place in the pharynx was simply astounding, and even more marked than I had expected from Mr. Bowley's report; practically all the ulceration which has been described on previous occasions had disappeared without leaving any scar. Only on the posterior wall of the pharynx there was a slightly raised nodular ulceration. The epiglottis had for the most part been destroyed by ulceration, and the left half of the larynx was nearly immobile, but the laryngeal mucous membrane, which had been also ulcerated, had healed without showing any evidence of scarring. The pain in the throat had entirely disappeared, and the tenacious secretion which had for a long time been such a trouble to him was also quite a thing of the past. He had never had, as far as he knew, a cold or infected throat, and he had never been troubled with any symptom which resembled a pharyngeal ulceration. He had got up without having felt, and showed no traces of blood. The voice was very weak—almost reduced to a whisper.

On examination of the lungs both were found to be extensively affected; ronchi and crepitations were heard everywhere, but more particularly over the bases of both lungs, where fine crepitation predominated over other sounds, and where marked dulness was found on percussion. There was no evidence of a cavity in these parts. The mechanical difficulty in swallowing was still great. He had had to a fair extent, but in several cases, choking; and Dr. Ellinger suspected that particles of food might during these attacks have entered the lower air passages, and have set up infective pneumonia. The profuse expectoration which is now present, is almost entirely of sputum, and the bases of the lungs. I recommended rectal feeding, in addition to the food by the mouth, quinine and old brandy to be added to the nutrient injections, and hot poultices round the bases of the lungs.

On April 25th Dr. Mitchell Bruce went down to the sanatorium, and considered the case almost hopeless, but not absolutely so. He found the infection of the left lower lobe to be much more extensive at that time than before mentioned, but at the same time it could not be considered to be the tuberculous, but due to pneumococcus infection of the nature of bronchopneumonia with pleurisy. He did not, as stated above, absolutely despair of the case, basing this opinion on the fact that the infection of the pharynx and larynx had yielded, there was a remote chance of the pulmonary affection doing the same.

By way of treatment he suggested regular saline injections, with brandy, to continue with food by the mouth, strychnine, and at night a little morphine with it, and of course continuation of oxygen.

Unfortunately, this treatment proved of no avail; the patient gradually sank on April 28th, and died very quietly in his sleep during the following night. No post-mortem examination was obtained. [292]

The foregoing cases I have over seen, and what one of his relatives wrote to me—namely, that "it seemed so hard, after so brave a fight, that all should end thus, but that the patient certainly left behind him a memory of fortitude and heroic bravery, which surely must have left its influence on others"—is absolutely true.

Remarks.

The reason for describing the above case in such full detail is that pneumococci invasion of the throat, and more still, a combination of that disease with tuberculosi, is practically unknown. As a matter of fact, the various distinguished members of the profession who kindly lent their help in the treatment of the sad case, one and all stated that they had never seen anything similar. It seemed, therefore, desirable to assist further observers, and to enable them to build up a clinical picture of the disease, by describing the features of the first instance observed of such a combination in full detail. That the characteristics of pneumococcus invasion were blurred in the present instance by the supervision of tuberculosi there can be no doubt. With the first symptoms of the larynx above described came into being, I anxiously asked myself whether it was possible that pneumococcus invasion should thus mimic tuberculosi of that part, and during the whole remainder of the course of the disease it was a perfectly open question how much of the appearances seen in the larynx were due to tuberculosi, and how much to pneumococcus infection. On the other hand, there could be no doubt that the pharyngeal affection from first to last was predominately, if not exclusively, due to the pneumococcus invasion only. A proof of this is given not merely by the repeated bacteriological examinations, but above all in the fact that in the last four weeks before death occurred, the pharyngeal ulceration, which had been so long and so extremely troublesome practically disappeared without leaving any loss of substance, a fact which is quite incompatible with the idea that the pharyngeal ulceration, too, might have been tuberculous.

