

BILATERAL SIMULTANEOUS SPONTANEOUS PNEUMOTHORAX

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The great majority of cases of spontaneous pneumothorax involve one lung only; when this occurs in a patient with an otherwise normal respiratory tract, it usually causes no discomfort and requires no active treatment. Stradling and Poole (1966) were able to manage 83% of their simple cases in this way. The other cases are usually treated by simple aspiration of air, or by an intercostal catheter and underwater seal drainage. On the other hand, bilateral simultaneous spontaneous

pneumothorax, although rare, constitutes a grave emergency when it occurs; and one of the strongest arguments in favour of prompt closed catheter drainage in the treatment of massive pneumothorax is the possibility that another pneumothorax may occur on the opposite side. The purpose of this paper is to report a case of simultaneous bilateral pneumothorax which presented as an acute medical emergency requiring immediate intervention.

Case Report

J. S., a 53-year old mill worker, was admitted to St. Luke's Hospital on 5.5.69 in severe dyspnoea and with dull substernal pain aggravated by deep breathing. He had been employed in a flour mill for the last 25 years. Slight dyspnoea on exertion and a productive morning cough with dirty, greenish, thick sputum, occasionally blood tinged dated back for 7 years. No past history of Koch's infection. Three days prior to his admission into hospital, whilst sitting in his garden, he suddenly developed a dull substernal pain accompanied by dyspnoea. The dyspnoea became progressively worse and his wife noticed that he was becoming cyanotic and restless.

On physical examination, the patient was cyanotic, apprehensive and in marked respiratory distress. His blood pressure was 140/80, respiration 40 per minute, temperature 97.4°F, pulse 110 per minute, regular. The heart-sounds were normal and the ECG was consistent with chronic cor pulmonale. An immediate X-Ray chest showed fibrotic changes in both upper zones and a 60 per cent collapse of the

left lung. A rubber catheter was inserted through the eight intercostal space in the posterior axillary line and continuous suction applied. A chest X-Ray four days after admission showed marked re-expansion of the left lung and the catheter was removed a week after insertion when re-expansion of the left lung was complete.

The convalescent period was uneventful for the next four days. On the 16th of May, he suddenly developed severe dyspnoea and marked central cyanosis and became unconscious. Examination showed marked diminution of breath sounds bilaterally. The portable chest X-Ray showed bilateral pneumothorax — 30 per cent collapse on the right side and 50 per cent collapse on the left. Bilateral closed thoracotomy with under-water seal drainage was immediately instituted. Chest X-Ray taken a week later showed complete re-expansion of the right lung and marked re-expansion of his left one which was shown to be completely re-expanded three days later when both intercostal catheters were removed. He was discharged from hospital on 20th June 1969. He has been attending the out-patient department

