Squamous cell carcinoma

Chris Cook, Roland Watura

CASE REPORT

An 85-year-old man was initially admitted with left-sided pleuritic chest pain and associated rib cage tenderness. Mild ankle oedema was the only other clinical finding. A chest X-ray at this time showed what appeared to be a simple and isolated rib fracture. The lungs were otherwise clear (*Figure 1*).

Four months later, the patient represented with further pleuritic pain. His cardiac failure had progressed, and he now also experienced orthopnoea. On examination, a gallop rhythm and basal crepitations accompanied his ankle oedema. A chest X-ray at this time was compatible with cardiac failure, with an associated right pleural effusion, and his known left-sided fracture (*Figure 2*).

After appropriate diuretic therapy, entire absence of the rib was noted. A poorly defined indistinct mass was just detectable that had been previously obscured because of mild pulmonary oedema. This area still partially resembled an area of alveolar shadowing were it not for the total rib destruction (*Figure 3*).

Subsequently, a computed tomography scan was performed of the chest. This confirmed a cavitating, posterior mass, with adjacent bone destruction (*Figure 4*). This mass was localized under ultrasound (*Figure 5*) and biopsy confirmed squamous cell carcinoma.

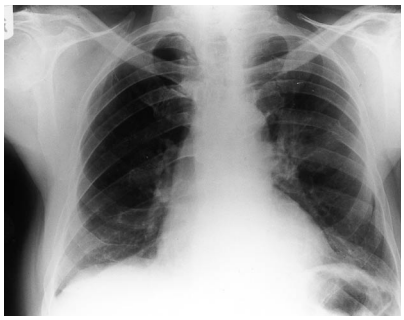

Figure 1. Two simple rib fractures with, in retrospect, an ill-defined density at the site of the left sixth rib fracture.

Squamous cell carcinoma (SCC) of the lung is a common malignancy, accounting for up to 50% of all lung carcinoma.

Dr Chris Cook is Specialist Registrar in Radiology and **Dr Roland Watura** is Consultant in Chest Radiology in the Department of Radiology, Frenchay Hospital, Bristol BS16 1LE

Correspondence to: Dr C Cook

Although SCC, as with other malignancies, can be missed on plain chest radiography and is well known to result in bone destruction, this case illustrates the extent of rib destruction and rapidity of progression in a patient in whom no mass was clearly seen.

DISCUSSION

Bronchogenic carcinoma and cardiac failure are two commonly seen conditions. They also both occur in the elderly population, and the fact that diffuse lung changes on chest X-ray can obscure such neoplasms is well recognized.

This case also demonstrates the nebulous nature of the pulmonary mass, particularly when posteriorly positioned on a posteroanterior chest film. It also shows the typical changes on computed tomography (CT) and ultrasound.

Bone destruction is well known in cases of SCC. Although CT can be of

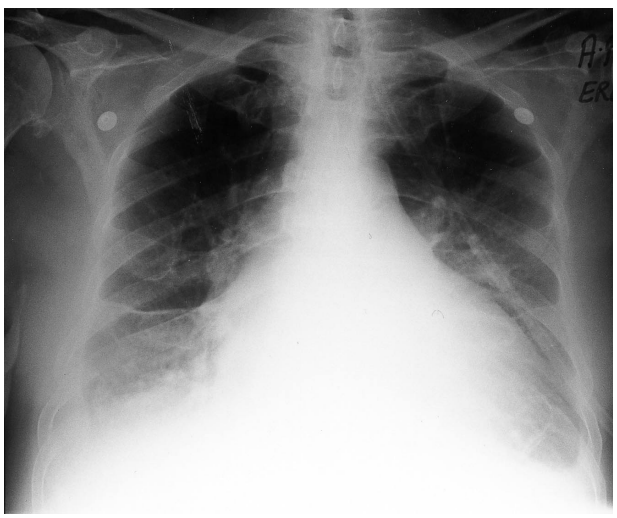

Figure 2. Bilateral pleural effusions and a probable pericardial effusion.

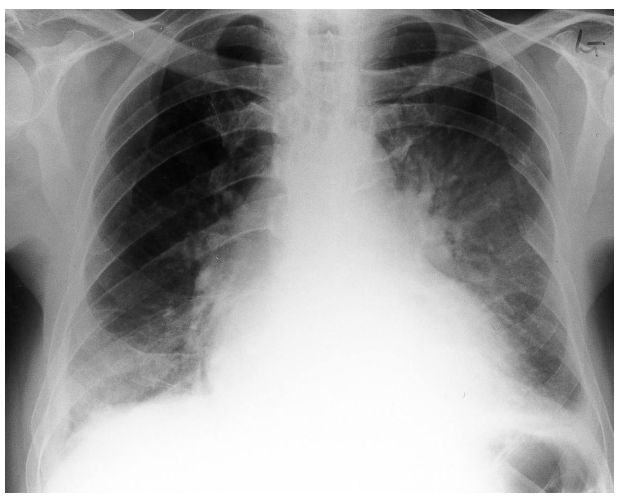

Figure 3. Sixth rib destroyed and new fracture of fifth rib — the seventh rib is probably also destroyed.

