CASE REPORT

Distant Metastases as Primary Presentation of Gastric Cancer: Report of 3 Cases

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ABSTRACT

It is uncommon for gastric cancer to present clinically with symptoms attributable to distant metastases. This report describes 3 cases of carcinoma of the greater curvature and the posterior wall of the stomach that presented as metastases to the skin, bone, and lungs. In patients with adenocarcinoma of unknown origin, a gastric primary tumour, especially one along the greater curvature and posterior wall, must be considered. A silent primary tumour in the stomach must always be looked for whenever a clinician encounters a metastatic adenocarcinoma.

Key Words: Adenocarcinoma; Adult; Neoplasm metastasis; Stomach neoplasms

INTRODUCTION

Gastric cancer most commonly presents with abdominal symptoms, and distant metastases are rarely the first indicators of a silent gastric primary tumour. We report 3 cases of gastric cancer that were referred to the All India Institute of Medical Sciences, New Delhi, India. In all 3 cases, metastases to the skin, bone, and lungs were the presenting feature.

CASE REPORTS

Patient 1, a 49-year-old man, presented to his general practitioner in May 2004 with a painless swelling in the left forearm that had been growing slowly for 2 months. Physical examination revealed a freely mobile 1-cm hard nodule on the dorsal aspect of the left forearm (Figure 1). There was no overlying erythema, oedema, or venous dilation. Analysis of a fine-needle aspirate taken from the swelling revealed cells from an adenocarcinoma.

Patient 2, a 68-year-old man, presented to his orthopaedic surgeon in October 2003 with a painless swelling on the lateral aspect of the right leg that was growing slowly for 5 months. Physical examination revealed a 6 x 4 cm hard, immobile swelling with normal overlying skin. An X-ray of the right leg showed an expansile lytic lesion in the right fibula, which extended to the articular margin, without matrix mineralisation or new bone formation. Magnetic resonance imaging of the right leg demonstrated an expansile lesion that was destroying the right fibula by invading the adjacent soft tissues (Figure 2). On a radionuclide bone scan, a solitary focus of increased tracer uptake was noted in the right fibula; uptake was normal elsewhere. Biopsy from the swelling showed a metastatic adenocarcinoma.

Figure 1. Patient 1 had a swelling (arrow) on the dorsal aspect of the left forearm, but the overlying skin was normal.
Patient 3, a 61-year-old woman, presented to her physician in April 2003 with a 5-month history of dry cough and intermittent haemoptysis. She had no history of fever, weight loss, or night sweats. Physical examination was unremarkable. The chest X-ray and contrast-enhanced computed tomography (CT) scan revealed multiple nodular soft-tissue nodular lesions in both lungs, with a peripheral and lower zonal predominance, which were suggestive of pulmonary metastases (Figure 3). A fine-needle aspirate from the pulmonary nodule contained cells from an adenocarcinoma.

In each of the above cases, an initial pathological examination from the metastatic site revealed cells from an adenocarcinoma. CT of the chest and abdomen, which was performed to search for the primary tumour, revealed a mass along the greater curvature or the posterior wall of the stomach in all 3 cases (Figure 4 shows the CT scan for patient 3). These masses proved to be moderate- to well-differentiated adenocarcinoma on subsequent endoscopic biopsy. In all 3 cases, liver metastases were not observed at the time of initial CT examination. A diagnosis of stage IV carcinoma of the stomach was made for all patients. They were treated...
with palliative combination chemotherapy of intra-
venous paclitaxel (175 mg/m² on day 1) and carboplatin
(area under the plasma concentration–time curve of
5 mg·min·mL⁻¹ on day 2) every 3 weeks. In addition,
patient 2 was given palliative radiotherapy to the site
of bone metastasis. The general condition of patients 2
and 3 deteriorated and their disease progressed in the
metastatic sites after 3 cycles of chemotherapy. Further
chemotherapy was stopped and these 2 patients were
referred to a hospice. Patient 1 is alive with stable
disease after 6 cycles of chemotherapy.

DISCUSSION

We report 3 unusual cases in which symptoms due to
distant metastases were the first indicators of a silent
gastric primary tumour. The 3 patients in this report
presented with metastases in skin, bone, and lungs.

