CASE REPORT

Metastasis of squamous-cell carcinoma of the lung to the first web space of the hand

While primary squamous-cell carcinoma of the hand is common, metastasis of a squamous-cell carcinoma to the hand is very rare. It has been reported to arise from carcinoma of the lung and oesophagus and, rarely, from other tumours. We describe a patient with metastatic squamous-cell carcinoma occurring in the first web space of the hand from primary lung cancer, which remained undetected for 30 months after treatment of the metastasis.

Bony metastases develop in 30% of all patients with cancer, but only 0.1% to 0.3% of these occur in the hand.1-6 Squamous-cell carcinoma is the commonest primary malignancy of the hand,7 but metastasis from a distant squamous-cell carcinoma to the hand is very rare.8 There are a few reports in the literature mostly from primary bronchogenic9 or oesophageal carcinomas.10,11 We report a patient with metastatic squamous-cell carcinoma arising in the first web space of the hand from primary lung cancer which had remained undetected for 30 months.

Case report

A 68-year-old right-handed Caucasian man presented with a history of over six months of constant pain in the left thumb with progressive deformity and increasing numbness. There was no history of trauma, fever or loss of weight and no other musculoskeletal symptoms. He had a history of emphysema, diabetes and coronary artery disease.

On examination there was a firm mass in the area of the first web space most notably on its dorsal surface. It was neither reddened nor hot. There was tenderness on palpation of the thenar eminence and first web space. The left thumb had a severe adduction contracture with painful limited passive abduction. No movement of the metacarpophalangeal joint of the thumb was possible and flexion was limited to 10° to 20° at the interphalangeal joint. There was flexion contracture of 20° of the left index metacarpophalangeal joint with an active range of flexion of 20° to 50°. He was unable to make a full fist. There was no neurovascular deficit and no epitrochlear or axillary lymph nodes were palpable.

Radiography revealed a lytic lesion of the left first metacarpal with loss of much of the shaft and mild sclerosis surrounding the lesion (Fig. 1). MR imaging showed a soft-tissue mass lesion 3.5 × 2.8 × 3.0 cm in size arising between the first and the second metacarpals and eroding the first metacarpal (Fig. 2). The normal marrow signal was absent,
suggesting that the lesion was aggressive. A chest radiograph was normal as were all blood tests.

A three-phase technetium bone scan showed an isolated area of increased uptake in the left first metacarpal.

Our differential diagnosis included metastatic disease, primary sarcoma and myeloma. Incisional biopsy of the mass was performed through a dorsal longitudinal incision which included a small island of skin. The skin overlying the mass was normal and non-adherent to the mass.

The histology was that of a poorly differentiated metastatic squamous-cell carcinoma (Fig. 3), which was confirmed by the Mayo Clinic Pathology Department. The findings which indicated its metastatic nature included the presence of intact epidermis overlying the mass (Fig. 3a) and the absence of any epidermoid or dermoid tissues around the tumour cells. Rarely, these can indicate a subcutaneous squamous-cell carcinoma. Cultures taken from the mass did not grow any aerobic, anaerobic, fungal or tuberculous micro-organisms.
Further investigations included CT of the head, neck, chest, abdomen and pelvis, all of which were normal. A bronchoscopy with random biopsies was normal and oesophagogastroscope was unremarkable. A cytoscopy was also performed and showed no abnormalities.

On the basis of these results we decided to perform a wide local excision of the tumour and carried out an amputation of the thumb and index finger through the carpometacarpal joints (Fig. 4). Histological examination confirmed the diagnosis of a metastatic poorly differentiated squamous-cell carcinoma with a margin of 2 cm free from tumour.

He received post-operative radiotherapy and chemotherapy. Although reconstructive surgery of the hand was considered, he managed well with his remaining fingers and declined further surgery.

He was followed up every three months for a year and then every six months. No primary tumour was detected and the site of surgical excision remained free from recurrence two years later. At 30 months post-operatively, a further chest radiograph revealed a mass in the right upper lobe. Biopsy of the mass under CT guidance showed a poorly differentiated squamous-cell carcinoma of the lung. Its histological appearance was identical to that of the mass resected from the hand. The patient received chemotherapy for metastatic squamous-cell carcinoma of the lung and remains well to date at four years follow-up.

Discussion

Half of all metastases to the hand arise from a carcinoma of the lungs, the rest from kidney, breast, colon, prostate, thyroid, oesophageal and bone cancers.1,4,14 The most common site of metastasis is the distal phalanx, followed by the other phalanges and metacarpals and, rarely, the carpal bones15 and soft tissues of the hand without osseous involvement.2-4 They may mimic paronychia, tenosynovitis, gout, or rheumatoid arthritis 1-3,10,11,16-18

The clinical presentation is that of pain, swelling and erythema1 and this may be the first sign of malignancy. Treatment is directed toward relief from pain and restoration of function. Nonoperative measures include immobilisation, chemotherapy and radiotherapy. Radical surgical treatment is not recommended if the patient’s prognosis is poor.1,4,17

In our case it was necessary to question whether the hand lesion was actually metastatic. The findings of an intact epidermis overlying the mass, the absence of intra-osseous or subcutaneous dermoid or epidermoid cysts, and the subsequent detection of a primary squamous-cell carcinoma of the lung of identical histology supported that this was the case.

The unusual features were the involvement of the first web space, which is very rare, and the long delay before detection of the primary tumour. We believe that the chemotherapy and radiation therapy given for the treatment of the metastasis delayed the detection of the primary lung lesion.

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

References


