Non-small cell lung cancer with distal cutaneous metastases in a patient with a previously treated colorectal carcinoma

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ABSTRACT

Cutaneous manifestations of visceral carcinomas are scarce, occurring in around 0.7–12% of internal malignancies. Lung cancer is one of the most common sources of skin metastasis, particularly in male patients. We present a case of cutaneous metastasis in a man with concurrent lung lesions and a previously treated colorectal carcinoma. Immunohistochemistry markers for both skin and lung lesions were strongly positive for carcinoembryonic antigen and cytokeratin 20, suggesting an intestinal primary tumour. However, colonoscopy excluded new and metastatic bowel lesions. After multidisciplinary team meetings, which reviewed the clinical, radiological and immunohistochemistry findings, it was concluded to be a non-small cell lung cancer with skin metastasis. This case presented an interesting diagnostic challenge, and highlighted the importance of cross-specialty liaison and investigation to reach the correct diagnosis.

KEYWORDS

Lung – Metastases – Skin – Bowel – Adenocarcinoma

Accepted 3 January 2016; published online XXX

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Case history

An 81-year-old man presented to his general practitioner with a non-healing ulcer on the right small toe, involving the nail bed, following minor trauma (Fig 1). His only significant medical history was a Dukes' C1 bowel cancer (T3 N1) ten years previously, for which he underwent a right hemicolectomy and five cycles of adjuvant chemotherapy. Subsequent surveillance screening was uneventful.

The patient was referred for a dermatology opinion, where a biopsy of the lesion reported a moderately differentiated adenocarcinoma with abundant extracellular mucous production. The sample was strongly positive for cytokeratin 20 (CK20) and carcinoembryonic antigen (CEA), and negative for cytokeratin 7 (CK7) and thyroid transcription factor 1 (TTF-1). In light of the previous bowel cancer, these findings led to the opinion that this was a mucinous adenocarcinoma from the large intestine.

Subsequent computed tomography of the chest, abdomen and pelvis revealed a large lobular soft tissue mass in relation to the left hilum, sited between the ascending aorta and the pulmonary vasculature (Fig 2). No mediastinal lymphadenopathy or other distant metastases were identified. The patient was referred for an urgent respiratory opinion, where it emerged that he had had a persistent cough for two years with intermittent haemoptysis. He reported being a lifelong non-smoker.

Urgent bronchoscopy identified three discrete lesions in the left main bronchus. The largest and most inferior lesion was occluding the left lower lobe orifice, causing collapse. Bronchial washings demonstrated malignant glandular epithelium, and immunohistochemistry was positive for CEA and CK20, strongly focally positive for CK7 and negative for TTF-1. Again, the findings were highly suggestive of a metastatic colorectal carcinoma, and the case was referred for discussion at both lung and colorectal multidisciplinary team (MDT) meetings.

The conclusion from these meetings was that despite the immunohistochemical markers from both lung and skin lesions being more typical of a metastatic colorectal carcinoma, the imaging was consistent with a lung primary tumour. It was acknowledged that well differentiated mucinous lung tumours can present with an intestinal phenotype. Colonoscopy arranged to confirm that there were no new lesions in the large bowel was reported as entirely normal. A diagnosis of metastatic non-small cell lung cancer was made.

The patient received palliative radiotherapy to the small toe metastasis (20Gy in 5 fractions). Further testing of bronchial washings detected no sensitising mutations in epidermal growth factor receptor status and no rearrangement in anaplastic lymphoma kinase, limiting the patient's treatment options for chemotherapy.

Figure 1 Non-healing ulcer on right small toe

Figure 2 Computed tomography demonstrating soft tissue lesions occluding left lower bronchus

Discussion

Cutaneous manifestations of visceral carcinomas are scarce, occurring in around 0.7–12% of internal malignancies,¹ and distant metastases are even less common.² Conversely, lung cancer is one of the most common sources of cutaneous metastasis, particularly in male patients. A systematic review by MolletTM concluded that lung was the primary tumour site in approximately 24% of men with skin metastases, making it the most common source, compared with 4% in women (fourth most common source).⁵

Skin metastases from primary bowel cancer are very rare, only occurring in 2.3–6% of cases.⁴ The bowel cancer immunohistochemical markers in this case, expressed by both skin and lung lesions, were a red herring. A study by SuTM found that TTF-1 was expressed by 73% of primary lung adenocarcinomas, and that CK7 and CK20 were significantly associated with adenocarcinomas of pulmonary and gastrointestinal origin respectively.⁵ Numerous other groups have reported similar findings.^{6–8}

In our patient's case, the initial skin biopsy was highly suggestive of a metastatic colorectal adenocarcinoma, particularly when taken in the context of his medical history. The bronchial washings suggested the lung lesions were metastatic in nature except for the positive expression of CK7. The MDTs were aware of this but also took into account the scarcity of cutaneous metastases in colorectal cancer and that primary lung cancer can have an intestinal phenotype. It is recognised that lung cancer presenting initially with skin metastases carries a poor prognosis with a mean survival of only months.^{1,9}

Conclusions

This case presented an interesting diagnostic challenge; both skin and lung lesions were highly suggestive of a

colorectal primary tumour. In a patient who had previously had a colorectal cancer resected, it would be easy to presume a recurrence. Our report highlights the importance of thorough investigation and cross-specialty MDT discussion to assess the clinical, radiological and immunohistochemical findings to reach a diagnosis and management plan.

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