SPONTANEOUS PNEUMOTHORAX SIMULATING CORONARY DISEASE

BY

GEOFFREY BOURNE, M.D., F.R.C.P.

Physician in Charge of Out-patients and in Charge of
Cardiographic Department, St. Bartholomew's
Hospital

Artificial pneumothorax is one of the conditions which clinically may simulate coronary disease. The two cases of spontaneous pneumothorax here described were regarded as being cardiac when first seen. One gave a clinical picture practically indistinguishable from that of coronary infarction, and the other a picture very much like that of angina of effort.

In the absence of electrocardiographic and radiographic assistance the diagnosis in such cases may be extremely difficult, for a small partial pneumothorax often gives rise to very slight signs, or to none at all. If the electrocardiograph is the only special means of investigation available certain other facts tend to complicate the problem; for some cases of coronary disease show no abnormality in Leads I, II, and III, and this is revealed only if a Lead IV tracing is taken. Again, it is possible for slight coronary infarction to occur even with a normal Lead IV tracing, either because the lesion is in a "silent" area or because it is of small size. Moreover, in some patients with angina of effort the tracing in all leads is at first normal, although later changes may appear (Bourne and Evans, 1938). An additional difficulty is the fact that pneumothorax, probably by rotating the cardiac axis, may produce electrocardiographic abnormalities suggesting coronary disease. These are most commonly T wave abnormalities, S-T deviation from the iso-electric level, and absent or greatly reduced positive initial deflection in the standard Lead IV electrocardiogram (Master, 1928; Master and others, 1937; Perrin and Drouet, 1930).

Case I. Pneumothorax simulating Coronary Infarction

The patient, a man aged 37, had been perfectly well until seven days before examination, when he complained of a pain across the lower chest. This was partly a feeling of compression, and it was increased by exercise. He had no pain while resting. The pain was not increased by food or by muscular movement and did not radiate to the arms, but was increased by a deep breath. The following day the pain became worse, and on the third day was still so bad as to require an injection of morphine. His pulse rate was noticed to be increased and the blood pressure low. The pulse rate had remained higher than 100 up to the time of examination. Movement in bed, even sitting upright, produced shortness of breath subsequent to the attack. No exertion could be undertaken because of this shortness of breath. There was no palpitation and no giddiness. On examination the pulse rate was 100, the rhythm regular. The area of cardiac dullness was moved slightly to the right, and over the left lower chest the vocal vibrations, percussion note, and respiratory murmur were all diminished in the standing position. When the patient lay down this area of dullness disappeared and was replaced by a hyperresonant note. On screening the chest the presence of a hydropneumothorax on the left side of the chest was confirmed. Fluid which was withdrawn was deeply blood-stained.

Remarks.—There was no previous history of any attack of pain in the chest, of pulmonary tuberculosis, or of any inflammatory lesion of the lungs or pleura. He had, however, suffered severe injuries fracturing ribs in two aeroplane accidents. It is possible that these injuries had produced adhesions between the lung and

the thoracic wall, which had somehow become torn, causing the haemopneumothorax. The type of pain as described in the history was exceedingly like that of a coronary infarction, and the tachycardia, low blood pressure, and shortness of breath which accompanied and followed the pain were also very suggestive of an infarction. It is quite clear that if fluid had not been present the diagnosis clinically might have been impossible without an electrocardiogram. Even this might have shown changes suggestive of coronary infarction.

Case II. Pneumothorax simulating Angina of Effort

A man aged 38 who had previously had rheumatic fever, scarlet fever, and tonsillitis began to suffer from pain in the left side of the chest three weeks previous to examination. This pain was accentuated on exertion and relieved by resting. It was quantitative, being absent if he walked slowly, and increasing if the pace was quickened. Simultaneously there was also a dull ache on the left side of the chest. The pain was most severe during the first two or three days and slowly subsided until the day previous to examination, when it returned. This second time it was again quantitative, increasing during exertion and disappearing with rest. There was no shortness of breath and no orthopnoea. A slight sense of constriction accompanied the pain. Palpitation was noticed on the left side of the chest, especially at night. The patient was more easily tired than normally.

On examination no abnormality was discovered in the chest; the apex beat was in the mid-clavicular line and the heart sounds were clear. No abnormality was found in the lungs on the first examination, but subsequently, after the diagnosis had been determined by the screen examination, very slight differences in the physical signs were observed, the changes being against the left side. The blood pressure was normal—140/94—and no abnormality was found in the abdomen. On screening the chest a left-sided pneumothorax was discovered, with only a moderate amount of pulmonary collapse. The electrocardiogram showed no abnormality in the first three leads, but in Lead IV the R wave was very small and the S-T deviation suggested the possibility of coronary disease.

Remarks.—The age of the patient is somewhat below that at which angina of effort is common, but the history was very suggestive. The facts that the pain was chiefly on the left side of the chest and that it did not radiate into the arms were also important. There was nothing in the patient's history proving a definite severe blow on the chest, but he had been a cricketer until three weeks previously.

REFERENCES

- Bourne, G., and Evans, Courtenay (1938). *Lancet*, 2, 1354.
Master, A. M. (1928). *Amer. Heart J.*, 3, 472.
— Dack, S., Kalter, H. H., and Jaffe, H. L. (1937). *Ibid.*, 14, 297.
Perrin, P., and Drouet, P. (1930). *Arch. Mal. Cœur*, 23, 387.

The Social Service Department of St. Thomas's Hospital, which includes the Samaritan Fund and the work carried out under the direction of the lady almoner, has had during the year covered by its latest report to face the problems created by evacuation. In the case of patients or recent patients who at the beginning of the war sought safety by moving to the country it became necessary for the almoner to assure herself that any requisite treatment could be continued at a local hospital or under a private practitioner; also that those who remained in their own homes while the hospital was largely emptied had the services of a district nurse and any other help that might be needed. "Perhaps more important than anything else to the people of Lambeth, who all their lives in times of stress have looked to the hospital for guidance and help, was the knowledge that St. Thomas's, working indeed under unusual conditions and with many restrictions, sand-bagged and short-staffed, preserved its identity and was still a haven of refuge to the afflicted."