

CASE REPORT

## Subcutaneous cervical emphysema and pneumomediastinum due to a lower gastrointestinal tract perforation

Georg B Schmidt, Maarten W Bronkhorst, Henk H Hartgrink, Lee H Bouwman

Georg B Schmidt, Henk H Hartgrink, Department of Surgery, Leiden University Medical Center, Leiden RC 2300, The Netherlands

Maarten W Bronkhorst, Lee H Bouwman, Department of Surgery, Bronovo Hospital, The Hague AX 2597, The Netherlands

Author contributions: Schmidt GB, Bronkhorst MW, Hartgrink HH and Bouwman LH contributed equally to this article.

Supported by Research Fonds Bronovo

Correspondence to: Georg B Schmidt, MD, Leiden University Medical Center, Albinusdreef 2, PO-box 9600, Leiden RC 2300, The Netherlands. [g.b.schmidt@lumc.nl](mailto:g.b.schmidt@lumc.nl)

Telephone: +31-71-5269111 Fax: +31-71-5266750

Received: November 23, 2007 Revised: May 30, 2008

Accepted: June 6, 2008

Published online: June 28, 2008

geal or chest trauma. It can also occur spontaneously in association with asthma, excessive coughing, or straining. Cervical emphysema occurs when air moves through tissue planes into subcutaneous areas of the face and neck. Subcutaneous neck emphysema, pneumomediastinum, and retroperitoneum have been reported infrequently following colonoscopic perforation. Iatrogenic colonic perforation is a serious but rare complication of colonoscopy. A perforation risk rate of 0.12% has been reported<sup>[1]</sup>.

Subcutaneous emphysema caused by non-traumatic perforations of the colon is extremely rare. However, it should be considered when no obvious case can be found for the origin of subcutaneous emphysema or a pneumomediastinum.

### Abstract

This case report describes a 69-year-old man presenting with an extensive subcutaneous emphysema in his neck and generalized peritonitis caused by a lower gastrointestinal tract perforation. This case emphasizes that subcutaneous emphysema patients with negative thoracic findings should be scrutinized for signs of retroperitoneal hollow viscus perforation.

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**Key words:** Subcutaneous cervical emphysema; Pneumomediastinum; Gastrointestinal tract perforation; Malignancy; Diverticulitis

**Peer reviewer:** Wei Tang, MD, EngD, Assistant Professor, H-B-P Surgery Division, Artificial Organ and Transplantation Division, Department of surgery, Graduate School of Medicine, the University of Tokyo, Tokyo 113-8655, Japan

Schmidt GB, Bronkhorst MW, Hartgrink HH, Bouwman LH. Subcutaneous cervical emphysema and pneumomediastinum due to a lower gastrointestinal tract perforation. *World J Gastroenterol* 2008; 14(24): 3922-3923 Available from: URL: <http://www.wjgnet.com/1007-9327/14/3922.asp> DOI: <http://dx.doi.org/10.3748/wjg.14.3922>

### CASE REPORT

A 69-year-old man presented himself at the Accident and Emergency Department with a 6-h history of swelling in the neck, an altered voice and abdominal pain. He was treated for a painful fifth rib on the left which was caused by a metastasis of an unknown primary tumor. Analysis for the primary tumor was ongoing, but not yet concluded. Radiotherapy was started and prednisolone was prescribed.

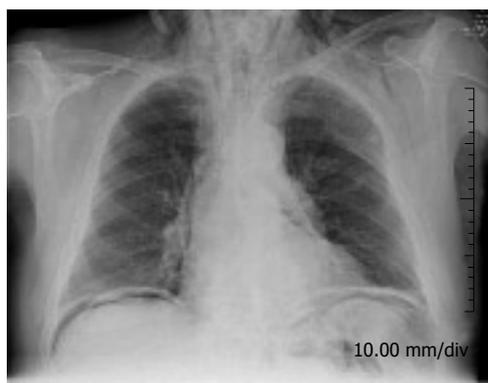
Physical examination revealed signs of extensive subcutaneous emphysema in his neck and generalized peritonitis. Laboratory blood and urine tests were normal apart from an elevated white cell count of  $23 \times 10^9$  cells/L. A plain radiograph of the thorax showed free intraperitoneal air, pneumomediastinum and extensive subcutaneous emphysema, but no sign of pneumothorax (Figure 1).

An explorative laparotomy was performed, a perforation of the small bowel and the caecum was found, which were oversew. There were two perforations of the sigmoid but no palpable tumor. A sigmoid resection was performed with a permanent colostomy. The proximal end of the distal segment was oversew and left in place with a blind rectal pouch. The patient was admitted to the Intensive Care Unit after operation. Pathological examination showed diverticulitis with a perforation, and no tumor was found in the resected sigmoid.

After consultation with the patient and his family, the patient received no further surgical treatment. The patient died of respiratory arrest 12 d after surgery.

### INTRODUCTION

Pneumomediastinum usually occurs following esopha-



**Figure 1** Thorax X-ray examination of the patient showing free air in abdomen, pneumomediastinum and severe subcutaneous cervical emphysema.

## DISCUSSION

Non-traumatic subcutaneous emphysema is a rare presentation of lower gastrointestinal tract perforation due to colorectal cancer or diverticulitis<sup>[2-6]</sup>.

As the rectosigmoid is located in the retroperitoneum, injury can be present in the absence of peritonitis. Mediastinal and cervical emphysema may develop due to dissection of air *via* contiguous tissue planes, which occurs along the perivascular adventitia to the anterior pararenal space, through the diaphragmatic hiatus along the adventitia of great vessels to the mediastinum and pericardium/or pretracheal fascia to the neck<sup>[7,8]</sup>.

Subcutaneous emphysema patients with negative thoracic findings should be scrutinized for signs of retroperitoneal hollow viscus perforation to improve their outcome.

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S- Editor Li DL L- Editor Wang XL E- Editor Lin YP