CASE REPORT

A finding with a diagnosis: I just can't put my finger on it

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SUMMARY

A 72-year-old man with metastatic squamous cell carcinoma of the lung presents with new lesions in the distal phalanx of right fifth finger (painful) and left great toe (painless due to long-standing peripheral neuropathy). Initially a complication of cytotoxic chemotherapy is considered and a dermatological opinion is requested. Enlargement of the lesions over the space of a week leads to plain X-ray, with findings of destruction of the distal phalanx of the involved digits confirming metastatic disease. Palliative radiotherapy is administered to decrease pain and reduce the likelihood of cutaneous and infectious complications. The patient died from systemic disease progression soon after finishing his radiotherapy. Digital metastasis (acrometastasis) should be considered by clinicians in the workup of patients with persistent digital symptoms, particularly in those with known cancer or those at high risk of cancer.

standard choices of taxane or vinca alkaloid-based chemotherapy).

After two cycles of pemetrexed the patient had developed painful swelling in the distal portion of the right fifth finger, and painless swelling in the distal portion of the left first toe. On examination of the fifth digit of the right hand, there was a tender, erythematous, non-fluctuant, indurated, irregular, nodular mass arising within the finger pulp of the distal phalanx. The overlying skin was not ulcerated. Well-circumscribed yellow papules with overlying telangiectasia formed the irregular surface of the nodular mass of the affected finger pulp (figure 1A).

Examination of the left great toe showed an ulcerated, exophytic, indurated, nodular mass at the distal phalanx below the nail plate which was distorting the local anatomy. There was overlying haemorrhagic crust and surrounding erythema extending over the entire hallux (figure 2).

BACKGROUND

Malignant processes have variable disease courses with some being indolent and others more aggressive. From time to time patients can present with history, examination or imaging findings that are unusual or uncommon. The answer is not always initially apparent even when the findings are plain to see. In such a situation the clinician must ponder a broad differential diagnosis. Is this a complication of the underlying condition, a paraneoplastic phenomenon, an adverse effect of the treatment or an unrelated condition?

CASE PRESENTATION

A 72-year-old man was being treated for metastatic squamous cell carcinoma of the lung. He had initially presented with a lung mass and a malignant pleural effusion which was drained. The diagnosis was confirmed on imaging findings and cytological assessment of the effusion fluid. He had a medical history of hypertension, type 2 diabetes and idiopathic peripheral neuropathy of the lower limbs (which predated his diagnosis of diabetes by over 10 years). There was a significant history of prior tobacco use. The patient received three cycles of chemotherapy with carboplatin and gemcitabine. At first radiological assessment CT findings showed disease progression with new liver lesions. The patient remained well and wished to have further systemic therapy. In view of his significant peripheral neuropathy, a choice was made to give pemetrexed as second-line treatment (rather than the

Figure 1 (A) The terminal phalanx of the right little finger has a tender, erythematous, nodular mass arising within the finger pulp. (B) The appearance has progressed at review in clinic 1 week later.

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Figure 2 The left great toe has an ulcerated, exophytic, nodular mass distorting the local anatomy.

DIFFERENTIAL DIAGNOSIS

While the treating oncologist considered an atypical reaction to cytotoxic therapy with pemetrexed, the dermatological differential diagnosis included gouty tophi, cutaneous metastases and an atypical infection in the setting of immunosuppression.

INVESTIGATIONS

The patient was reviewed 7 days later in the oncology clinic. The lesions had increased in size (figure 1B). Plain radiographs of both digits showed lytic lesions extending into the terminal tufts with adjacent extension into the soft tissues of the pulp space and irregular bony margins consistent with metastatic disease (figures 3 and 4). His white cell count and uric acid

Figure 3 Plain radiograph of the right fifth finger showing a lytic lesion with irregular margins within the terminal tuft. The lesion extends into the adjacent tuft space and into the shaft of the distal phalanx.

Figure 4 Plain radiograph of the left first toe showing a lytic lesion with irregular margins and soft tissue extension.

level were normal. Whole body CT scanning at the same time confirmed further progression of metastatic disease in the lungs, liver and pancreatic tail.

TREATMENT

The patient was treated with palliative external beam radiotherapy to both lesions. He elected not to pursue further systemic therapy in view of his declining health.

OUTCOME AND FOLLOW-UP

The patient died from progressive disease 2 weeks after finishing his course of radiotherapy.

DISCUSSION

Metastases to the bones of the hands and feet are termed acrometastases. Acrometastases are rare, with only 0.1% of all metastatic disease occurring distal to the knees and elbows.¹ They are twice as common in men as they are in women. The most common primary tumours are lung, kidney and breast, respectively.² Current evidence would suggest that the most frequent mode of metastasis is through the bloodstream rather than lymphatics.³ It has been postulated that the advantageous location of bronchogenic tumours allows cancer cells to bypass the pulmonary capillary bed which limits the haematogenous spread of other tumours.⁴

The presentation of acrometastases often mimics that of acute inflammation producing red, hot, tender and swollen digits.⁵ It may also present, as in our case, with a deep, throbbing pain refractory to common over-the-counter analgesics. The

overlying skin may bleed or ulcerate.⁶ The distal phalanges of the dominant hand are most often affected.²

The presence of foot acrometastases in our case is very rare. This is thought to be due to the greater distance from the primary tumour site, the relative lack of red marrow in the bones of the foot and the presence of Batson's paravertebral venous plexus which lacks valves.⁷

While acrometastases usually occur in patients with a known cancer, one study found that 10% of patients had symptomatic metastases before their primary tumour was discovered.⁸ With this in mind, physicians should consider screening high-risk patients for lung cancer when they present with persistent, troublesome digital symptoms.

Digital metastases are usually lytic in nature.² Our patient did not have a biopsy to confirm his diagnosis but given the clinical picture and X-ray findings, the differential narrows considerably. A biopsy would be required, however, to definitively exclude another infective or neoplastic process.

As the presence of acrometastases is a very poor prognostic factor, treatment is mainly aimed at palliation. Local management with surgical or radiotherapy approaches is preferable for

symptomatic lesions.⁹ Our patient had a moderate response to external beam radiotherapy but died shortly after finishing his treatment. Surgical management is recommended for those who respond poorly to radiotherapy.¹⁰ There may be a role for bisphosphonates, as used in several malignancies for metastatic bone deposits, which act by slowing the rate of bone resorption via inhibition of osteoclasts.¹¹

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Competing interests None.

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Learning points

- When assessing symptoms and examination findings in patients with malignancy consider: Is this a complication of the underlying condition, a paraneoplastic phenomenon, an adverse effect of the treatment or an unrelated condition?
- Malignant disease can metastasise to unusual locations.
- Consider acrometastasis in patients with persistent digital symptoms, particularly in those with known cancer or those at high risk of cancer.

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