CASE REPORT

Jejunal perforation: an unusual presentation of metastatic cutaneous squamous cell carcinoma (SCC) in an immunosuppressed patient

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Accepted 18 December 2016

SUMMARY

We report the rare occurrence of a small bowel perforation secondary to a metastatic cutaneous squamous cell carcinoma (cSCC). A 70-year-old woman, who had previously undergone renal transplantation, presented with severe, sudden-onset abdominal pain. She was peritonitic on initial examination, with evidence of free intra-abdominal air on radiographic imaging. During an exploratory laparotomy, she was found to have a perforated jejunum secondary to disseminated metastases seen throughout her peritoneum. Following histopathological analysis, as well as further imaging studies, the primary malignancy was eventually identified as a cSCC on her upper back. Palliative care was started and the patient died 8 weeks following her initial presentation.

BACKGROUND

This case outlines an example of a metastatic cutaneous squamous cell carcinoma (cSCC) in an immunosuppressed patient presenting itself in a highly unusual manner. Within the immunosuppressed population, cSCCs are more frequent and are often more aggressive with a greater tendency to metastasise.¹ With increasing organ transplantation, survival rates have dramatically improved over the past two decades. This report highlights the importance of vigilant skin surveillance in organ transplant recipients. It also encourages the inclusion of metastatic disease within the differential diagnosis for immunosuppressed patients presenting with acute abdominal pain.

CASE PRESENTATION

A 70-year-old woman presented with a 1-day history of severe, sudden-onset abdominal pain. The pain had initially started in the epigastric area and then gradually spread to become generalised. She reported no change in bowel habit, nausea, vomiting or fevers. She had an extensive medical history, including a renal transplant 3 years previously for which she was on a long-term immunosuppressive regimen; sirolimus and mycophenolate mofetil. In addition, she suffered from chronic obstructive pulmonary disease, hypertension, type 2 diabetes mellitus, chronic renal failure, alcoholic cardiomyopathy and had recently been admitted with biliary sepsis secondary to a large liver abscess. She was also a smoker of 50 pack years.

On examination she had signs of generalised peritonism with guarding, rebound tenderness and

a rigid abdomen. Her blood results revealed raised inflammatory markers (white cell count $13.6 \times 10^9/L$ and C reactive protein 149 mg/L) and an alkaline phosphatase level of 240 IU/L. An erect chest X-ray demonstrated free air under both hemidiaphragms. CT imaging of the abdomen and pelvis was performed and showed a large amount of free intra-peritoneal gas and fluid as well as an oedematous small bowel. However, no definite site of perforation was identified. An emergency exploratory laparotomy was performed and her small bowel was found to have been perforated due to the presence of presumed disseminated malignant metastases throughout her peritoneum. The diseased section of small bowel was resected and she was left with an end jejunostomy.

Small bowel tissue was sent for histological analysis and demonstrated metastatic, poorly differentiated squamous cell carcinomas of uncertain primary. Postoperatively total parental nutrition (TPN) feeding was started and she was started on tacrolimus and hydrocortisone after liaising with the nephrologists. Several investigations were performed in an attempt to stage the disease, as well as find the origin of the primary tumour. A bone scan revealed metastatic deposits on the right radius and ulna, left elbow and the mid-shaft of both femurs. A flexible nasal endoscopy was also performed with normal results. A CT thorax showed no evidence of intrathoracic malignancy but did identify a large cutaneous lesion on her back. On dermatology review, a full skin examination was performed and an unusual 5 cm erythematous, crusted discoid plaque was noted on the right side of her upper back (figure 1). In fact this lesion had been first noticed by the patient 6 months earlier but her other health problems had prevented its further investigation. A diagnostic skin biopsy was performed and immunohistochemical staining identified it as a moderately differentiated squamous cell carcinoma but with no high-risk features (figures 2 and 3).

An oncology opinion was sought and she was subsequently discussed in the skin multidisciplinary team meeting. Following exhaustive staging investigations, the primary cSCC noted in this immunocompromised patient was concluded to be the source of disseminated metastases. Given the extent of her disease, extensive comorbidities and poor performance status, she was eventually discharged to a hospice with the aim of initiating palliative treatment.

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To cite: Hitchen N, Warnapala D, Fisher RM, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2016-216929

Figure 1 Erythematous, discoid plaque on the patient's upper back.

INVESTIGATIONS

1. A chest X-ray on admission demonstrated free air under the diaphragm.
2. A CT abdomen and pelvis on admission demonstrated a large amount of free intraperitoneal gas and a moderate amount of free fluid pooled within the pelvis and right iliac fossa. It also showed a diffuse, mildly oedematous small bowel. There was no evidence of obstruction and no definite site of perforation was identified. A loculated abscess was present within the left lobe of the liver, and a lytic lesion within the right iliac bone.
3. A flexible nasal endoscopy was performed but no pathology was identified.
4. A bone scintigraphy scan was performed demonstrating increased uptake in the right radius and ulna, left elbow and ulna, the mid-shaft of both femurs and posterior 9th right rib.
5. Small bowel histology showed metastatic, poorly differentiated squamous cell carcinoma.
6. A skin biopsy from the cutaneous back lesion showed moderately differentiated squamous cell carcinoma.

