

A Case of Corrosive Injury-Induced Pharyngeal Stricture Treated by Endoscopic Adhesiolysis Using an Electrosurgical Knife

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Here, we report a case of corrosive injury-induced pharyngeal stricture in a 69-year-old female, which was successfully treated with endoscopic adhesiolysis using an electrosurgical knife. The patient had ingested sodium hydroxide in an attempted suicide, and immediate endoscopy revealed corrosive injuries of the pharynx, esophagus, and stomach. When a liquid diet was permitted, she complained of nasal regurgitation of food. Follow-up endoscopy revealed several adhesive bands and a web-like scar that did not allow passage of the endoscope into the hypopharyngeal area. For treatment of the hypopharyngeal stricture, the otolaryngologist attempted to perform an excision of the fibrous bands around the esophageal inlet using microscissors passed through an esophagoscope, but this procedure was not effective. We then dissected the mucosal adhesion and incised the adhesive bands using an electrosurgical knife. After this procedure, nasal regurgitation of food no longer occurred. To our knowledge, this case is the first report of endoscopic adhesiolysis with an electrosurgical knife in a patient with a corrosive injury-induced pharyngeal stricture. (**Gut Liver 2011;5:383-386**)

Key Words: Corrosive injury; Pharyngeal stricture; Adhesiolysis; Endoscopy; Electrosurgical knife

INTRODUCTION

The case of corrosive injury-induced pharyngeal stricture, rather than esophageal or gastric injury, was reported rarely. The treatment of corrosive burns, such as timing of endoscopy, antibiotics or steroid therapy, and possible surgical intervention, remain controversial.¹ Most reported cases of pharyngeal

strictures were treated with dilatation, laser ablation and surgery such as flap, bypass or replacement. However, there has been no report of endoscopic adhesiolysis. Herein, we report, to our knowledge, the first case of corrosive injury-induced pharyngeal stricture treated with endoscopic adhesiolysis using electrosurgical knife.

CASE REPORT

A 69-year-old female was presented with drowsy mentality following ingestion of 100 mL of sodium hydroxide for suicide attempt. On presentation, her voice was hoarse, and she was short of breath and drooling her saliva. Immediate endoscopy was performed after her mentality became alert, and it revealed diffuse edematous and inflamed oropharynx (Fig. 1A), esophagus and stomach. While fasting, total parenteral nutrition, antibiotics and proton pump inhibitors were intravenously administered. Psychiatric evaluation was also offered simultaneously.

After 2 weeks of fasting, liquid diet was permitted gradually, but she complained of swallowing difficulty. Follow-up endoscopy revealed several adhesive bands and web-like scar not allowing passage of endoscopy in the hypopharyngeal area (Fig. 1B-D). Examination through the pediatric scope and esophagogram showed healing staged ulcer with stricture in the hypopharynx and mid to lower esophagus. For the hypopharyngeal stricture, fibrous bands around esophageal inlet were excised with microscissors through the rigid esophagoscope by the otolaryngologist under the general anesthesia. However, liquid bolus swallowing still caused nasal regurgitation after the operation. Before considering the definite treatment including surgical reconstruction, we planned to treat conservatively until the pharyngoesophageal ulcers were completely turned into

