

## SPHERICAL PNEUMONIA IN AN ADULT PATIENT

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### ABSTRACT

Not all discrete mass lesions in the lung parenchyma are neoplastic. Sometimes pneumonia consolidations are so round and discrete that they are mistaken for pulmonary neoplasm (1). This is the report case of a spherical pneumonia in an adult patient.

### CASE REPORT

A 59-year-old female patient had chest pain, dry cough and high fever for one day. She smoked for 30 years. There was no history of hypertension, diabetes mellitus or tuberculosis. Physical examination showed decreased breath sound and crepitation at right mid lung field. She consumed a drug containing steroid to gain her weight. The temperature was 39 degree celsius. White blood cell count was 18400 with 92% PMN. The patient was treated with penicillin and the fever disappeared after 3 days of treatment. Hemoculture was negative for organisms.

PA chest film on the admission day (Fig.1) showed an ill defined border round-shaped mass lesion at right mid lung field. Small right pleural effusion was noted at the costophrenic sulcus. Right lateral view of the chest film (Fig.2), two days later shows an area of increased lung density at the superior segment of right lower lobe. The lesion was not seen as a mass in the figure 2 due to a response to treatment. Three weeks later, PA chest showed partial clearing of the lesion with evidence of an air bronchogram. The lesion was not seen as a mass anymore (Fig.3). The last PA chest film one month after admission, showed further clearing of the lesion (Fig.4).

### DISCUSSION

The occurrence of well-circumscribed areas of inflammation simulating masses in adults has been described previously by Ackerman (2), Greenfield (3) and Swenson (4). Rose (5) reported 21 children-cases of spherical pneumonia simulating pulmonary and

mediastinal masses in his 10-year-study. Pneumococci was the responsible pathogen in more than half of his cases. No other recognized pathogens were recovered in significant numbers. Thereapeutic response to penicillin within 48 hours was noted. Nasopharyngeal culture seemed to yield more benefit than the hemoculture, which was positive maximally only in 25% (6).

The radiographic presentation of pneumonia as a mass density in the lung could be explained by the studies of Roberson (7), Fraser and Wortz-man (8), and Recavarren (9). Under the influence of gravity, bacteria-laden fluid initially passes into the most dependent bronchus and then to the periphery of the lung. An acute inflammatory process with associated alveolar edema is disseminated centrifugally via intra-alveolar communications without regard for segmental boundaries. The dissemination process occurs largely through the communicating passages among the air spaces, the pores of Kohn, and the channels of Lambert. The consolidation characteristically begins at the periphery of the lung at the site of infection and progresses toward the hilus with a sharp line of demarcation generally existing between the advancing front of consolidated parenchyma and the unaffected lung adjacent to it. The rounded radiographic lesion was well developed on the first study, regardless of the time elapsed after the onset of symptoms, and cleared rapidly with treatment (5).

A pneumococcal origin was postulated in the presented case on the basis of the clinical presentation and response to the antibiotic. The predominantly

posterior distribution of these lesions reported by Rose (5) and in this presented case, is as would be expected in pneumococcal pneumonias (10). It was only a clinical impression that the location of the lesion

was related to the usual sleeping position of the patients. Recognition of the spherical pneumonias should help to eliminate the unnecessary diagnostic procedure for neoplastic work-up.

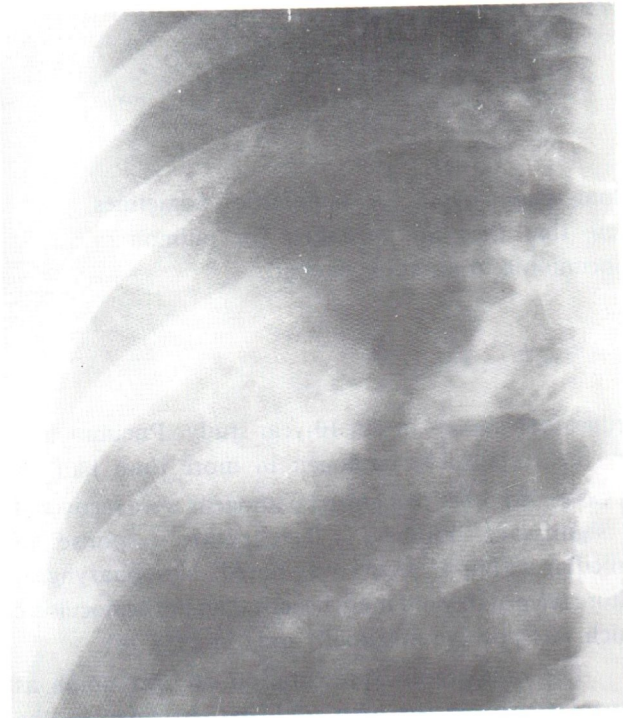


Fig.1 PA chest film on the admission day showed an ill defined border round shaped mass lesion at right mid lung.

