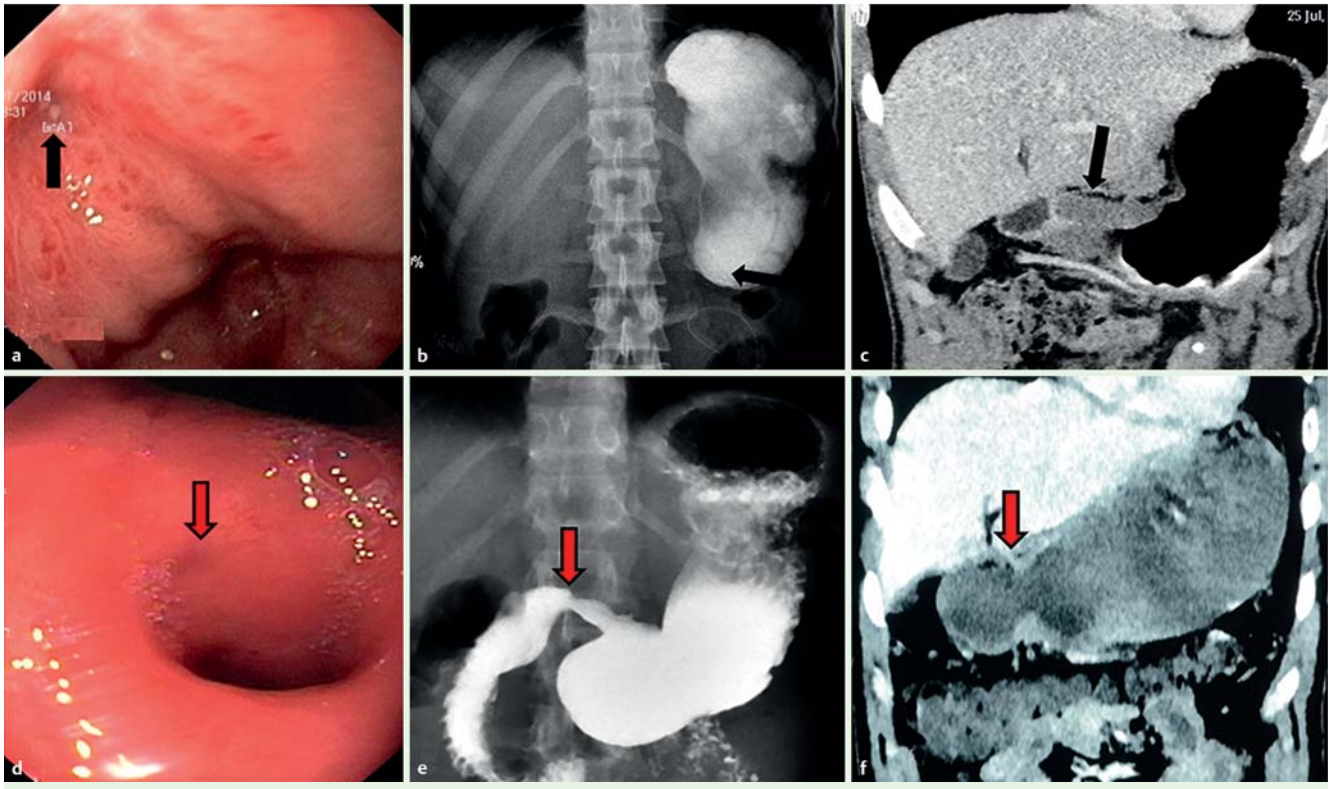


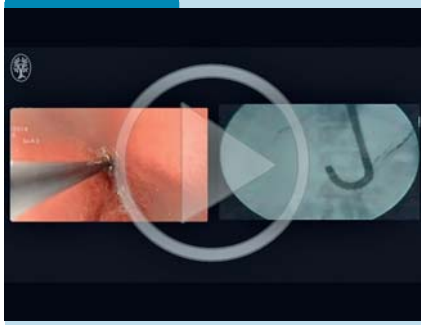
Fig. 1 **a–c** Complete gastric outlet obstruction (black arrow) visualized by: **a** endoscopy; **b** barium study; and **c** computed tomography (CT). **d–e** The opened up pyloric orifice following dilation (red arrow) visualized by: **d** endoscopy; **e** barium study; and **f** CT.

Table 1 Caustic substance-induced near-total antropyloric obstruction treated with diathermic dilation: demographic details, characteristics, endoscopic findings, and outcomes of three patients.

	Patient 1	Patient 2	Patient 3
Age, years	21	28	18
Sex	Male	Male	Female
Caustic substance	Sulphuric acid	Sulphuric acid	Nitric acid
Interval to presentation after acid ingestion, weeks	14	10	4
Symptoms	Vomiting, weight loss	Dysphagia, vomiting,weight loss	Vomiting, weight loss
Site of involvement	Antropyloric region	Antropyloric region	Antropyloric region
Associated ulceration at first dilation	Absent	Healing ulcer	Healing ulcer
Associated esophageal stricture	No	Yes	No
CECT abdomen			
Stricture length, mm	30	16	17
Wall thickness, mm	10	9	8
First dilation	4 mm (Hurricane balloon; Boston Scientific Corp., Marlborough, Massachusetts, USA)	4 mm (Hurricane balloon; Boston Scientific Corp., Marlborough, Massachusetts USA)	6 mm (CRE balloon; Boston Scientific Corp., Marlborough, Massachusetts USA)
Dilations to reach 15 mm, n	9	5	10
Intralesional steroid injections, n	8	4	10
Follow-up, months	12	11	10
Outcome	Successful	Successful	Successful
Complications	None	None	None

CECT, contrast-enhanced computed tomography.

Video 1



Diathermic dilation of near-total antropyloric stricture. Endoscopic view of the procedure (left) and the corresponding fluoroscopic image (right). After placement of the guidewire across the stricture site deep into the duodenum, the diathermic dilator was negotiated over the guidewire through the entire length of the stricture. This was followed by balloon dilation of the tract.

References

1 *Kochhar R*, *Poornachandra KS*, *Dutta U* et al. Early endoscopic balloon dilation in caustic-induced gastric injury. Gastrointest Endosc 2010; 71: 737 – 744
2 *Zargar SA*, *Kochhar R*, *Nagi B* et al. Ingestion of corrosive acids. Spectrum of injury to upper gastrointestinal tract and natural history. Gastroenterology 1989; 97: 702 – 707
3 *Zargar SA*, *Kochhar R*, *Nagi B* et al. Ingestion of strong corrosive alkalis: spectrum of injury to upper gastrointestinal tract and natural history. Am J Gastroenterol 1992; 87: 337 – 341
4 *Chaudhary A*, *Puri AS*, *Dhar P* et al. Elective surgery for corrosive-induced gastric injury. World J Surg 1996; 20: 703 – 706
5 *Kawakami H*, *Kuwatani M*, *Kawakubo K* et al. Transpapillary dilation of refractory severe biliary stricture or main pancreatic duct by using a wire-guided diathermic dilator. Gastrointest Endosc 2014; 79: 338 – 343

Bibliography
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