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Acrometastasis following colorectal cancer: A case report and review of literature

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ABSTRACT

INTRODUCTION: Colorectal cancer commonly metastasises to the liver, peritoneum and lungs. Bony metastases are uncommon in colorectal cancer and in particular metastases to the hands or feet (acrometastasis) are an extremely rare occurrence.

CASE PRESENTATION: A 65-year-old male with a colonic malignancy underwent elective anterior resection. Intra-operatively he was found to have a pelvic collection necessitating an end colostomy. Histology confirmed complete Dukes B tumour excision with no evidence of lymph node metastases. The patient underwent chemo-radiotherapy but was unsuitable for reversal of Hartmann's due to elevated CEA levels and asymmetrical thickening of the rectal stump with a solitary lung nodule identified at a one-year surveillance CT. The lung nodule was resected revealing metastatic adenocarcinoma and biopsies from the rectal stump showed chronic inflammatory changes. The patient was offered further chemotherapy. However, six years after his original surgery the patient presented with an acutely painful left foot with radiographic appearances of an infiltrative sclerotic and lucent lesion confirmed as a calcaneal acrometastasis on Magnetic Resonance Imaging (MRI).

DISCUSSION: Diagnosis of acrometastasis is challenging and generally constitutes a wider metastatic process with poor prognosis. Patients are often asymptomatic or present with symptoms mimicking benign lesions such as arthritis, infection or ligamentous sprains of the hands or feet. Therefore, there should be a high index of suspicion and prompt radiological investigation is warranted in order to exclude disease recurrence.

CONCLUSION: Although acrometastasis may indicate a poor prognosis, timely diagnosis and intervention may facilitate improvement of long-term survival and symptomatic management.

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1. Introduction

Colorectal cancer is the fourth most common cancer in both men and women in the UK and is only exceeded in its incidence by breast, lung and prostate cancers [1]. The prognosis depends on the stage of disease at presentation with 5-year-survival rates of up to 90% in patients with the most localised (Dukes A) disease. Approximately 20% of colorectal cancers have metastases at presentation with a 5-year survival for distant metastatic disease of less than 10% [2]. Colorectal cancer commonly metastasises to the lungs, liver and peritoneum with bony metastases being relatively uncommon, occurring in 6% of all metastatic colorectal cancers [3]. Metastases to the hands or feet, from any malignancy, are rare and affect as few as 0.3% of all cancer patients [4].

Patients who have undergone radical treatment for colorectal cancer are routinely reviewed for five years with endoscopic examination of the remaining large bowel; blood tests including Carcino-Embryonic Antigen (CEA); and Computed Tomography (CT) imaging of the chest, abdomen and pelvis. Routine surveillance for bony metastases in colorectal cancer is not advocated due to its rarity. When bony metastases do occur they are usually accompanied by wide spread metastases to other organs and rare in isolation [4].

In this report, we describe a patient who underwent curative resection and adjuvant chemo-radiotherapy for colorectal cancer in whom no recurrence was detected at five-year follow-up, who then presented with left calcaneal acrometastasis as a first sign of disease recurrence.

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2. Presentation of case

A 65-year-old Type II diabetic male with a distal sigmoid tumour was admitted for a planned anterior resection and primary anastomosis. Intra-operatively he was found to have a previously undiagnosed pelvic collection. This precluded primary anastomosis and an end colostomy was fashioned. Histology confirmed complete excision of the pT₄ N₀ M_x, Dukes B tumour with no evidence of lymph node metastases in the 20 excised lymph nodes examined. In preparation for reversal of his Hartmann's procedure, a routine repeat CT scan, one year post-operatively, showed asymmetrical thickening of the rectal stump and a solitary lung nodule. Consequently at this stage, he did not undergo Hartmann's reversal and several further investigations were necessary due to the results of the CT Scan. His CEA level was elevated at 37 mcg/L (Normal: 0–4.9). Endoscopic biopsies of the rectal stump showed chronic inflammatory changes and no evidence of recurrent disease. The lung nodule was resected and confirmed to be a metastasis from an adenocarcinoma, most likely of colorectal origin. After discussion at the multidisciplinary meeting, the patient underwent further adjuvant chemotherapy. In the 5-year follow-up, his CEA levels returned to normal and repeat CT scans of the chest, abdomen and pelvis did not reveal any local or metastatic recurrence. In addition to the standard surveillance he had repeat rectal stump biopsies, none of which revealed histological evidence of recurrence. Six years after his original surgery the patient presented with an acutely painful left foot. Antero-posterior and lateral ankle radiographs were performed, revealing only mild degenerative changes. The symptoms were treated conservatively, however, the ankle pains persisted and there was increasing swelling around the ankle joint. A diagnosis of Charcot's joint was made in keeping with his diabetes. However, other differentials included ankle fracture, osteomyelitis, arthritis and bony metastasis.

Plain radiographs of the left foot and ankle when he presented with ankle pain revealed mild degenerative changes in the tibiotalar and mid-tarsal joints with a small plantar calcaneal spur (Fig. 1a). Due to his persisting ankle pains, repeat left foot radiographs were performed. These showed an infiltrative sclerotic and lucent lesion (Fig. 1b) which was confirmed as a metastasis on Magnetic Resonance Imaging (MRI) (Fig. 2a–c). An MRI of the pelvis revealed changes consistent with recurrence of his colorectal cancer at the superior aspect of the rectal stump and his CEA levels were elevated once again at 54 mcg/L.

Following a multidisciplinary team meeting and review of results of investigations the patient was listed for an elective foot amputation for symptomatic pain relief management. This unfortunately was deferred due to recurrent hospital admissions with adhesional small bowel obstruction that were successfully managed conservatively.

One year after the diagnosis of ankle metastasis, follow-up CT scans of the chest, abdomen and pelvis revealed a thickened rectal stump with a 19 mm soft tissue nodule at its apex and multiple metastatic lung lesions. Following the patient's wishes, the recurrent disease was treated palliatively, with no surgical intervention.

3. Discussion

Skeletal metastases occur in 20–30% of all malignancies; however, it is uncommon in colorectal cancer (4–6% of patients). Bony metastases in colorectal cancer usually reflect widespread metastatic disease with a poor prognosis [5]. Colorectal cancer typically metastasises to the lungs, liver and peritoneum due to the pattern of venous and lymphatic drainage of the colon and rectum via the portal system. The presence of surface signalling proteins in the lungs and liver increase the propensity for metastasis to develop there [6].



Fig. 1. a. Mild degenerative changes. b. Infiltrative sclerotic and lucent lesion.

Isolated metastases to the foot or hand from any malignancy are extremely rare occurring in 0.3% of all cancer cases [7,8]. Published data on acrometastasis have reported lung, kidney, breast, endometrium, prostate and rarely colon cancers as likely primary sources. Metastases to the hands interestingly are three times more common than those to the feet with the exception of colorectal cancer [4,7,9]. A literature search revealed four reports of acrometastasis of colorectal origin [6,7]. Three of these cases had acrometastasis to the feet affecting either the calcaneus, metatarsal or cuboid bones [6]. The remaining case had acrometastasis to the index finger distal phalanx [7]. Additionally, individual cases of colorectal cancer metastasis to the sternum and scapula have been described [8,9].

The exact mechanism of acrometastasis remains unclear and several hypotheses have been proposed. Venous drainage into the valve-less venous plexus of Batson, which communicates with

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