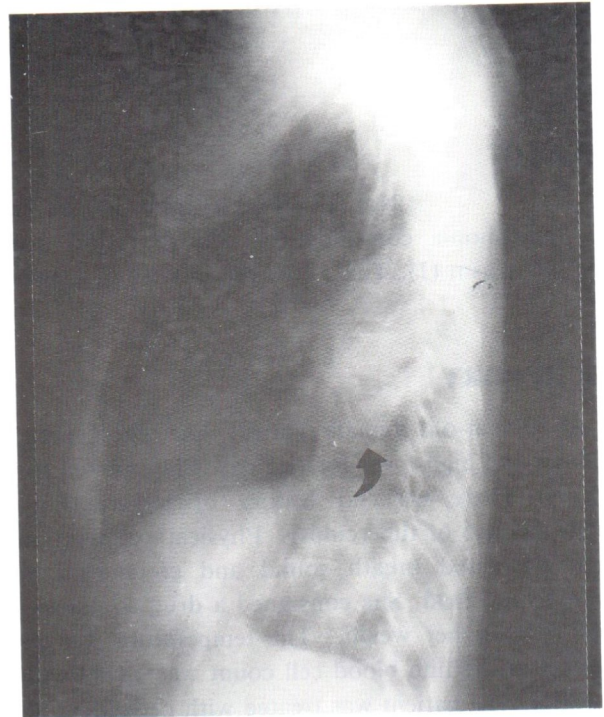


Fig.2 Right lateral view of the chest two days later showed an area of increased lung density at superior segment of right lower lobe.

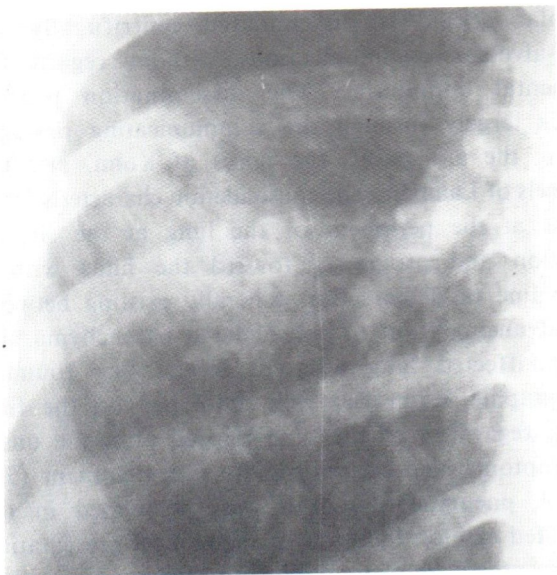


Fig.3 Three weeks later, PA chest film showed partial clearing of the lesion with small cavities and air bronchogram.

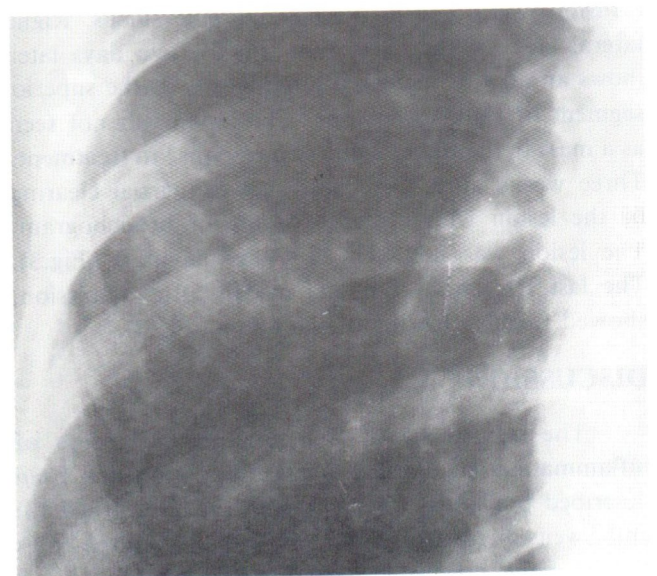


Fig.4 Further clearing of infiltration one month later was observed.

**REFERENCES**

1. Silverman FN, Kuhn JP. Caffey's pediatric x-ray diagnosis: an integrated imaging approach. St. Louis: Mosby, 1993.
2. Ackerman LV, Elliott GV, Alanis M. Localized organizing pneumonia: its resemblance to carcinoma. A review of its clinical, roentgenographic and pathologic features, Amer J Roentgen 1954; 71: 988-996.
3. Greenfield H, Gyepes MT. Oval-shaped consolidations simulating newgrowth of the lung. Amer J Roentgen 1964;91:125-131.
4. Swenson PC, Leaming RH. Chest lesions often confused roentgenographically with primary cancer of the lung. Amer J Roentgen 1950; 63: 629-645.
5. Rose RW, Ward BH. Spherical pneumonias in children simulating pulmonary and mediastinal masses. Radiology 1973;106:179-182.
6. Wyngaarden JB, Smith LH, Bennett JC. Cecil; Textbook of Medicine. Philadelphia: W.B.Saunders, 1992.
7. Robertson OH, Coggeshall LT, Terrell EE. Experimental pneumococcus lobar pneumonia in dog; pathogenesis. J Clin Invest 1993;12:467-493.
8. Fraser RG, Wortzman G. Acute pneumococcal lobar pneumonia:the significance of nonsegmental distribution. J Canad Ass Radiol 1959;10:37-46.
9. Recavarren S, Benton C, Gall EA. The pathology of acute alveolar disease of the lung. Seminars Roentgen 1967;2:22-32.
10. Fraser RG, Pare JAP. Diagnosis of diseases of the chest. An integrated study based on the abnormal roentgenogram, vol I. Philadelphia, Saunders, 1970,p289.