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 re-

mained 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).

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

thorax and acute respiratory failure, requiring emergency intubation and thoracotomy [3–5]. With the increasing use of SEMSS, physicians need to be familiar with the diagnosis and effective management of such complications.

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