CASE REPORT

Multiple cutaneous nodules as the presenting sign of small cell lung cancer

David Brinkman, Lisa Roche, Khalil Ullah, Terence M O'Connor

Department of Respiratory Medicine, Mercy University Hospital, Cork, Ireland

Correspondence to
Dr Terence M O'Connor,
toconnor@muhi.ie

SUMMARY

We describe a 67-year-old male smoker who presented with an 8 week history of productive cough, dyspnoea on minimal exertion, weight loss of 8 kg and multiple painful cutaneous nodules of varying size and morphology. A chest radiograph showed a mass at the right hilum. A CT examination showed extensive mediastinal lymphadenopathy with encasement of the lower trachea, carina and left main bronchus. The left main bronchus was 95% stenosed and there were multiple liver metastases. Innumerable cutaneous nodules were also seen. A biopsy of one of the cutaneous nodules confirmed metastases from a neuroendocrine lung primary tumour, consistent with extensive stage small cell lung cancer. The patient died soon after diagnosis.

BACKGROUND

Lung carcinoma is a major cause of morbidity and mortality. The incidence of lung cancer in Ireland is 1910 cases per annum and the 5-year survival rate is 12.2%.^{1, 2} Patients with lung cancer can present with a wide variety of symptoms and signs, ranging from pulmonary symptoms to manifestations of distant metastases.

Multiple cutaneous nodules are an uncommon presentation of lung cancer. However, when a patient with lung cancer presents with cutaneous nodules, median survival has been reported as 2.9 months.³

We describe a patient who presented with multiple cutaneous nodules as a metastatic manifestation of extensive-stage small cell lung cancer.

CASE PRESENTATION

A 67-year man presented with an 8 week history of cough productive of yellow sputum, dyspnoea on minimal exertion, a feeling of 'coarseness' in his chest, weight loss of 8 kg and multiple painful cutaneous nodules of varying size and morphology. He was a heavy smoker. He had a history of severe peripheral vascular disease and below-knee amputation of his right lower limb. He also had a history of alcohol excess with cerebellar atrophy, abnormal liver function tests and peptic ulcer disease. Antibiotics, nebulisers and oral corticosteroid therapy over the 4 weeks prior to presentation had not improved his condition.

Physical examination demonstrated decreased air entry bilaterally and inspiratory and expiratory wheeze. Cutaneous nodules were visible on the anterior and posterior thorax and abdomen with a smaller number of lesions on the head and neck (figure 1). These ranged in size from 5 mm to 5 cm.

Figure 1 Cutaneous nodules of varying size on the patients back and right shoulder.

Some were associated with red, grey or blue discoloration of the overlying skin, some had overlying ecchymosis and some were not visible but palpable. Many of the nodules were painful and tender.

INVESTIGATIONS

A chest radiograph showed widening of the mediastinum and a mass in the upper aspect of the right hilum.

CT of thorax, abdomen and pelvis showed extensive mediastinal lymphadenopathy with encasement of the lower trachea, carina and left main bronchus (figure 2). The left main bronchus was 95% stenosed and there were multiple hepatic metastases occupying at least 50% of the liver volume (figure 3). Innumerable cutaneous nodules were also seen,

Figure 2 CT Thorax showing extensive mediastinal lymphadenopathy with encasement of the lower trachea, carina and left main bronchus. Two cutaneous nodules are demonstrated anterior to the sternum and in the lateral chest wall (white arrows).

To cite: Brinkman D, Roche L, Ullah K, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-009160

Figure 3 CT Upper abdomen showing multiple large liver metastases with cutaneous nodules of varying size (white arrows).

measuring up to 5 cm in diameter (figures 2 and 3). The superior vena cava was patent but markedly compressed. Further metastases were found in the gluteal muscles bilaterally.

A surgical biopsy of a cutaneous nodule was sent for histology and showed markedly necrotic malignant tumour encased by fibroconnective tissue. It had a high nuclear/cytoplasm ratio with increased mitosis and apoptosis (figure 4A). Immunohistochemical staining was positive for thyroid transcription factor-1 (TTF-1), synaptophysin and CD56 (figure 4B—CD56 staining). The entire slide shows evidence of metastatic small cell carcinoma. The histopathologist's impression was of high-grade neuroendocrine carcinoma. Her differential diagnosis included Merkel Cell carcinoma of the skin but in the clinical context, a diagnosis of extensive stage small cell carcinoma was made.

