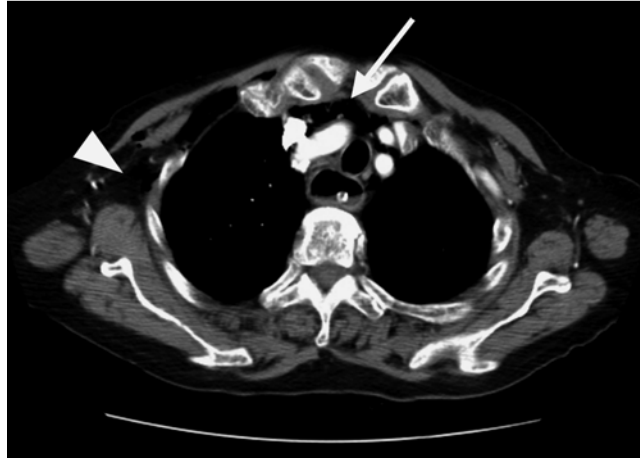


## Pneumomediastinum, pneumoperitoneum, pneumoretroperitoneum, and subcutaneous emphysema after ultrathin endoscopy



**Fig. 1** Endoscopic view of the esophageal cancer.



**Fig. 2** Chest computed tomography (CT) revealed subcutaneous emphysema and pneumomediastinum (arrows).

An 89-year-old woman was admitted for dysphagia over a 2-month period. Transnasal endoscopy with an ultrathin endoscope (Fujinon EG-530N; Fujinon, Wayne, New Jersey, USA) was used. An ulcerative tumor was found in the middle esophagus (▶ **Fig. 1**), and the biopsy revealed squamous cell carcinoma. A feeding tube was placed over a guidewire.

A chest computed tomography (CT) scan was performed the next day to evaluate the esophageal cancer. Pneumomediastinum, pneumoperitoneum, pneumoretroperitoneum, and subcutaneous emphysema (▶ **Figs. 2–4**) were found, and no fluid collection was seen.

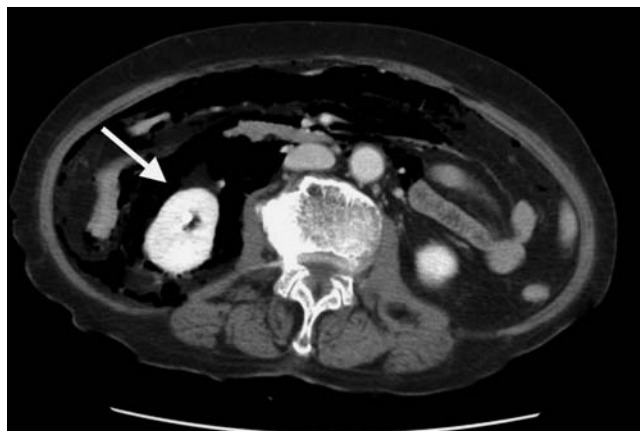
The patient received intravenous antibiotic therapy and nutritional support. An esophageal Niti-S stent (Taewoong Medical, Seoul, Korea) was placed into the patient's esophagus (▶ **Fig. 5**).

The patient did not develop clinical signs of sepsis and was placed on a restricted diet 1 week later. She was discharged with the ability to consume semi-solid food and was referred to an oncology clinic.

Perforation of the gastrointestinal tract during endoscopic examination is a rare but serious complication. Perforation with the presence of pneumomediastinum, pneumoperitoneum, pneumoretroperitoneum, and subcutaneous emphysema has been reported in association with endoscopic retrograde cholangiopancreatography [1,2] and colonoscopy [3]. To our knowledge, this is the first case of such



**Fig. 3** Abdominal computed tomography (CT) revealed pneumoperitoneum.



**Fig. 4** Abdominal computed tomography (CT) revealed pneumoretroperitoneum (arrow).



**Fig. 5** Chest radiograph showing the esophageal stent.

complications associated with the ultrathin endoscope [4].

An ultrathin endoscope was used in this case because the patient was elderly and suspected of having esophageal stricture. Indeed, the esophageal lumen was severely stenotic, and the endoscope was passed into the stenotic area after several attempts.

We postulate that the mechanism of perforation in this case was an unrecognized small perforation while manipulating the endoscope through the stenotic area of

the esophageal cancer. Although the ultrathin endoscope is considered safer than a standard endoscope, the clinician should be aware of gastrointestinal perforation, especially in the case of gastrointestinal stricture.

Endoscopic therapy with a metallic stent, as in this case, can be effective to manage complications.

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**Competing interests:** None

**H.-H. Yen<sup>1,2</sup>, Y.-Y. Chen<sup>3</sup>**

<sup>1</sup> Department of Gastroenterology, Changhua Christian Medical Center, Changhua, Taiwan

<sup>2</sup> Department of Holistic Wellness, MingDao University, Changhua, Taiwan

<sup>3</sup> Department of Gastroenterology, China Medical University Hospital, Taichung, Taiwan

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#### Corresponding author

**H.-H. Yen, MD**

Department of Gastroenterology  
Changhua Christian Medical Center  
135 Nanshio Street  
Changhua 500  
Taiwan

Fax: +886-7-7228289

91646@cch.org.tw