Gastric cancer usually presents with symptoms such as
abdominal pain, anorexia, weight loss, vomiting, and
dysphagia. Gastric cancer presenting with symptoms
attributable to metastases is uncommon, and seen in only
5% of cases. In most cases, metastases are detected after
the appearance of the primary tumour. Cutaneous
metastases from gastric cancer are usually located in
the vicinity of the primary tumour — that is, the ante-
rior abdominal wall. They have also been reported in
such diverse sites as the head, eyebrow, neck, axillae,
chest wall, lip, and shoulders. Metastases usually ap-
pear late in the course of the disease, up to 3 to 10 years
after diagnosis. Patient 1 in our report presented with a
cutaneous metastasis in the extremity.

The incidence of bony metastases from gastric cancer
varies from 0% to 17.5%. There is a predilection of
metastatic disease for flat bones compared with long
bones owing to the prevalence of red marrow. The de-
velopment of isolated skeletal metastases is believed to
occur as a discontinuous hematogenous process that
bypasses the liver and lungs. In the literature, only about
10 cases have been reported in which a solitary bone
lesion was the presenting feature of stomach carcinoma,
and most of these patients had metastases to flat bones.
Patient 2 in our report had a unique presentation in
the form of metastasis to the right fibula.

At least 80% to 90% of patients with multiple pulmo-

nary metastases have previously had a diagnosis of
extrathoracic neoplasm or clinical findings directly ref-
erable to a synchronous primary. Symptoms and signs
that are related to parenchymal nodules are uncommon.

In a series of 2654 patients with gastric cancer,
Yamauchi et al reported that the frequency of pulmo-
nary metastases that appeared as the sole initial symp-
tom of gastric cancer was only 0.3%. Patient 3 in our
report had symptomatic lung metastases from an other-
wise silent gastric primary.

There are several theories regarding early metastases
in gastric cancer. Lehnert et al investigated the lymph
and blood capillaries of human gastric mucosa by light
and transmission electron microscopy and found that
the entire mucosa had a rich supply of blood capillaries.
Kakeji et al showed that the presence of gastric cancer
micrometastasis in the bone marrow was closely asso-
ciated with the expression of vascular endothelial growth
factor and microvessel density in the primary gastric
cancer. It was also postulated that there is an increased
angiogenesis in gastric cancer, which could explain
the early metastases.

In a review of the relapse patterns of gastric cancer
after surgical resection, Gunderson suggested that
the liver is an effective filter that prevents generalised
vascular dissemination. However, when neoplastic
cells extend beyond the stomach wall into adjacent
tissues or organs, they spread via the lymphatic and
venous systems of the invaded structures. The vertebral
venous plexus has also been implicated as a route of
spread of malignant tumours such as carcinoma of the
prostate and the breast. Extension of the malignant
tumour into the neighbouring organs and the retro-
peritoneum, or a similar mechanism, may explain di-
rect systemic spread that bypasses the liver.

Interestingly, in all 3 patients in our report, initial CT
did not show any liver metastases, and the primary
tumour appeared to be confined to the stomach wall.
The presence of systemic metastases in the absence of
invasion of adjacent organs may be explained by the
microscopic extension (one that is below the threshold
detection by CT) of tumour into the retroperitoneum
or into adjacent structures that have a systemic venous
drainage. There may be an alternative pathway of
disease spread, but this remains tentative at present.

Another feature common to 3 cases in this report is that
the mass was located along the greater curvature or the
posterior wall of the stomach. It seems plausible that
cancers growing along the relatively spacious greater
curvature of the stomach may attain a larger size, re-
maint asymptomatic for longer periods, and consequently
present at a more advanced stage than, say, growths in the relatively narrow antrum pylorus region or the oesophagogastric junction. In our search of the literature, however, we found no studies to support or refute this hypothesis.

In conclusion, we suggest that in patients with metastatic adenocarcinoma from an unknown primary tumour, one must look for a silent gastric primary tumour, especially along the greater curvature and posterior wall of the stomach.

REFERENCES