TREATMENT

On admission, the patient received intravenous fluids and co-amoxiclav. She was taken to the operation theatre for an emergency exploratory laparotomy. A feeding jejunostomy was sited and an end jejunostomy formed, with only 70 cm of small

Figure 2 H&E stain of skin biopsy—irregular and coalescing trabeculae of basaloid cells in keeping with a malignant neoplasm.

Figure 3 p63 stain of skin biopsy—strong nuclear positivity throughout the tumour supporting squamous differentiation.

bowel remaining. The patient was started on tacrolimus and hydrocortisone to maintain her immunosuppression postoperatively. She also received TPN for 6 weeks in an attempt to optimise her nutrition.

OUTCOME AND FOLLOW-UP

Following her acute management and staging investigations, a dermatology review with diagnostic skin biopsy revealed the likely primary tumour. An oncology opinion was sought and she was deemed an unsuitable candidate for chemotherapy due to her comorbidities and poor performance status. The prognosis was discussed with the patient and her family, on which a palliative approach was considered the most appropriate management option. She declined radiotherapy offered for symptomatic relief of the pain originating from the lesion on her back, and was ultimately discharged to a hospice. She died 8 weeks following her initial presentation.

DISCUSSION

Neoplasms of the small bowel are very uncommonly encountered² and make up <2% of all gastrointestinal tumours.³ Adenocarcinoma is estimated to account for 35–50% of primary malignant small bowel tumours, with up to 20–40% being carcinoids and 14% being lymphomas.⁴

Metastatic tumours of the small bowel from extra-abdominal sites are rarely found⁵ but most commonly they originate from malignant melanomas or carcinomas of the lung, as well as cervical and thyroid carcinomas.⁶ Rarely are they primary squamous cell carcinomas.⁷ In immunocompromised patients, Kaposi's sarcoma is the most common primary neoplasm to metastasise to the small bowel.⁸

The most common presentation of small bowel tumours is a partial or complete bowel obstruction. Less commonly, they present as bowel perforation, persistent abdominal pain and haemorrhage (overt or occult).^{4–9} This case is unusual because small intestinal perforation due to a metastatic cSCC is extremely uncommon. To the best of our knowledge, only one previous case of jejunal perforation, secondary to a cSCC of the scalp, has been reported.¹⁰

Detection rates for metastatic lesions in the small bowel are low. CT and small bowel follow-throughs are the two most commonly performed imaging modalities and have been shown to have sensitivities of 58% and 66%, respectively, in detecting metastatic melanoma of the small bowel.¹¹

The increased incidence of cutaneous malignancies within the organ transplant population is well established. Of these, SCCs are the most common, with an increase in risk as high as 65–250-fold having been demonstrated relative to the general population,¹² resulting in a reversal of the typical ratio between basal and squamous cell carcinomas from 5:1 in the immunocompetent to between 1:1.8 and 1:15 in the immunocompromised.

This case serves to further emphasise the aggressive nature of cSCCs in organ transplant recipients, which are classified as high-risk lesions as defined by Rowe *et al.*¹³ This risk alludes to the likelihood of recurrence and metastases. High-risk features include tumour diameter ≥ 2 cm, tumour thickness ≥ 2 mm, tumour site ear/lip, poor histological differentiation, certain histological subtypes, evidence of perineural invasion and immunosuppression.¹⁴ Primary cSCCs in organ recipients carry a risk of metastasis as high as 10–20%.¹³ The most common site for metastatic spread is the regional lymph nodes, although a higher incidence of distant metastatic spread has been noted in immunosuppressed individuals. Once metastasised, they are associated with substantial morbidity and mortality, with 3-year disease specific survival being as low as 56%.¹⁵

The cumulative incidence of developing a cSCC has been shown to increase proportionately to duration of immunosuppression.¹⁶ With long-term survival rates of solid organ transplant recipients having improved dramatically over the past 20 years,¹⁷ the problem is increasing in significance and more should be done to counter it. In renal allograft patients, sirolimus is associated with a lower incidence of cSCCs relative to calcineurin inhibitors such as tacrolimus, while not compromising graft function.¹⁸ In addition, there is considerable evidence to suggest that acitretin is effective as chemoprophylaxis against non-melanoma skin cancers in renal transplant recipients.¹⁹ As such, employment of these agents could substantially improve outcome.

Long-term surveillance of organ transplant recipients is pivotal in ensuring early recognition and intervention, with the mean interval between diagnosis of primary tumour and identification of first metastasis being only 17 months.¹⁵ These

patients would benefit from regular, frequent reviews by a dermatologist, including a full skin and lymph node examination.²⁰ Finally, the value of patient education should never be underestimated. Advocating regular self-examination as well as the use of sun protection could significantly reduce the risk of transplant recipients developing cSCCs.¹⁷

Contributors NH, DW, RF, JD, PP and AF were involved in conception and design, acquisition and analysis/interpretation of data, drafting the article, revising the article critically and final approval of the manuscript.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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Learning points

- ▶ Metastatic disease should be considered in the differential diagnosis of immunocompromised patients presenting with an acute abdomen.
- ▶ In immunosuppressed patients, early recognition of cutaneous squamous cell carcinoma (cSCCs) is vital. This can be achieved through regular clinical reviews together with patient education.
- ▶ This case further highlights the importance of a thorough general physical examination in an unwell immunosuppressed patient to ensure the early detection of anomalies.

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