

# Massive subcutaneous emphysema in the upper leg

## Abstract

Subcutaneous emphysema of the extremities can be associated with necrotizing fasciitis, a surgical emergency. It can sometimes also be caused by local spreading of air from a retroperitoneal bowel perforation. Other than this specific symptom, the diagnosis of retroperitoneal perforation is usually impeded by lack of signs of peritoneal irritation.

## Key Clinical Message

Free air resulting from a retroperitoneal bowel perforation can spread extra-abdominally, revealing an otherwise difficult diagnosis.

A 69 year old male patient with a history of rectal carcinoma for which he had undergone neo-adjuvant radiochemotherapy presented with fever and a swelling of the right upper leg. The diagnosis of erysipelas was withheld, the patient was started on IV Flucloxacillin. The next day subcutaneous emphysema was palpable so necrotizing fasciitis was to be excluded. A contrast enhanced CT of the leg was performed to confirm the presence and the extent of collections. Axial slices through the upper leg demonstrate the diffuse presence of air, both subcutaneous and dissecting the muscles (Figure 1). The air extends up to the buttocks and into the retroperitoneum where a rectum perforation is suspected (Figure 2).

Necrotizing fasciitis is a surgical emergency. Early detection and aggressive surgical intervention are crucial to reduce patient mortality and morbidity. Other causes of subcutaneous emphysema exist however. Free air in the retroperitoneum resulting from bowel perforation can spread extra-abdominally (1). Perforation of the rectum is frequently observed in malignant diseases: perforation can be spontaneous as a result of tumor progression or iatrogenic as a result of endoscopic procedures or radiotherapy. The

diagnosis of retroperitoneal perforation is usually impeded by lack of signs of peritoneal irritation (2).

## References

1. Saldia NS, Fellars TA, Covey DC. Case report: Bowel perforation presenting as subcutaneous emphysema of the thigh. *Clin Orthop Relat Res*. 2010;468(2):619-623. doi:10.1007/s11999-009-1015-3
2. Welch JP, Donaldson GA. Perforative carcinoma of colon and rectum. *Ann Surg*. 1974;180(5):734-740. doi:10.1097/0000658-197411000-00005

