



# Pneumomediastinum and Pneumoperitoneum after Spray Cryotherapy

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## INTRODUCTION

- Pneumomediastinum and pneumoperitoneum are potential complications of endoscopic procedures that can be fatal if not recognized quickly
- Risk factors for esophageal perforation with endoscopy include Barrett's esophagus, achalasia, malignancy, connective tissue disorders, strictures
- Procedures that increase risk of perforation: Dilation, Hemostasis, Stent placement, Foreign body extraction, Ablation

## CASE DESCRIPTION

81 year old male with history of T2 distal esophageal adenocarcinoma presented for cryotherapy. Patient had tolerated previous cryotherapy without any complications. During this session, after the second cycle of freezing and thawing, the patient's abdomen suddenly became significantly rigid as well as having notable crepitus on his chest tracking up to his neck on exam. When advancing the endoscope, the stomach was notably decompressed. As anesthesia started to note difficulty ventilating, the patient went into PEA arrest. Rapid recognition of bilateral tension pneumothorax prompted anesthesia to do bilateral needle decompression in the 2<sup>nd</sup> intercostal space. Upon needle decompressions, vitals signs improved significantly. The patient was resuscitated and imaging confirmed bilateral pneumothoraces, pneumoperitoneum, pneumomediastinum, likely all resulted from perforation of patient's esophageal tumor in setting of cryotherapy. The patient was intubated and required bilateral chest tubes. Fortunately, he was extubated within a day after and was discharged safely within a week.