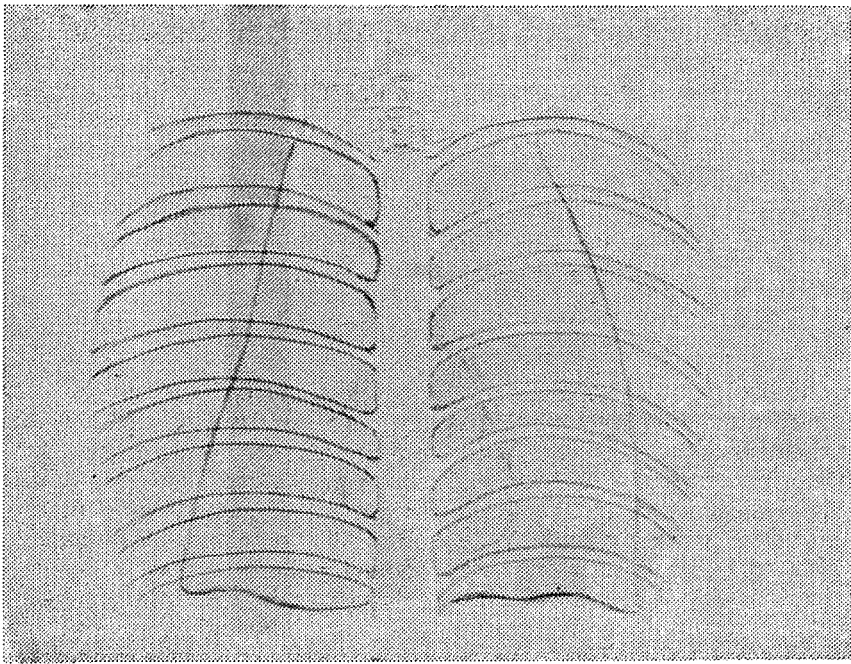


Fig. 1

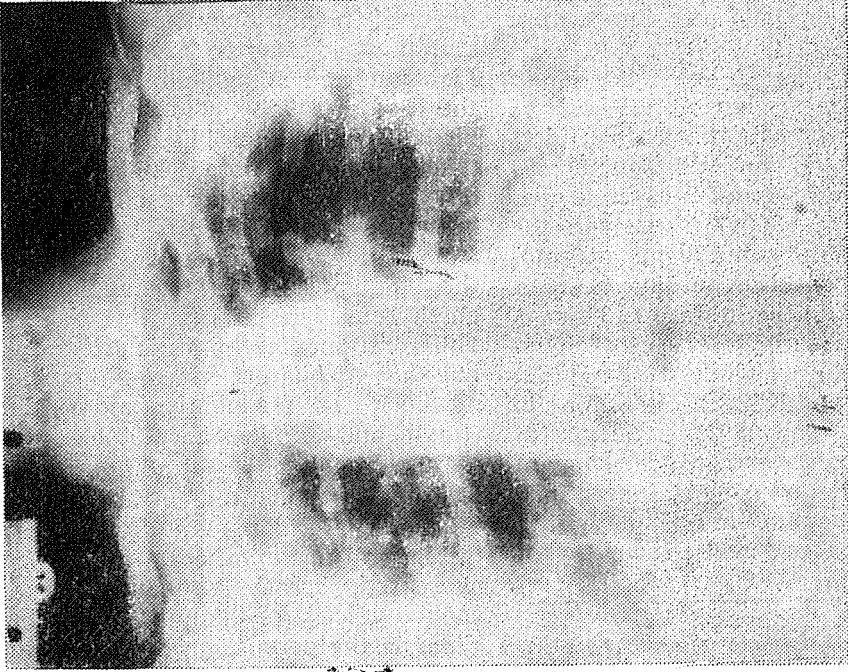


Fig. 3

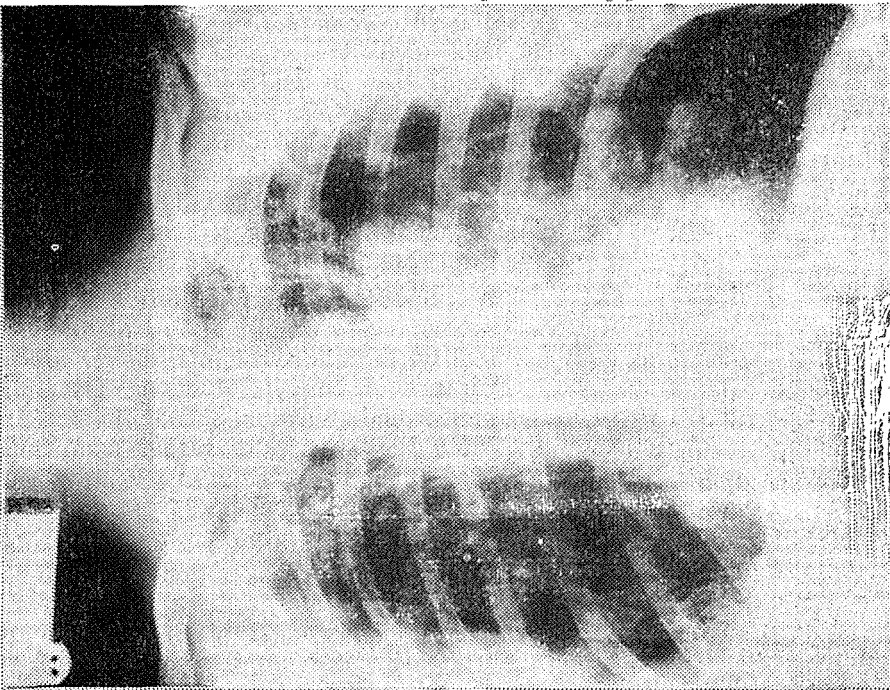


Fig. 2

since then. He was last seen on February 14, 1970, at which time both lungs were still fully expanded.