One of the most interesting features is Dr. Bulloch's report, according to which the scrapings from the pharynx at this time yielded an almost pure culture of pneumococci, those from the larynx on the 23rd April being also very extensive. This fact, I think, shows conclusively the mixed character of the infection, and, taken in conjunction with the course of the illness, demonstrates the fact that the tuberculous infection supervened upon the primary infection. Very interesting, too, is the fact that whilst the affection clinically began as enlargement of the lingual tonsil, which for a time subsided, at a later stage of the disease ulceration and sloughing in that region occurred, and that the scrapings from the ulcerated surface in this region showed the presence of pneumococci.

With regard to the complications, which supervened later on, it is difficult to attach exaggerated importance to the fact that the patient had pneumonia, almost hopeless, which I believe was played by, and how much of them was due to, each of the infecting micro-organisms. The first signs clinically observed in the chest were quite characteristic of ordinary tuberculosi; the cough and expectoration was of the nature of phlegm, and whether the progressive changes were due to tuberculosi only, or to the combination of that disease with pneumococcus infection, whilst the final phenomena might have been caused either by "foreign-body pneumonia" (Speie pneumonie) or by a sudden increase of virulence of the pneumococcus infection alone. The latter possibility finds support in Dr. Mitchell Bruce's statements.

I do not attach importance to the statements of the patient himself, who dated the aggravation in the condition of his throat from the inoculation with pneumococcus vaccine, which was made on January 24th, but I can say from an interview with him, that since the disease was first described by me, and in which also a pneumococcus vaccine was used, no improvement at all resulted from the employment of this method. The only remedy, in fact, of the many which were used in the long course of this case which proved of any value were the anaesthetic insufflations, which, although they did not entirely abolish the difficulty in swallowing, yet materially alleviated the pain experienced during the act of deglutition. The effect of the remedy was not diminished by its long use.

It must be hoped that further contributions will shed more light upon the occurrence, pathogenesis, clinical features, and treatment of the disease, which, although hitherto undescribed, cannot be exceedingly rare, as is shown by the fact that in the course of three years 3 cases came under the notice of one single observer.

Remarks on Acute Pneumococcus Infection of the Pharynx.

By John Elliott, M.D., F.R.C.P., Honorary Physician, Chester General Infirmary.

The first three months of the present year have been remarkable for the prevalence of pneumonia in Chester and the surrounding district. So striking a feature has this been in my own practice that I have been at pains to ascertain from other medical men practising in the neighbourhood whether they have noticed anything similar to what was noticed with my own in this respect, and the replies I have received convince me that such has been pretty generally the case.

With a view to gain something like an accurate estimate of the number of cases I have, with the kind permission of Dr. Thomas (Medical Officer of Health for the city), examined the returns of deaths from pneumonia in the several cases, and the influenza of each of the years 1905, 1906, 1907, 1908, and 1909.
It will be evident that there are so many sources of fallacy in such an inquiry—the prevalence at one time of measles with sore throat; the Buchner cases of croup or broncho-pneumonia; at another time of whooping-cough; again of influenza— that one was not surprised to find the results confusing, and tending but little to elucidate the question of the incidence of the glandular enlargement to the pneumococcus invasion. Again, the varying severity and death-rate of any particular epidemic would render the mere enumeration of the number of deaths anything but an accurate estimate of the number of cases of the affection.

The figures, such as they are, are appended:

Deaths Returned either as "Pneumonia" or "Lobar Pneumonia."

January 1st to March 31st, 1909

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It occurred to me that more useful information could be gained by finding the number of cases of acute lobar pneumonia which had been treated in the wards of the Chestor Infirmary during the first three months of the present year. The cases had all been under the observation of one medical man—the house physician, Dr. Stanley Wood. I had every opportunity of judging of their applicability to such an inquiry, and to whom I am indebted for the return.

