Report of a Case of Proved Fulminating Hemophilus Influenzae Pneumonia in an Adult with Recovery

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This case is being presented because it is of more than usual interest for several reasons. It is a case of pneumonia caused by an unusual etiological agent, particularly in an adult. It is a case of a pneumonia which was extraordinarily extensive and severe. In fact, it was so severe that several experienced observers who saw the patient are of the opinion that it was the most severe case of pneumonia with recovery that they had ever seen. Finally, this presentation is being made because it illustrates several very important practical points in the diagnosis and treatment of pneumonias in general.

This 46 year-old white man developed excruciating left chest pain 18 hours before admission to the hospital. This subsided spontaneously in a few minutes. Within a half hour, the pain recurred and it was accompanied by bright red hemoptysis and severe dyspnea. He was seen shortly after this by a surgeon who made a tentative diagnosis of pulmonary embolus and recommended immediate hospitalization. This was refused. No antibiotic was given. The patient continued to get more severely ill, developing chills, headache and cyanosis. On admission to the hospital, he was deeply cyanotic, dyspneic and in severe pain.

His blood pressure was 180 systolic, 70 diastolic. The temperature was 97.2°F., the pulse 112, respirations 30. Examination of the chest revealed dullness over the left lung base, and despite the extremely shallow respirations, some fine rales could be heard in this area.

The sputum specimen obtained at the bedside was thick, gelatinous and fleshy in consistency, and red. A direct smear revealed lepto acid-fast rods. Culture yielded a pure growth of Hemophilus influenzae, type b. One of the initial blood cultures grew out Hemophilus influenzae, type b. On admission white blood count was 3500 with 51 per cent lymphocytes and 44 per cent neutrophiles. This count on the second hospital day was 3300. These were even more striking since he had been carefully followed during the previous year because of unexplained leukocytosis. On the third hospital day, the white blood count rose to 14,000; on the fourth day to 21,000; and on the fifth day to 28,000. It finally returned to 14,000 which had been his usual leucocyte count.

Acid-fast smears and cultures were negative. Cold, heterophile and all febrile agglutinations were normal. Agglutinations for murine typhus, rickettsial poyx, Rocky Mountain spotted fever, influenza, types A, A-Asian strain, and B, and Q fever were negative.

He was placed on massive doses of antibiotics including penicillin, chloramphenicol and streptomycin. His temperature, which on admission had been subnormal, went to 101°F. within an hour or two, but only after antibiotics had been started, and after he had been placed in oxygen and given fluids. He improved until the sixth hospital day when he developed a full-blown case of delirium tremens. Associated with this was a spike of temperature, and a return of the severe air hunger and cyanosis. Despite the fact that oxygen was administered at the rate of 20 to 25 liters per minute, his respirations were as high as 40 per minute and the cyanosis increased.

The chest x-ray film (Fig. 1) taken within an hour of admission revealed a rather unusual diffuse, reticulating, and granular infiltration throughout the middle and lower portions of the left lower lobe. There was also patchy infiltration in the right lung base. The granularity was somewhat suggestive of interstitial pneumonia. On the second film (Fig. 2) there was seen marked progression of the pneumonia, with infiltration involving 80 to 90 per cent of his entire lung fields. There was also some fluid revealed, but most of the density was believed to be infiltration.

At this point, massive doses of oxytetracycline were substituted for the chloramphenicol in accordance with the results of the sensitivity studies, and the dosage of penicillin was empirically increased to 60,000,000 units a day by continuous intravenous drip. His chest was tapped, and a small amount of purulent fluid was obtained, but this failed to grow an organism which is not surprising in view of the intensive antibiotic therapy. He remained critically ill for several additional days and then began to show gradual improvement. By the 30th hospital day, he was well with the exception of continued fever, averaging about 101°F. Antibiotics were discontinued.

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FIGURE 1: Chest x-ray film taken within hours of onset of first symptoms.

FIGURE 2: PA view of chest taken at height of illness.

FIGURE 3: Pleural reaction and scar-rings at the right base are all that remain in most recent follow-up film.
and the temperature returned to normal. We therefore concluded that the elevation of temperature at this point was due to drugs. He was discharged from the hospital on the 37th day, and now, almost a year later (Fig. 3), he is well. The most recent x-ray films revealed only pleural reaction and scarring at the left base.

The points that were of particular interest to us and the practical things that we can learn from this case are as follows:

1) Hemophilus influenzae is an unusual cause of pneumonia at any age, but particularly in the adult. In fact, in the 20 years prior to 1954, Crowell and Loube found only three case reports in the American literature. Pure cultures of Hemophilus influenzae, type b from the sputum and the blood at the very onset, and the failure of extensive studies to reveal any co-existent etiological agent, are substantial proof of its causative role in this case, despite the known peculiarities of the Hemophilus influenzae organism.

2) This case points out the importance of withholding chemotherapy and antibiotic therapy in patients with pneumonia until cultures can be obtained, because of the resistance of some organisms to usual therapy, and, as in this case, unusual bacteriological agents can be responsible for the pneumonia. However, one should not wait in the seriously ill patient for the results of the bacteriological studies before beginning therapy.

3) Initial leukopenia followed by leukocytosis is more common in Hemophilus influenzae infections. However, any overwhelming bacterial infection can be ushered in with a marked leukopenia and normal temperature, and the finding of leukopenia and the absence of fever in a very sick patient with pneumonia does not necessarily imply that the pneumonia is of viral or rickettsial origin.

4) This patient developed delirium tremens, a complication that has been seen so frequently in heavy drinkers with pneumonia. This should be anticipated in alcoholics who develop pneumonia and treated vigorously, because delirium tremens can be fatal, even without concomitant disease.

5) This case also illustrates how the febrile period can be prolonged by the administration of antibiotics, particularly in massive doses.

6) Finally, this case serves to emphasize the importance of a comprehensive approach to the patient severely ill with pneumonia including prompt etiological diagnosis, massive appropriate antibiotic therapy, intensive supportive measures, and prompt management of complications which are so frequent in overwhelming pneumonic infections.

REFERENCES