Discussion

Spontaneous pneumothorax is a fairly common malady. Wynn Williams (1957) found that there are about 7 cases a year in a population of 150,000; however, the incidence of bilateral spontaneous pneumothorax is low and this condition is inadequately reported in the literature. Thomas (1959) found 2 cases in 156 cases of spontaneous pneumothorax whilst Hyde (1962) had 2 out of 115 and Klassen (1962) one in 95 cases. *Table I* shows the incidence of bilateral pneumothorax in reports of pneumothorax; it shows that in nearly 600 patients with pneumothorax, bilaterality occurred in only 2 per cent. However, for

of the literature revealed 12 cases of bilateral pneumothorax in the newborn and they added two cases of their own. Lishman and Mansfield (1969) reported the case of a baby who immediately after birth developed a bilateral spontaneous tension pneumothorax. This condition is one of the causes of respiratory distress in the newborn and has to be differentiated from diaphragmatic hernia, eventration of the diaphragm and congenital lobar emphysema. In infancy, the diagnosis of unilateral pneumothorax is seldom missed, but that of bilateral pneumothorax in the newborn is frequently more difficult. (Ravin and Randerman, 1967).

In adolescents and adults, the finding of a hyper-resonant silent lung is diagnostic of unilateral pneumothorax; however, in bilateral pneumothorax, the presence of decreased breath sounds and distant spoken voices are the most useful physical signs as the percussion note is difficult to evaluate if both sides of the chest are affected.

The degree of collapse is usually not massive, 15 to 30 per cent being the usual amount. Saadi *et al.* (1963) did report a case of complete collapse of right lung and 80 to 85 per cent collapse of the left lung. Peabody and Luke (1963) reported a case when there was complete collapse of both lungs but in their patient the pneumothorax did not occur simultaneously in both lungs and by the time the second pneumothorax occurred, the right lung was already 50 per cent re-expanded.

Spontaneous pneumothorax is always secondary to pulmonary or pleural abnormality. In children, it may occur following rupture of congenital cysts derived from malformed terminal bronchioles (Brock, R.C., 1948) or more rarely from rupture of tension cysts in staphylococcal pneumonia (Weisel and Gorman, 1959).

In young adults, rupture of a pleural bleb is the most common cause of spontaneous pneumothorax whilst in patients over 40 it is most often due to chronic bronchitis and emphysema. Rarer causes are tuberculosis (Hyde, N.B. and Hyde, L., 1950), honeycomb lungs (Oswald and Parkinson, 1949), pulmonary malignancy,

TABLE I

Incidence of Bilateral Pneumothorax in reports of Pneumothorax

<i>Authors</i>	<i>Pt. with Bilateral Pneumothorax</i>	<i>Total Pt. with Pneumothorax</i>
Thomas, P. A. (1959)	2	156
Adler <i>et al.</i> (1961)	5	200
Klassen <i>et al.</i> (1961)	1	95
Hyde (1962)	2	115
Peabody <i>et al.</i> (1963)	2	23
	—	—
	12	589
	—	—

a pneumothorax to occur simultaneously in both lungs as a spontaneous phenomenon must be quite rare. Bilateral pneumothorax occurring simultaneously is much more likely to follow traumatic lesions to the chest. In 1960, Atkins and Smyth reported a case of bilateral simultaneous spontaneous pneumothorax, whilst Payne (1965) had four cases out of 141 patients. Similar cases have been reported by Porras (1961) by Haining and Haining (1963), and by Saadi, Ruben and Massullo (1963).

Bilateral pneumothorax can occur at any age. Howie and Weed's (1957) review

rheumatoid disease (Davies, 1966) and cystic fibrosis (Lifschitz *et al.*, 1968).

Bilateral pneumothorax is a condition requiring prompt treatment. Immediate needle decompression of one or both sides is a life saving procedure. This has to be followed however by tube thoracotomies which have to be carried out bilaterally. High flow pumps easily expand the collapsed lungs. The trend in treatment is that every patient with spontaneous or idiopathic pneumothorax would require eventual thoracotomy (Payne, 1963). Reeves (1957) demonstrated that simultaneous bilateral thoracotomy is a satisfactory and safe procedure; and it has been suggested that bilateral thoracotomy should be done soon after pulmonary expansion has been achieved (Payne, 1963). Talc poudrage is regarded by some as the treatment of choice in the prevention of further episodes of pneumothorax (Paul *et al.*, 1951). Though recurrence rates after an intercostal tube drainage vary from 11 to 17% (Reid *et al.*, 1963; Woleott *et al.*, 1963), it was felt that open thoracotomy or talc poudrage should not be undertaken in the present case as the reactive effusion produced by the intercostal tube was such that a chemical pleurodesis was likely. The lungs have remained completely expanded.

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