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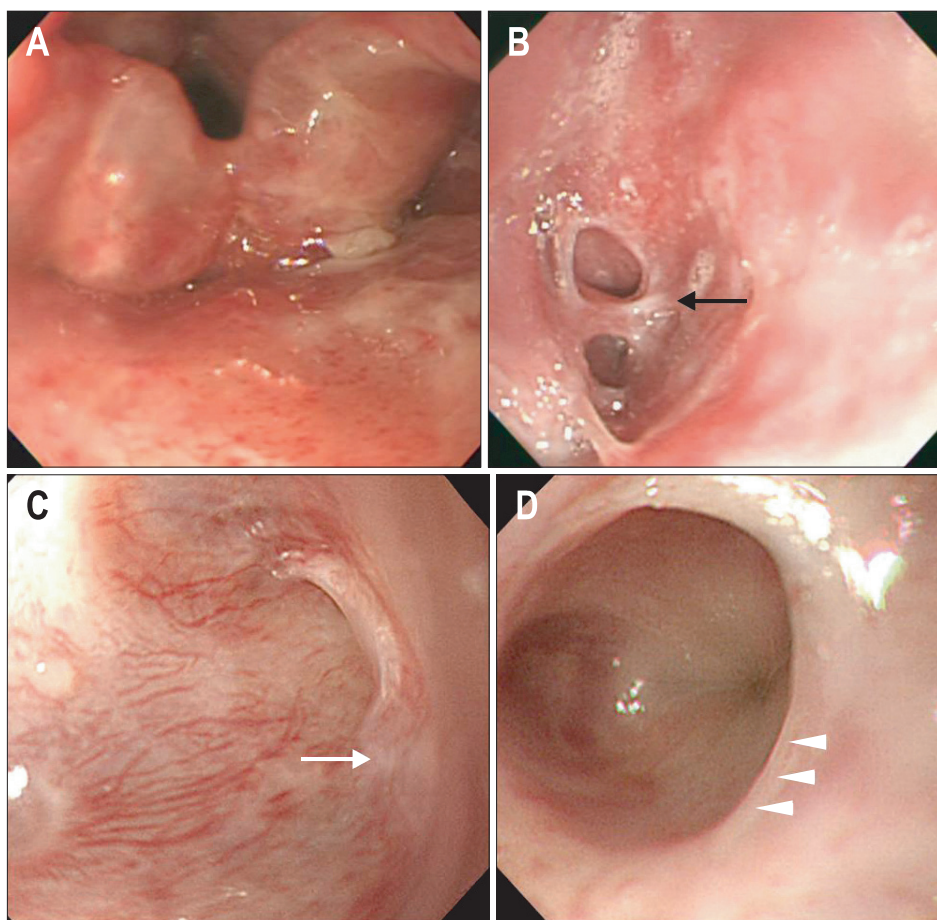


Fig. 1. (A) Endoscopy on the day of admission showing edematous mucosal swelling of the pharynx and arytenoids cartilage. (B-D) Endoscopy after 2 weeks showing several adhesive bands (black arrow), a pharyngeal wall adhesion (white arrow), and a web-like scar lesion (arrowheads) on the hypopharyngeal area. The adult endoscope can not be passed through this area.

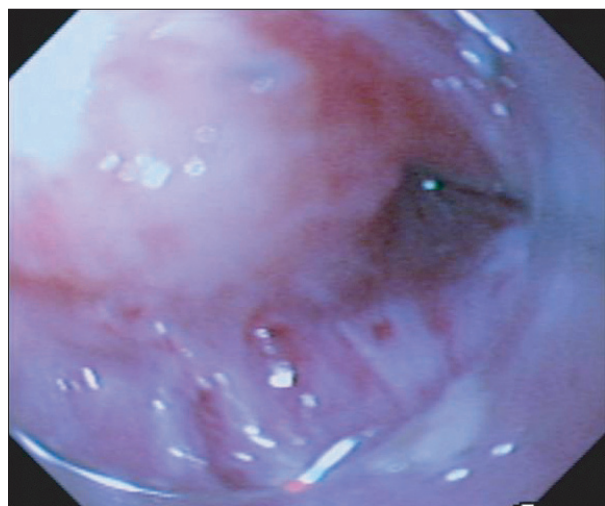


Fig. 2. Endoscopy on the day of procedure showing the tip of the transparent cap that is pushed toward the scar tissue to define the wall plane that is to be incised.

scars.

Four months later, follow-up examination showed persistent luminal strictures of hypopharynx and segmental stricture of lower esophagus without active ulcer, sparing relatively upper esophagus. Because of ineffectiveness of the prior operation,

we decided to perform the endoscopic adhesiolysis with electrosurgical knife for the treatment of hypopharyngeal stricture. While in the supine position and under the general anesthesia, cap-fitted endoscopy (GIF XQ260; Olympus, Tokyo, Japan) was performed. To recognize the wall plane of hypopharynx to be incised, the tip of the transparent cap was pushed toward the scar tissue (Fig. 2). Under the direct visualization of adhered plane through a transparent cap, incisions for the dissection of mucosal adhesion and adhesive bands were performed using IT knife-2 (insulated-tip diathermic knife-2; Olympus Medical Systems, Tokyo, Japan) and Flex knife (fixed flexible snare; Kachu Technology, Seoul, Korea) in ENDOCUT I mode, effect 3, duration 2, interval 4 (VIO 300D; ERBE, Tübingen, Germany) (Fig. 3). We progressed the procedure until the scope was able to be passed into the upper esophageal lumen, and there was no immediate and delayed complication. Following procedure, the patient was given intravenous infusion of proton pump inhibitors and broad-spectrum antibiotics for five consecutive days, starting from the day of procedure, and was kept nil by mouth. The patient did not receive steroid therapy during any stage of her treatment. After three days of fasting, follow-up endoscopic examination showed that luminal narrowing was more improved (Fig. 4), and nasal regurgitation of food was disappeared after the procedure. For the resolution of lower

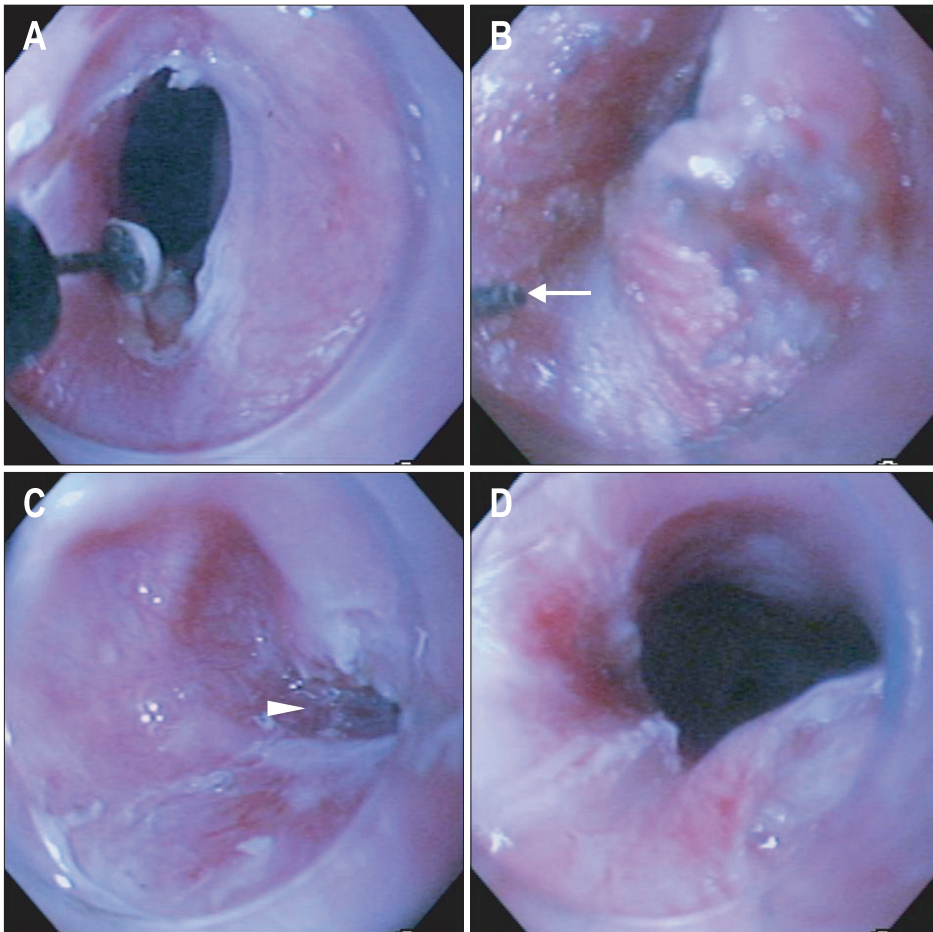


Fig. 3. (A, B) Endoscopy on the day of procedure showing that incision therapy for the dissection of the mucosal adhesion and adhesive bands of the hypopharynx is performed with an IT knife and a Flex knife (arrow) through the cap-fitted endoscopy. (C, D) Endoscopy showing that the adhesive band is incised (arrowhead) and that the lumen is widened.

