An unusual mass in the thigh

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A 79-year-old woman presented with several weeks history of a slowly enlarging painful mass in the upper part of her left thigh. She had a history of panproctocolectomy, performed 12 months earlier for longstanding ulcerative colitis and synchronous carcinomas of the sigmoid colon (Dukes B) and mid rectum (Dukes C). Pre-operative investigations and peroperative inspection showed no evidence of overt metastasis. Examination revealed a 10 × 5 cm firm, non-tender mass in the thigh fixed to the muscles. The rest of the examination was otherwise unremarkable. The magnetic resonance imaging (MRI) scans are shown in the figure.

Figure MRI scans of (A) normal right thigh, (B) left thigh

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Questions

- 1 What abnormality is seen on MRI ?
- 2 What is the likely diagnosis ?
- 3 What are the more likely sites for this abnormality to develop ?

Answers

QUESTION 1

MRI shows a large tumour, which appears to be encapsulated, occupying the left vastus lateralis muscle. An enlarged lymph node was also noted (on other views) in the ipsilateral groin.

QUESTION 2

Fine needle aspiration cytology of the lesion confirmed the presence of adenocarcinoma, compatible with a large bowel primary. Carcino-embryonic antigen was also elevated to 202 µg/l.

QUESTION 3

The sites of first recurrence of colorectal carcinoma¹ are liver (>30%), lungs and locoregional disease (20–25%), other intra-abdominal sites (15–20%) and other extra-abdominal sites (10%) including bone, lymph nodes, brain and skin.² Skeletal muscle is an unusual site of colorectal cancer metastasis.

Discussion

The case described above was treated initially with radiotherapy (with a view to later surgical excision). This provided a good symptomatic response and some reduction in tumour size, however, our patient soon developed widespread subcutaneous metastasis over the chest wall and liver metastasis, and died 6 months after her initial presentation.

Skeletal muscle is an unusual site of colorectal cancer metastasis and only a few cases have been reported.^{3–6} Skeletal muscle makes up 40–50% of total body weight and receives a relatively large blood flow for its metabolic rate. As tumour cells have been detected in the peripheral blood of up to 50% of the patients

Learning points

- muscle metastasis from colorectal cancer is rare
- pain and swelling are presenting features
- direct questioning regarding skeletal muscle should be carried out at patient review and, if symptomatic, examination should be performed
- in the absence of other evidence of metastatic spread, resection may improve the prognosis

undergoing colonic resection,⁷ it is perhaps surprising that skeletal muscle is infrequently involved as a site of metastatic disease. The neovascularisation of tumours may occur because of their ability to produce lactic acid and mimic the effects of anoxia. It has been suggested that the conditioning of blood vessels within skeletal muscle to lactic acid may be responsible for its resistance to metastatic spread.⁸

It has been hypothesised that a solitary muscle metastasis may act as the source for further dissemination of disease, as in two cases^{3,6} proximal ipsilateral lymph node metastasis occurred following the appearance of a muscle metastasis, suggesting lymphatic spread from the muscle metastasis. Early complete excision in these cases may have improved the prognosis. In our case proximal ipsilateral lymph node involvement was present at diagnosis and was followed rapidly by generalised metastasis.

Final diagnosis

Colorectal cancer metastasis in the left thigh muscle.

Keywords: colorectal carcinoma; skeletal muscle metastasis

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