The Ulster Medical Journal, Volume 56, No. 2, pp. 140 – 142, October 1987.

Case report

Empyema necessitatis presenting as a swelling in the right hypochondrium

J T Lawson, P M Bell, R D G Neely, K G Porter

Accepted 10 August 1987.

Swellings in the right hypochondrium may originate in different anatomical structures, including the gallbladder, liver, kidney, colon and the structures of the abdominal wall. We describe a case of tuberculous empyema of the pleura presenting as a swelling in the right hypochondrium.

CASE HISTORY

A 61-year-old retired insulation worker with a 30-year history of heavy alcohol intake presented to the accident and emergency department with a swelling in the right hypochondrium. Nine months previously he had complained of vague discomfort in the right side of the abdomen, but investigations including liver function tests and ultrasound scan of the abdomen were normal. The discomfort continued, and 10 days prior to this admission he noticed a swelling in the right hypochondrium, which gradually became larger.

Three years previously, pulmonary tuberculosis had been diagnosed with acid-alcohol-fast bacilli being seen in the sputum. A chest radiograph showed a right-sided pleural effusion and fluffy pulmonary infiltrates in the upper and mid zones. Antituberculous chemotherapy was instituted using streptomycin (for three months), ethambutol and pyrazinamide (substituted for isoniazid because of markedly abnormal liver function tests after starting isoniazid). After 18 months' drug therapy the pleural effusion was still present, and, since the patient admitted to poor compliance with treatment, ethambutol and pyrazinamide were continued for a further nine months.

On this admission he was apyrexial. There were signs of a right basal pleural effusion. There was a painless, fluctuant and non-reducible swelling in the right hypochondrium. Tensing of the recti resulted in incomplete disappearance of the mass, which did not move with respiration. Erythrocyte sedimentation rate was 80 mm per hour, haemoglobin 12.3 g/dl, white cell count $12.6.10^9/1$ (69% granulocytes, 22% lymphocytes). A chest radiograph showed a right pleural reaction with a component lying posteriorly suggesting an encysted effusion or pleural thickening. There were bilateral healed rib fractures, and diaphragmatic pleural calcification consistent with asbestos exposure. Abdominal ultrasound

Belfast City Hospital and The Queen's University of Belfast.
J T Lawson, MRCP, FRCR, Senior Registrar.
P M Bell, MD, MRCP, Senior Registrar/Senior Tutor.
R D G Neely, MB, MRCP, Senior House Officer.
K G Porter, MD, MRCP, Consultant Physician/Senior Lecturer.
Correspondence to: Dr P M Bell, Ward 8, Royal Victoria Hospital, Grosvenor Road, Belfast BT12 6BA.

demonstrated an 11 × 6 × 8 cm area of decreased echogenicity separate from the gallbladder and anterior to the liver. It was mainly fluid but also contained debris, suggesting an abscess. A CT scan showed a pleural collection of fluid tracking anteriorly. A subdiaphragmatic collection of fluid was seen extraperitoneally anterior to the liver (Fig 1). There appeared to be a subcutaneous communication between the two fluid collections.

A needle was inserted into the abdominal swelling and 200 ml creamy pus was aspirated. Pleural aspiration and biopsy were performed, and 500 ml pus was removed with a reduction in size of the abdominal swelling resulting. Iopamidol (300 mg iodine/ml) was injected into the pleural space. Radiographs confirmed a superficial anterolateral communication between the pleural and abdominal collections (Fig 2). Direct microscopy of the pus was negative for tubercle bacilli. Pleural biopsy, however, showed actively inflamed granulation tissue with aggregates of histiocytes and several multinucleated giant cells. On culture of pleural fluid tubercle bacilli were grown confirming the diagnosis of tuberculous empyema. Antituberculous treatment has been recommenced with percutaneous tube drainage of the abscess.

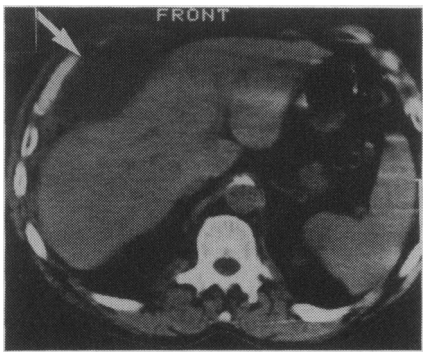

Fig 1. CT scan through the upper abdomen showing a subcutaneous abscess in front of the liver.

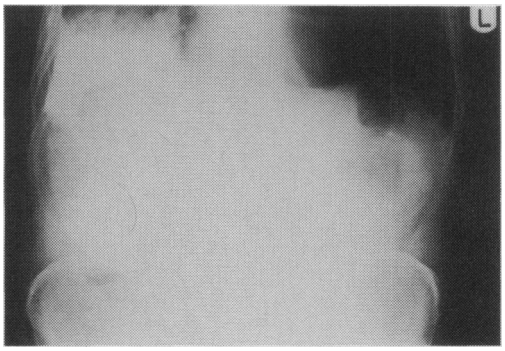

Fig 2. Iopamidol contrast study showing communication between the pleural cavity and the abdominal swelling.

COMMENT

Empyema necessitatis — the pointing of an empyema through the chest wall — is a recognised complication of an incompletely treated empyema. Standard descriptions of the condition state that the external swelling arises in the costal part of the chest wall.[1] In a comprehensive survey of the older literature, cases presenting with swellings in the loin and groin, or with rupture into the oesophagus or stomach, were noted.[2] In the present case the right hypochondrial swelling was clearly connected to a coexisting empyema of the pleura. We could not find any reference to a similar presentation complicating either tuberculous or non-tuberculous empyema.

The diagnosis of empyema necessitatis is usually clinical, but because of the unusual features in the present case, additional imaging procedures were particularly useful. The CT features of empyema necessitatis have been described recently,[3] and the CT scan in our case demonstrated a superficial anterolateral communication between the pleura and the abdominal swelling, which was confirmed by the contrast study.

Tuberculous empyema, formerly a relatively common complication of treatment by artificial pneumothorax, is now rare in this country, but remains a problem in developing countries.[4] It may follow rupture of a superficial cavity or paravertebral abscess into the pleural cavity. As in the present case, it may occasionally form at the site of a pleural effusion. Poor compliance with drug therapy and alcohol abuse[5] presumably predisposed to chronicity of infection. This case illustrates a new, or possibly neglected, complication of an old disease, and the application of modern imaging techniques in defining its unusual features.

We thank Dr J H Foster who performed the CT scan. We are grateful to Miss B Shannon for typing the manuscript.

REFERENCES

1. Scadding JG. Chest, deformity of. In: Hart FD, ed. French's Index of differential diagnosis. 11th ed. Bristol: Wright, 1979; 129-33.
2. Sindel EA. Empyema necessitatis. *Q Bull Sea View Hosp* 1940; **6**: 1-47.
3. Bhatt GM, Austin HM. CT demonstration of empyema necessitatis. *J Comput Assist Tomogr* 1985; **9**: 1108-9.
4. Sharma TN, Jain NK, Madan A, Sarkar SK, Durlabhji P. Tubercular empyema thoracis: a diagnostic and therapeutic problem. *Ind J Chest Dis Allied Sci* 1983; **25**: 127-31.
5. Brown KE, Campbell AH. Tobacco, alcohol and tuberculosis. *Br J Dis Chest* 1961; **55**: 150-8.