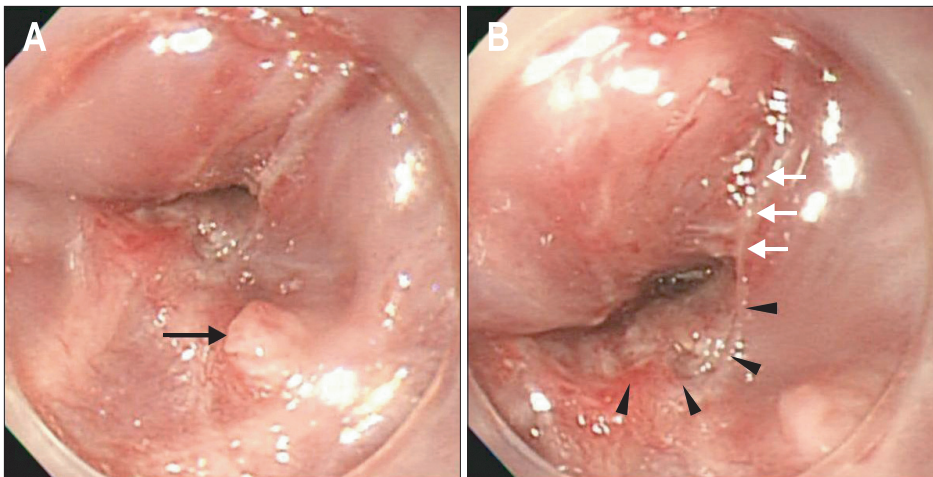


Fig. 4. Follow-up endoscopy after the procedure showing (A) the remnant stump of the adhesive band (arrow) and (B) the dissected linear scar tissue (arrowheads) with a partial remnant of the adhered scar tissue (arrows).

esophageal stricture, balloon dilatation and bougienations were performed twice. She became tolerable with soft diet. She is visiting the outpatient departments and is tolerable with soft diet 11 months after the event.

DISCUSSION

Ingestions of corrosive agents produce a spectrum of injury

of upper aero-gastrointestinal tract. Esophageal injury is the most common and accounts for 70%, gastric injury for 20%, and pharyngeal injury for 10%.² The reason of the less common incidence of clinically significant injury of oropharynx, like our case, is not clear, but we could assume that rapid swallowing of corrosive agent resulted in relatively insignificant hypopharyngeal injury compared to upper esophageal injury.

The stricture of gastrointestinal tract is one of the significant

late complications of corrosive injury. Surgical correction is generally undertaken if multiple, repeated dilations are unsuccessful, but localized, segmental narrowing can be corrected by various methods depending on the length and severity of the stricture.³ For pharyngeal strictures, surgically managed cases including flap⁴ and colon interposition or pull-up of stomach with or without stenting^{5,6} were reported, and there were experiences of local treatments such as laser ablations⁷ and balloon dilation and/or bougienation.⁸ However, there has been no report of endoscopic incision therapy using electrosurgical knife.

The electrosurgical knife has been effectively used to perform the endoscopic submucosal dissection of gastrointestinal tumors, and to treat esophageal rings.^{9,10} Some cases of post operative esophageal strictures which were effectively treated with electrosurgical knife have been also reported.^{11,12} Our case shows the electrosurgical knife could be also useful and effective for treating corrosive injury-induced pharyngeal stricture.

There were several points to be considered to perform this procedure safely and effectively. It is important to discriminate the wall plane to be incised. In case of severe adhesions, the wall plane might not be identified clearly when pushing with cap-fitted endoscope and it might hinder the safe incision. Moreover, it might be technically difficult to perform in case of diffusely extended stricture to upper esophagus, rather than in case of relatively isolated hypopharyngeal stricture. Lastly this procedure should be done under the general anesthesia to avoid the fluctuation of pharyngeal wall provoked by gag and airway reflex.

More validated data would be needed to discuss technical feasibility and specific indication for endoscopic adhesiolysis of pharyngeal stricture. We think endoscopic adhesiolysis with electrosurgical knife is one of the minimally invasive local treatment modalities. Therefore, it could be tried to treat corrosive injury-induced pharyngeal stricture for either palliative or definite treatment, especially before considering the difficult surgical management.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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