There were 28 cases of lobar pneumonia treated in the adult wards in children under 5 years of age during the period January 1st to March 31st, 1909. Bearing in mind the fact that the hospital contains only 118 beds, including medical, surgical, and ophthalmic, and that the average number of beds occupied is 102, I think this is a convincing proof that pneumonia has been unusually prevalent during the period in question.

About the end of January I saw several cases of pharyngitis with fever and considerable enlargement of the cervical glands, the latter being a prominent feature of the cases. The submaxillary lymphatic glands, the deep cervical glands under the sternomastoid, and also the glands below the lobule of the ear were enlarged, forming a swelling in the early stage, which well led one to make a diagnosis of mumps (an experience which fell to my lot in one of my cases). The glands on both sides of the neck were enlarged, but more extensively on one side. The accompanying fever was not unusually high, 102° to 103°. The onset was sudden; the whole of the back of the pharynx was red, inflamed and swollen. Sometimes the tonsils were considerably enlarged, with follicular concretions visible. The fever was of short duration—about forty-eight hours usually, with slight rise of temperature in the evening for several days longer.

I was puzzled by the marked adenitis, which was quite unusual, and thought that probably influenza was at the bottom of the mischief. So far as my own experience went, however, the annual visitation of influenza had been delayed this year, and I had not then seen any cases of true influenza.

On January 25th my housemaid was taken ill with sore throat, with fever and glandular swelling. The attack after about a week subsided in a general way, several times before, and to which she was susceptible. Early in February another of the maids in my house was down with a sore throat and adenitis, and then my four children were successively attacked. Meanwhile I awoke one morning myself to find my neck stiff and painful on one side with the glands under the sternomastoid swollen and tender. I had not been conscious of any sore throat. The soreness disappeared and the swelling subsided in the course of twenty-four hours, and then the same process was repeated on the other side of my neck, to subside without further trouble in a day or so.

One of my children, a little girl aged 5, developed the affection severely. The whole of the pharynx was uniformly red and swollen, the glandular enlargement was well marked; the temperature 103°, with rapid pulse. The severity of the inflammation induced me to take a swab from the throat and inoculate an agar tube on February 24th. To my surprise I obtained a pure culture of the pneumococcus. The throat was painted frequently with a solution of mercury perchloride, I in the hope that the inflammation began to subside with the fever, the glandular enlargement, however, continuing unchanged. In the course of a day or two the child had acute pain in the ear, with a fresh rise of temperature to 102°. An abscess developed in the ear. The pus was inoculated on an agar tube, and again a pure culture of pneumococcus was obtained. The same course of events followed in the other ear. The aural abscesses were treated with strict antiseptic precautions, and the discharge ceased in each case in about fourteen days. Hearing returned normally. The cervical glandular enlargement subsided slowly (as it had done in all the cases), and took a month or six weeks to disappear completely.

I took a swab from the throat of another of my children, aged 3, who was attacked by the pharyngitis, and found the pneumococcus in great preponderance, but mixed with a few staphylococci. In this case there was more marked affection of the tonsils, and no auricular abscesses developed. In all other respects the case was similar. I exhibited Lumière coloured photomicrographs of the pneumococcus, and also the growths on agar, at the meeting of the North Wales Branch of the British Medical Association at Colwyn Bay on April 20th. I saw other cases of the affection (15 in all) in which the main features described above were reproduced. Unfortunately no cultivations were made, except in the 2 cases mentioned.

There was no necrosis of the throat or membranous inflammation in any of them. With regard to the origin of the affection I would sum up my conclusions as follows:

1. These cases of infected/influenza in origin, for the usual visitation of influenza came later, and several of my cases afterwards developed influenza, which ran a typical course.

2. Although I could not trace exposure to infection from pneumonia in any of them, it was unusually prevalent at the time; indeed, my colleague and next-door neighbour, Dr. King, died of pneumonia on February 24th, at the very time when the cases described above were under investigation.

