An unusual case of pneumoperitoneum, pneumomediastinum, and subcutaneous emphysema following colorectal stent placement

A 51-year-old man with a history of rectal adenocarcinoma presented to the emergency department with abdominal pain, distension, and obstipation for 2 days. Computed tomography (CT) scan of the abdomen showed malignant colonic obstruction (Fig. 1 a, b). The patient underwent flexible sigmoidoscopy with successful deployment of a self-expanding metal stent (SEMS) for emergency decompression (Fig. 1 c).

The following day, the patient complained of pain in the abdomen and neck. Physical examination revealed crepitations over the neck and anterior chest. CT scan and chest radiograph showed pneumomediastinum, pneumothorax, subcutaneous emphysema, and retroperitoneal gas (Fig. 2). Work-up for pneumomediastinum, including bronchoscopy and barium esophagogram, showed normal findings. The cause was thought to be an air leak from retroperitoneal colon microperforation, either pre-existing, occurring during the procedure, or as a result of stent expansion, with subsequent air traversing along the fascial plane from the retroperitoneum to the diaphragmatic hiatus, mediastinum, and subcutaneous tissue. The patient denied any shortness of breath and remained hemodynamically stable. He was given prophylactic antibiotics and kept under close observation. Follow-up imaging showed complete resolution of pneumomediastinum, pneumothorax, and subcutaneous emphysema (Fig. 3).

Colonic perforation related to SEMS placement causing pneumoperitoneum and peritonitis is a common complication [1]. Though uncommon and not previously reported, development of pneumomediastinum, pneumothorax, and subcutaneous emphysema following SEMS placement is possible because of the anatomic connections between soft tissue and the visceral compartment of the neck, thorax, and retroperitoneum [2]. In the majority of cases, the perforation is small and closes spontaneously, with the patient remaining asymptomatic. However, if the perforation is large and gas insufflation continues from a perforated colon, it can cause life-threatening tension pneumo-

---

**Fig. 1** Malignant colonic obstruction. a Computed tomography of the abdomen (horizontal view). b Endoscopic image. c Post stent placement.

**Fig. 2** Pneumoperitoneum, pneumomediastinum, and subcutaneous emphysema following stent placement. a Chest radiograph. b,c Computed tomography scan (coronal view).
thorax and acute respiratory failure, requiring emergency intubation and thoracentesis [3–5]. With the increasing use of SEMSs, physicians need to be familiar with the diagnosis and effective management of such complications.

Competing interests: None

Pragnesh Patel, Shivang Mehta, Shashideep Singhal
Division of Gastroenterology and Hepatology, University of Texas Health Science Center at Houston, Texas, United States

References
2 Maunder RJ, Pierson DJ, Hudson LD. Subcutaneous and mediastinal emphysema: pathophysiology, diagnosis, and management. Arch Intern Med 1984; 144: 1447–1453
5 Kipple JC. Bilateral tension pneumothoraces and subcutaneous emphysema following colonoscopic polypectomy: a case report and discussion of anesthesia considerations. AANA J 2010; 78: 462–467

Bibliography
DOI http://dx.doi.org/10.1055/s-0034-1391937
Endoscopy 2015; 47: E173–E174
© Georg Thieme Verlag KG
Stuttgart · New York
ISSN 0013-726X

Corresponding author
Pragnesh Patel, MD
Internal Medicine
University of Texas Health Science Center at Houston
6431 Fannin, MSB 4.234
Houston
Texas 77030
United States
Phone: +1-713-500-6699
pragnesh.jp@gmail.com

Fig. 3  Follow-up computed tomography of the abdomen (coronal view), showing resolution of pneumoperitoneum, pneumomediastinum, and subcutaneous emphysema.