whole cartilage, and not only the broken portion, should be removed at the time of operation. I am a very firm believer in the necessity of removing all of the offending cartilage. During the past fifteen years I have been obliged to remove many posterior ends of cartilages which have been left at the primary operation.

In regard to after-treatment, my practice is to keep the patient in bed with the knee fixed at an angle of slight flexion for ten days. After this time the stitches are removed and he is allowed to walk about with the leg still fixed on a splint for another ten days, during which time he is persuaded to exercise the quadriceps muscle. The splint is then removed and replaced by a bandage round the joint, and exercises and gentle massage are given to the quadriceps until this group of muscles is equal to those of the other leg. I have never found any difficulty from stiffness following this splint fixation, and I believe it is necessary to allow the wound of the joint to become soundly healed before strain is put on it by flexing the knee.

A CASE OF TYPE IV PNEUMOCOCCAL SEPTICAEMIA

BY

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The following case may be worthy of record, both on account of its rarity and of its successful conclusion. The diagnosis was only made after many investigations, and the blood culture on which it depends was repeated, at an interval of two days, with the same results.

CASE HISTORY

The patient, a widow aged 34 years, was admitted to hospital complaining of attacks of shivering and pain in the epigastric and lumbar regions for two weeks. There was nothing outstanding in her past history; she had had no serious illnesses, and she had never been abroad. She had no children. As regards her present condition, the pain was not severe and the shivering attacks did not upset her, although they were sometimes followed by vomiting. Her bowels were regular and the motions normal. She had no urinary symptoms, and no menstrual disturbance or vaginal discharge.

Examination of the abdomen elicited slight tenderness and rigidity in the epigastrium and right hypochondrium. There was nothing abnormal palpable. Rectal and vaginal examination revealed no abnormality. Her heart and lungs were normal. Her throat was clean and the teeth healthy. There was no nasal or oral discharge. She was running a swinging temperature from 99° to 104° F., but showed very little general disturbance. The investigations made, the patient's progress, and her treatment can best be considered together, with reference to her temperature charts.

First Week

Pathological investigations revealed a moderately severe anaemia: red cells, 3,600,000 per c.mm.; haemoglobin, 44 per cent. There was a polymorphonuclear leucocytosis of 13,000 per c.mm. Agglutination reactions for *B. typhosus* and *B. paratyphosus* A, B, and C, the Salmonella group, and for *Brucella abortus* were all negative. Urine was normal, except for a trace of bile.

Second Week

An x-ray photograph of the gall-bladder showed no abnormal shadows. On blood culture there was a heavy growth of a short-chain coccus, which was identified as a Type IV pneumococcus. This was repeated two days later, with the same result. The blood sedimentation rate was 50 per cent. (one hour reading). The patient's general condition was worse, although she still felt fairly well. She was given a single intravenous injection of 5 c.cm. of collosol argentum.

CHART 1.

Third Week

Two injections of 10 c.cm. of Pané's polyvalent anti-pneumococcal serum were given. Although a third blood culture at this time was negative, there was no improvement in the patient's general condition. The blood sedimentation rate had risen to 61 per cent., and the leucocyte count had fallen to 9,000 per c.mm. There was an acute cardiac dilatation, the apex beat being in the mid-axillary line. The patient complained of pain in the right side of her chest, and a small patch of pleurisy and impaired resonance was found. X-ray examination of the chest confirmed the cardiac enlargement, but showed no abnormal shadows in the lungs. A course of injections of S.U.P. 36 and nucleinic acid, 1 c.cm. of each daily, was started.

CHART 2.

Fourth Week

For five days the patient had no rigors, but remained very ill. The pulse was persistently over 100, and sometimes up to 140. The anaemia was very severe, the red cells being only 850,000 per c.mm. and haemoglobin 24 per cent.

Fifth Week

A blood transfusion of 750 c.cm. was given, with an immediate improvement in the general condition. In two days the pulse had settled to about 90; although the rigors

CHART 3.

continued they were less distressing, and the temperature was generally lower. The cardiac enlargement began to decrease and the patch in the right lung cleared up.

Sixth Week

The improvement continued, although occasional rigors still occurred. Injections of campolon, 2 c.cm. daily, were started, and also an autogenous vaccine made from the blood cultures by Dr. A. G. Shera. To begin with, 50,000 organisms in 0.1 c.cm. were given, increasing by increments of 50,000 organisms daily. Ten injections in all were administered.

Seventh to Tenth Weeks

The rigors entirely ceased and the temperature remained normal. Three injections of a stronger vaccine, containing 500,000 organisms in 0.1 c.cm., commencing with 0.1 c.cm. and increasing up to 0.3 c.cm., were given. At the end of

CHART 4.

ten weeks the patient was able to be discharged. She had then no abnormal physical signs; she felt well, and was gaining weight. Her red cell count was 4,025,000 per c.mm. and the haemoglobin was 62 per cent.