## Figures

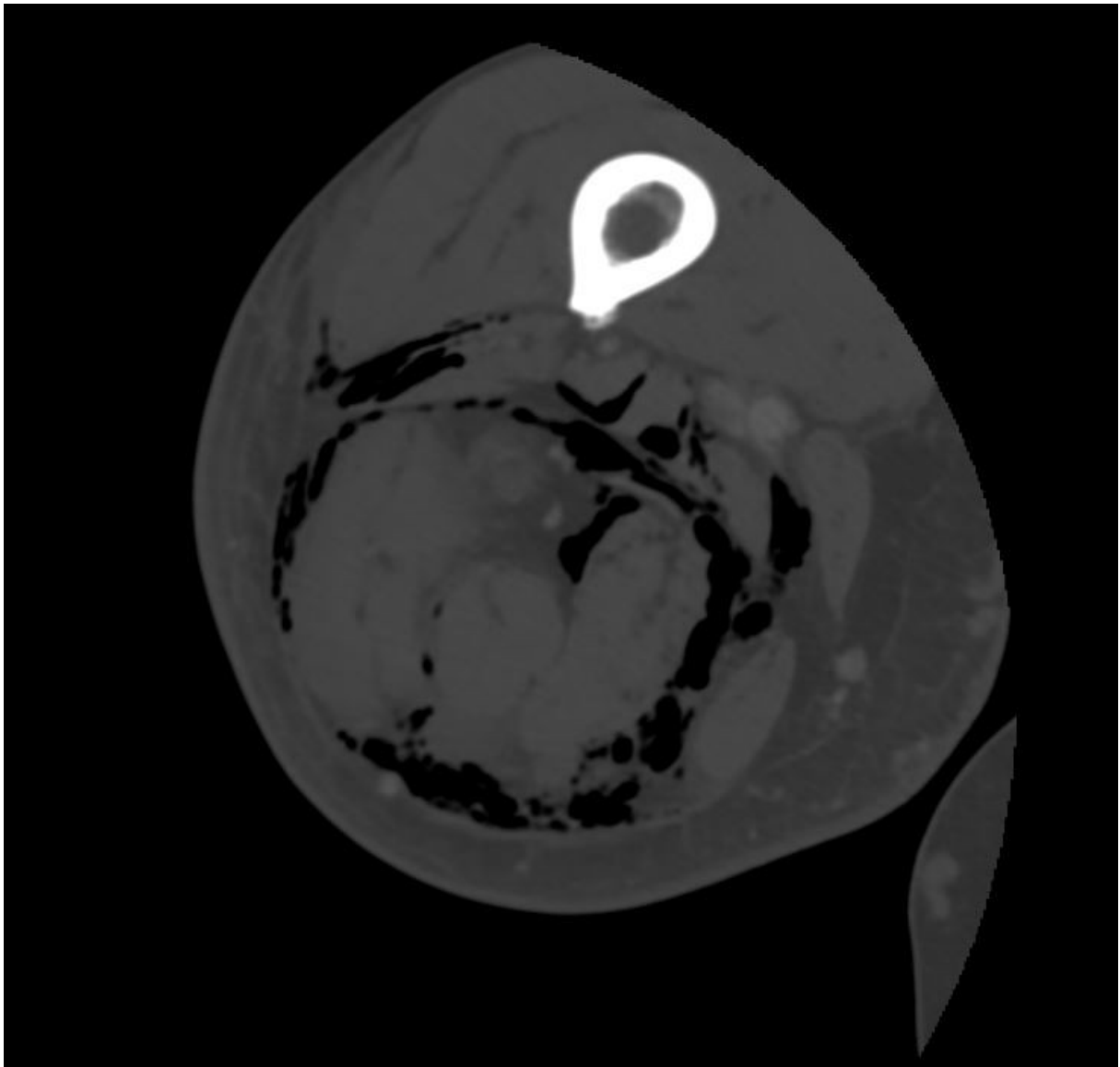


Figure 1: Contrast-enhanced CT of the upper leg, axial plane.

Diffuse presence of air in the soft tissues, both subcutaneous and dissecting the muscles of the posterior compartment.

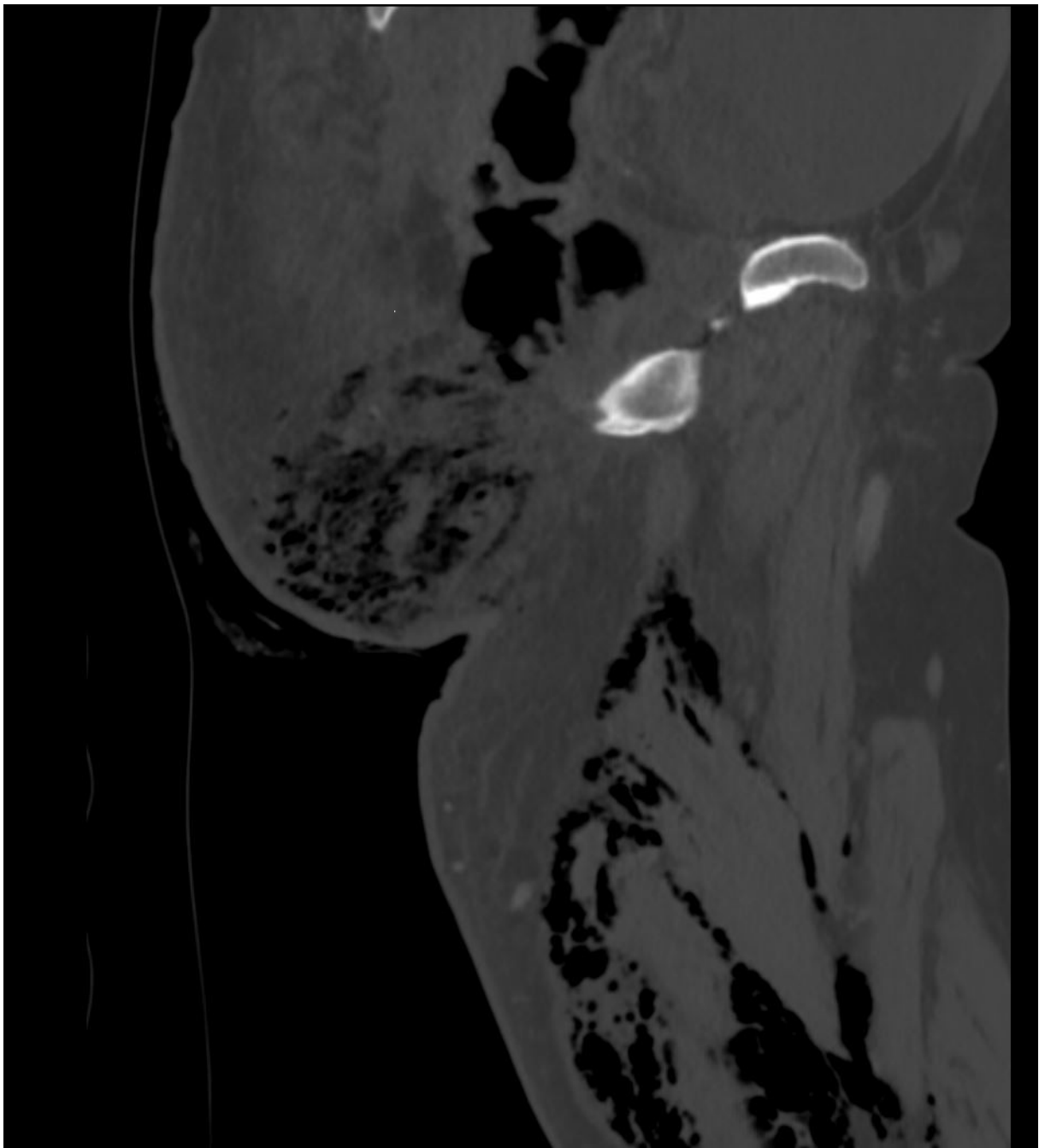


Figure 2: Contrast-enhanced CT of the upper leg, sagittal plane.

The air extends upward into the soft tissues of the buttocks and continues into the retroperitoneum, where a rectal perforation is suspected (arrow).