3. There can be no doubt that in the case of the two of my children from whom I took cultivations the affection was pneumococcal, and, taking into consideration the great similarity of the other cases, the remarkable glandular enlargement which was a feature of all of them, and the fact that the other cases in my own house were subjected to the same conditions as the two mentioned, I think there can be little doubt that the pneumococcus was responsible for the trouble in all.

The following case, which I saw in December, 1908, with Dr. Storrs, which I am indebted for some of the notes of the case), and Dr. Lloyd, of Chirk, must, I think, be classed as one of pneumococcal pharyngitis with general sepsiaemia.

E.L., aged 49, returned, from a shooting box in Scotland in November, not feeling well; easily tired. December 1st, out shooting; felt ill, throat rough. December 2nd, seen by Dr. Storrs; redness, covering the raw pharynx swollen and red; temperature 101°; pulse rapid; temperature 101° at night. December 3rd, temperature 100°, the inflammation spreading to left tonsil; whole pharynx in...
PNEUMOCOCCUS VACCINE IN PNEUMONIA.

Observations
ON THE THERAPEUTIC VALUE OF THE PNEUMOCOCCUS VACCINE IN THE TREATMENT OF PNEUMONIA AND SOME OF ITS COMPLICATIONS.

BY A. BUTLER HARRIS, M.A., M.B.,OXON.,
MEDICAL OFFICER OF HEALTH FOR THE LOUTHIAN URBAN DISTRICT.

The pneumococcus is, perhaps, next to the coli bacillus and the staphylococcus, the most constant parasite of the human race. Mackenzie¹ quotes statistics from various authorities, who state that 50 per cent. and upwards of normal individuals harbour this organism. His says it is more than probable that every individual acts as a host to organisms of true pneumococcal type at some time or other during the winter months, and probably at repeated intervals. The organisms leave the body with the saliva or sputum, and in either moist or dry sputum may remain virulent for a considerable time.²

That the pneumococcus of Fraenkel is the cause of pneumonia has been established since 1889,³ but indeed previously, in the year 1886, he showed that a rabbit which had recovered from a pneumococcal infection was ultimately immune to a lethal dose of the organism.⁴ It is, therefore, unnecessary to burden the reader with what is now ancient history.

It may be taken as proved that practically every case of acute pneumonia is a case of pneumococcal septicemia—that is to say, the infecting organism is not confined to local areas, but may be recovered from the blood.⁵ The crisis in septicemic conditions, whether it be from pneumococci or streptococci, is determined by the amount of protective material the invaded host is able to elaborate in a given time. When this elaboration is at a sufficient rate to inhibit the multiplication of the infecting organism, it is probable that the clinical manifestation of a crisis will occur. In 1891, the Klemperers explained that the crisis in humans occurs at the moment when the poisonous products manufactured by the bacteria located in the lungs are present in the circulation in amounts sufficient to call forth in the tissues the reactive change that results in the production of the antitetanial substance.⁶

In this connexion the names of Washbourne, Eyre,⁷ Pano,⁸ Wilson, Marchaux, Tyler, and Parr should be mentioned. Bokenham, indeed, showed that antipneumococcal serum had no bactericidal effect upon living pneumococci.

In the course of these serum investigations animals were necessarily inoculated with attenuated cultures, increasing in later inoculations in virulence. For discovered that animals thus immunized against one strain of pneumococcus were not necessarily protected against others, and Washbourne and Eyre⁹ found that Pano’s serum protected against four out of five varieties, but not against the fifth. Where, then, arose a second factor, which militated against successful immunization at the bedside.

Wright’s work on staphylococcal and tuberculin inoculations from 1902 onwards introduced the new era of vaccine treatment. He himself in his earlier papers argued that inoculation was indefensible in acute infectious conditions, because of the probabilities of auto-inoculations. This supposition, based on the results of...

REFERENCES.

¹ Rosenow found pneumococci in 150 of 173. ² 1908. ³ 1901. ⁴ 1908. ⁵ 1890-1900. ⁶ 1890. ⁷ 1890. ⁸ 1891. ⁹ 1891.