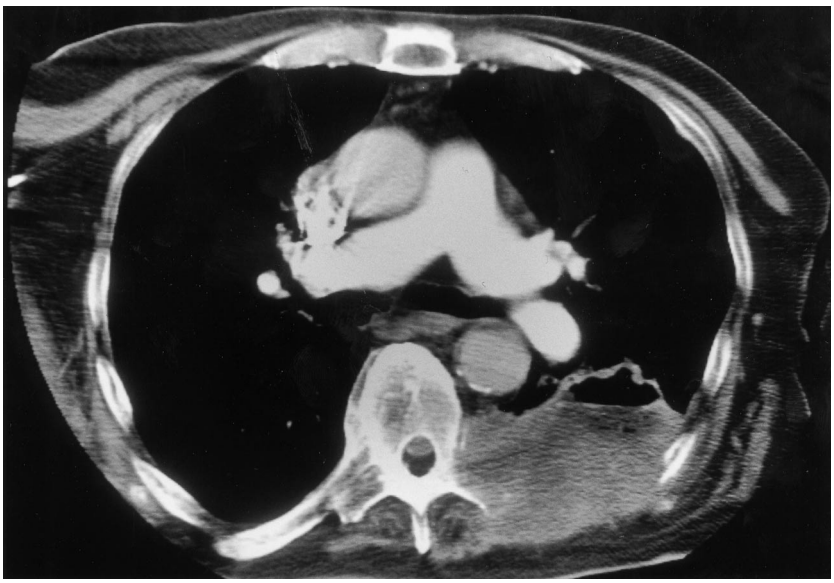

Figure 4. Computed tomography scan of the chest: posterior cavitating mass with rib destruction.

limited predictive value, six salient features have been described to assess chest wall invasion (Glazer et al, 1985):

1. Extent of contact with adjacent pleural surface
2. Acute or obtuse angle of mass with pleural surface
3. Extent of pleural thickening
4. Loss in fat plane
5. Chest wall mass
6. Rib destruction.

However, the sensitivity and specificity of CT for evaluation of chest wall invasion using such criteria has been shown to be as low as 40% (Pennes et al, 1985).

Ultrasound may also be of use in assessing chest wall invasion. The extent of pleural disruption and extension into the chest wall, as well as the degree of fixation on breathing, can be assessed (Suzuki et al, 1993).

The other striking feature in this case was the rapidity of progression. A peripheral primary carcinoma growth rate doubling volume is cited at 30–490 days with a median of 120 days (Hayabuchi et al, 1983; Nathan et al, 1962). In this case, the mass was measured at 10x6 cm on ultrasound scan, when it was not seen only 4 months previously.

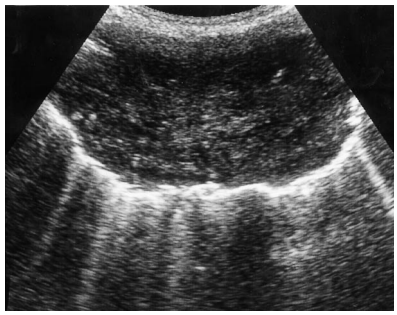

Figure 5. Ultrasound chest: typical appearances of carcinoma, as an irregular mass and central necrotic cavitation.

CONCLUSION

This case report underlines the importance of scrutinizing the chest X-ray for rib destruction. It shows that not only may a mass be of poorly defined edge and of only moderate opacity, but may also be obscured by other pathology. It also indicates the importance of performing review films after appropriate treatment for such pathology. HM

Glazer HS, Duncan-Meyer J, Aronberg DJ, Moran JF, Levitt RG, Sagel SS (1985) Pleural and chest wall invasion in bronchogenic carcinoma: CT evaluation. *Radiology* **157(1):** 191–4

Hayabuchi N, Russel WJ, Murakami J (1983) Slow growth lung carcinoma in a fixed population sample: radiologic assessments. *Cancer* **52:** 1098–104

Nathan MH, Collins VP, Adams RF (1962) Differentiation of benign and malignant (S14) pulmonary nodules by growth rate. *Radiology* **79:** 221–32

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