I am indebted to Mr. A. H. Crook, M.Ch., F.R.C.S., whose case this was, for permission to publish these notes, and to Dr. A. G. Shera for carrying out all the pathological investigations.

Clinical Memoranda

CHRONIC BILATERAL SPONTANEOUS PNEUMOTHORAX

The note by Dr. Joseph Lewis in the *Journal* of October 28th, 1933, on the subject of chronic bilateral spontaneous pneumothorax, emphasizes the necessity for reporting instances of this uncommon condition. The following are records of two cases which have come to my notice. Perhaps the condition is not so rare as its neglect by medical writers would appear to indicate.

Case 1.—A man, aged 46, was admitted to hospital on April 3rd, 1933, complaining of remittent indigestion of eight years' standing and a tender lump in the epigastrium. X-ray examination of the stomach and duodenum, by Dr. Duff Gray, showed no evidence of organic disease. The lump was an epigastric hernia. The patient was somewhat dyspnoeic, and coughed up three to five ounces of frothy sputum in the twenty-four hours. X-ray examination of the chest showed a localized pneumothorax at each apex and fibrosis of both lungs. Tubercle bacilli were not found in the sputum, and several previous searches had also proved negative. The patient had had pneumonia in 1916. A consequent empyema had been "vomited" up without operation. He had been off work for ten weeks, and then in a sanatorium for three months. Neither here nor at the tuberculosis dispensary, which he attended for some years, was any positive evidence of tuberculosis found. In 1919 and 1923 the patient went off work for five and three months respectively after attacks of influenza, and in 1927 he had influenza again. In 1929 he underwent an operation for strangulated hernia. In 1930 he was in bed for one month owing to "congestion of the lungs," and in November, 1932, he was ill for seven weeks with acute bronchitis. He was warned of the danger of recurrence to which his cough

rendered him liable, but in spite of this he insisted on an operation for his epigastric hernia. This was carried out under novocain anaesthesia on May 24th, 1933, and he was discharged on June 21st. He carried on his occupation as a boot repairer until November 14th, when he again sought admission on account of his cough and shortness of breath. An x-ray photograph at this time, seven months after the first, showed the two apical pneumothoraces to be unaltered. The upper edge of the lung was extremely thin, and strands of lung tissue could be seen running towards the parietal pleura (Fig. 1). Lipiodol injection gave no evidence of bronchiectasis. The patient has improved sufficiently to permit him to be discharged from hospital, but his cough and dyspnoea are still present.

FIG. 1

FIG. 2

Case 2.—A man, aged 55, was seen by Dr. Sutherland in January, 1927. He had had pleurisy thirty-five years previously, and repeated attacks in the next few years. In 1925 he had had influenza, and had coughed ever since. There had been slight staining of the sputum once in 1921, and once in 1926. At the time of examination in 1927 the sputum did not contain tubercle bacilli. X-ray examination showed a pneumothorax at each apex, that on the right side being the larger (Fig. 2). There was no evidence of active tuberculous disease, and the case was diagnosed as one of old pleuropneumonia. An x-ray examination by Dr. Twining in 1931, more than four years later, revealed the pneumothorax to be unaltered. A recent attempt to trace the patient has been unsuccessful, so that his present condition cannot be ascertained.

Neither of the cases can be held to come within the category of spontaneous pneumothorax in the apparently healthy; in both there was a long history of antecedent pulmonary disease. Kopstein and Lenz¹ distinguish sharply between benign pneumothorax and that occurring during the course of tuberculosis or chronic emphysema. Neither they nor Kjaergaard, however, regard a past healed tuberculosis as removing the case from the benign class, and Kjaergaard adduces evidence that the mechanism of the "valve vesicle" is operative in the emphysematous patients, as it is in those without previous history of respiratory disease.

That the pneumothoraces were truly chronic in both the cases here reported is indicated by the complete similarity of the x-ray appearances at the beginning and end of the respective intervals. It is necessary to remember, however, that spontaneous pneumothorax may be a recurring condition, and that the symptoms of its onset are sometimes so misleading as to make its discovery a chance one during the course of an x-ray examination. The mere presence of air in the pleural cavity on two successive occasions is not necessarily, therefore, a proof that it has been unabsorbed during the whole of the intervening period.

The second case was brought to my notice by Dr. E. W. Twining, and I am indebted to him and to Dr. D. P. Sutherland, who have placed the radiological and clinical details at my disposal.

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¹ Kopstein and Lenz: *Deut. Arch. f. klin. Med.*, 1933, clxiv, 366.