## Figures

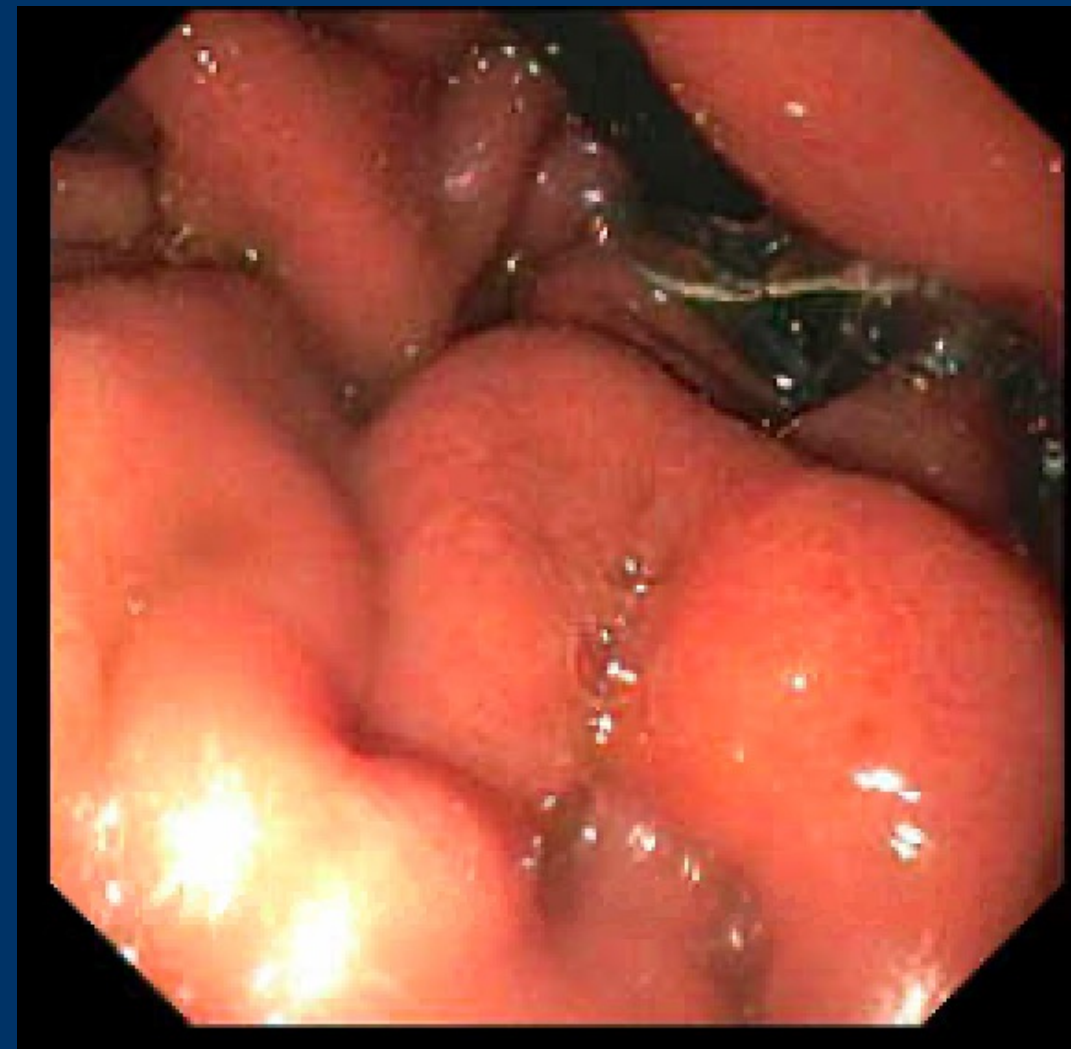


Figure 1: Endoscopic view of decompressed stomach after perforation of esophagus

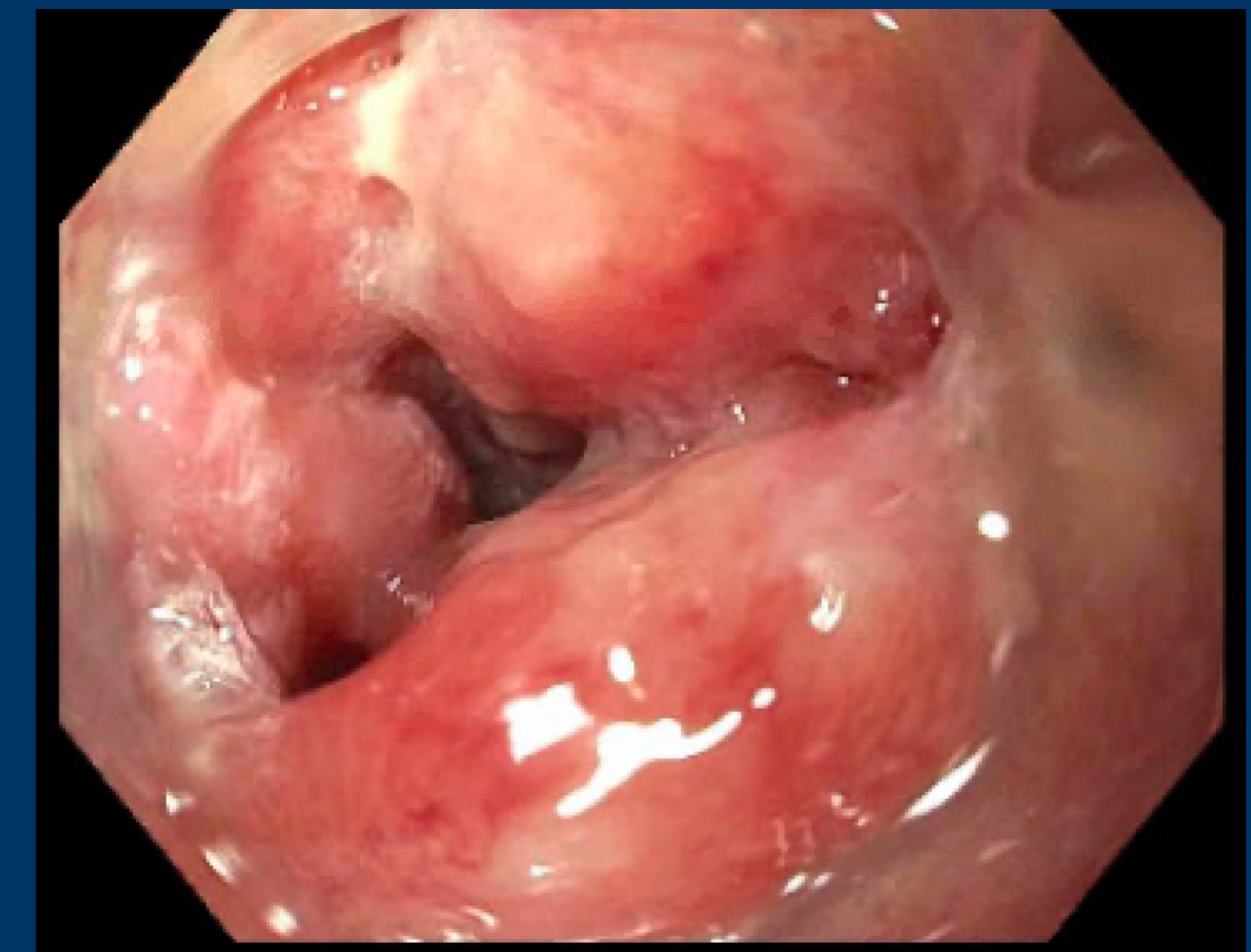


Figure 3: Endoscopic view of esophageal adenocarcinoma



Figure 2: Chest X-ray and Abdominal X-ray showing pneumothoraces, pneumoperitoneum, and pneumomediastinum

## DISCUSSION

- Prompt recognition of pneumomediastinum and pneumoperitoneum is essential as they can be lethal complications of endoscopy.
- This specific patient had an increased risk of esophageal perforation due to the presence of malignancy and the location of the tumor in the distal esophagus
- Key physical exam findings include crepitus, distended and tympanic abdomen, respiratory changes, endoscopic findings of a decompressed stomach
- Spray cryotherapy leads to massive gas production and if adequate evacuation is not occurring, barotrauma can result
- Recognition of these diagnoses requires the cumulative effort of the endoscopist, anesthesiologist, and nurses