Solitary rheumatoid nodule of the pleura and rheumatoid pleural effusion

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Tserkezoglou, A, Metakidis, S, Papastamatiou-Tsimara, H, and Zoitopoulos, M (1978), *Thorax*, 33, 769-772. Solitary rheumatoid nodule of the pleura and rheumatoid pleural effusion. Pleuropulmonary rheumatoid nodules are rare. We report a case of solitary rheumatoid nodule of the pleura with cavitation and coexisting pleural effusion in a young woman.

Pulmonary and pleural lesions in rheumatoid arthritis have been known for many years. Solitary rheumatoid nodules of the lungs and the pleura are very rare, however (Martel *et al*, 1968; Schneider and Ehrlich, 1972). We describe a case of solitary rheumatoid nodule of the pleura with cavitation and rheumatoid pleural effusion in a young woman. No similar case has been reported.

Case report

A 20-year-old woman was admitted to a medical department of the Athens Chest Hospital complaining of chest pain, paroxysmal cough, and high temperature (39°C). The patient had a history of recurrent episodes of pain and swelling of both knees. Her chest radiograph showed a right pleural effusion. At thoracentesis 1400 ml of exudative fluid was removed. Its protein content was 53%, it contained no measurable glucose, and the lactate dehydrogenase was 1860 units. Its white cells were lymphocytes 90% and neutrophils 10%. Results of cytological and bacteriological examinations were negative. Haemoglobin, white cell count, blood urea, glucose, total protein, and serum bilirubin were within normal limits. The sedimentation rate was 119 mm per hour, the ASTO titre 50 units, and the Latex fixation test result was positive. The tuberculin test result was negative, and sputum cultures did not yield any acid-fast bacilli.

The patient was given isoniazide 500 mg, ethambutol 450 mg, streptomycin 1 g, and prednisone 25 mg daily. The clinical manifestations subsided within a week. The chest radiograph after thoracentesis showed an egg-shaped lesion

of the pleura in the right hemithorax, opposite the lower lobe and in the mid-axillary line.

Four months later she was admitted to our department because the pleural lesion was suspected to be a proliferating tumour. The chest radiograph was unchanged (fig 1).

Because of doubt about the diagnosis a thoracotomy was performed, and we found an egg-shaped mass, 3 cm×6.5 cm, located on the parietal pleura opposite the seventh rib. The lesion, which was not adherent to the right lung, was resected. The right lung and the rest of the pleura were normal. Histological examination of the excised mass showed a typical rheumatoid nodule with cavitation. There was a central necrobiotic zone with proliferating histiocytes, many of which had epithelial-like characteristics, an intermediate zone of inflammatory tissue with some giant multinucleate cells, and a peripheral zone of dense collagen fibres (figs 2 and 3).

The patient left the hospital 15 days later in good health.

Discussion

The pulmonary and pleural lesions in rheumatoid arthritis have been known for over a century. However, the histological evidence of the existence of such lesions, based on necropsy material, was provided only 30 years ago (Ellman and Ball, 1948). Pleuropulmonary lesions in rheumatoid arthritis are more common in men, while rheumatoid arthritis is almost three times more common in women (Ramirez and Campbell, 1966; Martel *et al*, 1968; Panettiere *et al*, 1968; Beumer and Van Belle, 1972).

Fig 1 Chest radiograph showing a pleural mass in right hemithorax and a small pleural effusion.

The pathological manifestations of rheumatoid disease in the lungs and pleura are rheumatoid pleural effusion (Ellman *et al*, 1954; Martel *et al*, 1968), diffuse pulmonary fibrosis (Doctor and Snider, 1962; Martel *et al*, 1968), and multiple or solitary rheumatoid nodules (Robertson and Brinkman, 1961; Martel *et al*, 1968; Panettiere *et al*, 1968). The pleural effusion can be minimal or moderate in amount, asymptomatic, and often transient, but sometimes persistent. A characteristic feature is the low concentration of glucose in the pleural fluid (Martel *et al*, 1968; Schneider and Ehrlich, 1972). Rheumatoid chronic interstitial pneumonitis with varying degrees of fibrosis occurs quite often in rheumatoid arthritis, but it rarely coexists with pleuropulmonary rheumatoid nodules (Doctor and Snider, 1962; Martel *et al*, 1968; Beumer and Van Belle, 1972).

The rheumatoid nodules of the lung and the pleura are discrete, round, and occasionally slightly lobulated. They are usually multiple, and rarely solitary, lesions of variable diameter, ranging from several mm to 7 cm. Cavitation of these nodules is rare (Ramirez and Campbell, 1966; Martel *et al*, 1968; Panettiere *et al*, 1968), but it was also seen in our case.

A biopsy should be performed to confirm the diagnosis (Panettiere *et al*, 1968; Beumer and Van Belle, 1972). Histologically these nodules consist of a central zone of fibrinoid degeneration or necrosis, an intermediate zone of proliferating cellular elements, and a peripheral zone of inflam-

mation (Panettiere *et al*, 1968; Schneider and Ehrlich, 1972).

Clinical manifestations due to rheumatoid lesions of different systems can coexist with the pleuropulmonary lesions in rheumatoid arthritis (Panettiere *et al*, 1968). A characteristic pathognomonic finding in pleuropulmonary rheumatoid lesions is a positive latex fixation test (Panettiere *et al*, 1968; Schneider and Ehrlich, 1972).

In cases of rheumatoid arthritis with pulmonary or pleural lesions steroid treatment may be effective (Beumer and Van Belle, 1972).

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Figs 2 and 3 *Microscopical pictures of lesion. Necrobiotic areas, partially of fibrinoid type, epithelioid histiocytes, and vascular inflammatory tissue, are well distinguished (Haematoxylin and eosin $\times 100$).*

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