TREATMENT

The patient was discussed at a multidisciplinary thoracic oncology meeting and was reviewed by a medical oncologist. However, it was decided that he was too frail to tolerate palliative chemotherapy or endobronchial stenting and that palliative supportive measures were most appropriate. He was treated with oral, transdermal and then subcutaneous opiates and supplemental oxygen.

OUTCOME AND FOLLOW-UP

The patient developed progressively worsening dyspnoea 1 week after presentation and after transfer to a hospice, died 1 week later.

DISCUSSION

The differential diagnosis of multiple cutaneous nodules includes mesenchymal tumours such as lipomas, angiomas and neurofibromas, skin appendage lesions such as epidermal inclusion cysts and cylindromas, metastatic tumours such as carcinomas, melanomas and myeloma, other tumours and tumour like lesions such as myxomas, lymphomas and granuloma annulare, and inflammatory lesions such as fasciitis, adenitis, rheumatoid nodules and abscesses.

In women, the most common primary cancer that causes metastatic cutaneous nodules is breast carcinoma (69–70%), followed by melanoma (5–12%). Among men, lung cancer accounts for 11.8–24% of metastatic cutaneous nodules, melanoma accounts for 13–32.3%, colorectal cancer accounts for 11–19% and oral cavity cancers account for 8.7–12%.^{4, 5} While reports in the literature of cutaneous metastases arising from lung cancer have been reported, this phenomenon is uncommon in clinical practise.⁶

Cutaneous metastases are typically firm, rubbery, painless or tender nodules that vary from flesh coloured, purple or blue nodules to red and purple nodules that have been described in patients with metastatic renal cell carcinoma and thyroid carcinoma. They can also mimic cellulitis or, in patients with breast carcinoma, telangiectasia can cover the overlying skin or an area of heterogeneous confluent purpura can appear in a 'plate' over the vicinity of the metastases (carcinoma telangiectodes and carcinoma en cuirasse respectively).

Cutaneous nodular metastases often represent a widely metastasised tumour and are typically associated with a poor prognosis. While advances in chemotherapy have improved outcomes, the patient in our case regrettably succumbed to his illness soon after presentation with multiple cutaneous nodules.

Learning points

- ▶ Lung carcinoma should remain high in the differential of any person presenting with respiratory symptoms and a significant smoking history.
- ▶ Cutaneous nodules of varying morphology can signify carcinomatous metastases but it is unusual for them to arise from lung cancer.
- ▶ Skin metastases indicate an aggressive tumour that is in its late stage and carries a poor prognosis.

Figure 4 (A) Biopsy of a skin nodule showing necrotic malignant tumour consisting of small to intermediate sized cells with a high nuclear/cytoplasmic ratio. (B) Immunohistochemical analysis demonstrating positive CD56 staining, consistent with a high-grade neuroendocrine carcinoma.

Contributors All authors managed the patient. DB and LR wrote the manuscript. KU and TMOC edited the manuscript.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 National Cancer Registry 2011. Cancer in Ireland 2011: Annual report of the National Cancer Registry. <http://www.ncri.ie/pubs/pubfiles/AnnualReport2011.pdf>
- 2 National Cancer Registry 2011. Main cancers five year relative survival by diagnosis year. http://www.ncri.ie/survival/Relsurvival_maincancers_19942007.htm
- 3 Schoenlaub P, Sarraux A, Grosshans E, *et al.* Survival after cutaneous metastasis: a study of 200 cases. *Ann Dermatol Venereol* 2001;128:1310–15.
- 4 Brownstein MH, Helwig EB. Metastatic tumors of skin. *Cancer* 1972;29:1298–307.
- 5 Lookingbill DP, Spangler N, Helm KF. Cutaneous metastases in patients with metastatic carcinoma: a retrospective study of 4020 patients. *J Am Acad Dermatol* 1993;29:228–36.
- 6 Estarriol MH, Goday MR. Cutaneous Metastases of small-cell lung cancer. *N Engl J Med* 2006;354:2583.

Copyright 2013 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- Submit as many cases as you like
- Enjoy fast sympathetic peer review and rapid publication of accepted articles
- Access all the published articles
- Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow