A CASE OF SARCOMA OF THE LUNG.

BY

R. ALLAN BENNETT, M.D.LOND., M.R.C.P.,

PANAMA.

THE case here reported is no exception to the rule that tumours of the lungs are difficult to diagnose; had it not been for the metastases it would have been impossible to be dogmatic about it.

A woman, aged 47, had been out of sorts for two months, with no symptoms except shortness of breath on slight exertion. She had been operated upon twenty years before for tuberculous glands in the neck, and her family history was tainted with tubercle on both sides. She looked ill, but repeated examinations revealed no abnormal signs of any sort. The blood count gave 4,800,000 red cells, 11,000 white cells, and the differential count was normal. No diagnosis was made.

A fortnight later she woke in the night with great dyspnoea; the whole of the right chest behind was found to be dull and the breath sounds were absent, while in front there was an area, extending from the apex of the lung to the level of the fourth rib, where the note was tympanitic, the vesicular murmur absent, and the voice sounds were loud and close to the ear. Below this there was dullness and the breath sounds were absent. Vocal fremitus was absent over the whole side, back and front. The apex beat was not displaced; the heart sounds were feeble and the pulse varied from 90 to 110. A needle withdrew clear coloured fluid, and on aspirating the chest 16 ounces were removed, blood-stained towards the last.

The removal of this fluid made no difference to the physical signs, and did nothing to relieve the dyspnoea of the patient, which was now severe, and threatened to be fatal. After some hours the symptoms abated, and on the following day the patient was little the worse for her experience, though any movement brought on distressing shortness of breath. Examination of the fluid then and subsequently removed from the chest showed a small predominance of mononuclear leucocytes, and injection on two occasions into guinea-pigs did not affect the animals.

The temperature did not rise above 100° for the first three days, but on the fourth there was a rigor, and for the rest of the illness there was a daily variation of several degrees (97° to 104°), without much sweating. In spite of this the patient improved, and by the end of the second week she could move about with comfort. There was no cough, the physical signs did not alter, the blood count was the same, and it was thought then that the condition was a pneumothorax of tuberculous origin.

On the twenty-eighth day the patient, lying quiet in bed, cried out that she was suffocating, and an attack followed, very like that already described. This time it seemed impossible that she could rally, but in the course of four hours the symptoms subsided and she was in comparative comfort.

Not until 12 ounces of blood-stained fluid had been withdrawn from the chest was there any change in the physical signs. There was then over the whole of the right lower lobe behind a tympanitic note, with distant loud bronchial breathing, like that heard over the trachea when compressed. This sound, to which the name "cornage" was given by Behier fifty years ago, is said to be pathognomonic of bronchial obstruction, and if heard over the root of the lung and accompanied by dullness, of tumour. Though the sign in this case did not fulfil these two conditions, it was a striking phenomenon, occurring so suddenly over a wide area previously silent, and its appearance threw the first doubt upon the diagnosis already made. The condition of the patient during the next three weeks became steadily worse; the dyspnoea increased, and though the chest was aspirated twice only 9 ounces of fluid were taken away on each occasion, and the removal did not alter the physical signs. The blood examination showed an increasing anaemia: the red cells at the end of the fifth week of the illness numbered 3,980,000, the white cells kept between ten and twelve thousand, and the differential count remained normal. The temperature was hectic. There was little cough and no expectoration.

On the fifty-eighth day the patient complained of pain over the front of the chest, and a nodule the size of a pea was found at the junction of the fifth right costal cartilage and the sternum. It was extremely tender, movable under the skin, and apparently fibrous. It was excised, and the report on its structure cleared up any doubt as to the nature of the disease; it was described as a small round-cell, deeply pigmented sarcoma. Other nodules appeared at intervals in the skin of the right chest, and added greatly to the misery of the patient; they were all tender, and some of them were the starting-points of acute neuralgic pains, which spread over wide areas of skin.

Two more attacks of acute dyspnoea occurred—one on the seventieth, the other on the seventy-fourth day—with no change in the physical signs. On the eighty-seventh day, three months from the date of the first examination, the patient had an enormous haemoptysis and died at once. A *post-mortem* examination was not allowed.

In the discussions that arose over the differential diagnosis the question of primary malignant disease of the lung and pleura arose more than once, but it did not seem to those who listened to the chest that there was any justification for abandoning the diagnosis already made. It might

be said that the persistence of blood in the aspirated fluid should have been allowed more weight in the decision, but there are simpler explanations of this than malignant disease of the lung, and it was possible to point to one positive sign only—the predominance of the mononuclear leucocytes. An x-ray examination of the chest, which might have given the diagnosis earlier, was impossible, as the patient lived in a remote district of West Africa, seventy miles from an apparatus.

I have found in the literature only one example of sarcoma of the lung with secondary deposits in the skin—a case published by Peritz of Berlin in 1896, where metastases occurred in the mediastinal and cervical glands, the spleen, the liver, and both kidneys.

PERSISTENCE OF TUBERCLE BACILLI IN BUTTER FROM TUBERCULOUS MILK.

BY

H. A. COOKSON, M.B., Ch.B., F.R.C.S.,
D.P.H.,PATHOLOGIST, ROYAL INFIRMARY, SUNDERLAND; BACTERIOLOGIST,
SUNDERLAND HEALTH AUTHORITY.

THE danger arising from the presence of tubercle bacilli in butter has not attracted in this country the attention it deserves, though probably fresh butter containing these bacilli is not infrequently on sale. With a view to determining their persistence in butter made from milk known to contain them, specimens of milk were collected from five tuberculous cows; three of these cows were afterwards shown to have extensive tuberculous lesions, and in all five cases the presence of tubercle bacilli in the milk was demonstrated by inoculation into guinea-pigs.

From these five milks butter was made by naturally ripening them without heat, other specimens being pasteurized at 55°, 60°, and 70° C.; after this heating butter was made by using a "starter" to produce artificial ripening. The various specimens of butter were melted and kept at 40° C., sedimentation being allowed; the difficulty of satisfactorily centrifugalizing butter samples was to some extent overcome in this way. From the melted samples in cylindrical containers 4 c.cm. was taken from the surface and another 4 c.cm. from the bottom, guinea-pigs being inoculated with the total 8 c.cm. When the milk was pasteurized it was heated in a container at one of three temperatures—55°, 60°, and 70° C.—the samples of milk being maintained at the selected temperature for thirty minutes, and continuously stirred while the thermometer readings were carefully watched.

The proof that tubercle bacilli caused the lesions found in the guinea-pigs was afforded by histological examination of the affected glands. Smears of the gland pulp were stained for tubercle bacilli, prolonged treatment with sulphuric acid being followed by the application of alcohol for ten minutes. To ensure the elimination of error due to the presence of acid-fast butter bacilli cultures were made; the rate of growth of the colonies and morphological considerations gave further confirmation of their identity.

The five specimens of milk were all shown to contain tubercle bacilli. One sample of butter made from naturally ripened milk was found to contain tubercle bacilli; the butter produced in other ways from this milk was also found to be similarly infected. The other four samples of milk, whether unheated or heated, produced butter which was free from tubercle bacilli. For the various examinations twenty-five guinea-pigs were used.

It would therefore appear that even the most careful pasteurization is not always a sufficient protection against the survival of tubercle bacilli. Work is now proceeding to determine the time of persistence of live and virulent tubercle bacilli in butter after it has been stored in the ice-chest, both salted and unsalted preparations being used. The present series of experiments is too small to allow definite conclusions to be drawn, but the importance of the point at issue seems to justify the publication of this preliminary report.