

the sac, as Mr Lawson Tait recommends. But it spontaneously emptied itself into the bowel, after which the case progressed favourably.

The treatment of these cases, if we do not open and empty the sac—and that appears to me warrantable only in case the mass suppurates and threatens the patient with death through infection—is to let well alone. They should, if possible, never be aspirated, as that may lead to fresh flow of blood. Still less ought they to be incised freely, as thereby sepsis may be added to other risks.

Relief from pain, if not also partial arrest of bleeding, is affected by the use of the ice-bag. Rest, quiet, and time, with attention to keep the bowels from being overloaded, will do the rest.

That the most serious cases may get well is evidenced by the case of Mrs L.

Recent experience, especially that of Mr Lawson Tait and Dr Imlach, tend to show that this accident is more frequently associated with hæmato-salpinx, or other disease of the uterine appendages, and, therefore, the legitimate object of operation than we have hitherto supposed. I have been strongly impressed with this idea since I saw the preparation of the case of hæmato-salpinx exhibited before the Society at last meeting by Dr Skene Keith. The third of the above cases has been again in the Infirmary for the last ten weeks, suffering from a relapse in the hæmatocele, which coincided with the onset of a menstrual flow. This patient, notwithstanding the size and persistency of the hæmatocele, is wonderfully well; and until I saw Dr Keith's specimen and read Dr Imlach's cases I was loath to propose operation. But if there be a renewal of the bleeding at next menstrual period, I have resolved and have obtained permission to open the abdomen and endeavour to find its source and arrest it. As there does not appear any grounds to conclude that the case originated as an extrauterine pregnancy, we are almost inevitably driven to the conclusion that in her case there must exist some tubal disease leading to maintenance of the tumour by additional bleeding at each period.

(To be continued.)

III.—ON THE NATURE AND TREATMENT OF PNEUMONIA, BEING THE INTRODUCTION (SOMEWHAT ABRIDGED) TO A DISCUSSION AT A MEETING OF THE BORDER COUNTIES BRANCH OF THE BRITISH MEDICAL ASSOCIATION, HELD 20TH MARCH 1885.

By STEWART LOCKIE, M.D., Physician to the Cumberland Infirmary.

(Continued from page 328.)

As bearing on the question of the distinction between epidemic pneumonia and enteric fever, may be mentioned a series of cases

of the former reported by Dr Finlayson of Glasgow. There were five cases occurring in one family. One proved fatal. The post-mortem examination was made by Dr Joseph Coats, who reported the absence of engorgement of Peyer's patches in the lower part of the ileum.

A disease may, of course, be infective without its being contagious. Of this intermittent fever is an example. That pneumonia is, however, occasionally communicated by the sick to the healthy is rendered very probable by some of the observations noted above; and there exist in literature the records of several others which support this conclusion. I am disposed, on the whole, to admit the contagiousness of pneumonia, but it is probably very feeble; in ordinary circumstances the organism has great power of resistance to the invasion of the disease.

An entirely new light has, in recent times, been thrown on the nature of pneumonia by the discovery of a micro-organism in this disease. Klebs, Eberth, and Koch had all previously found micrococci in cases of lung inflammation; but it is to Friedländer that we owe the most exact description of the micro-organism, and who has carried out the most extensive researches regarding it. He describes the cocci as mostly of an elliptoid form, almost a micro-millimeter in length, and about a third less in breadth, mostly double, but also forming longer chains. Most frequently he found them in the alveolar infiltration in the grayish-red hepatization, more sparingly in that of the grayish-yellow and gray hepatizations.

More recently a transparent capsule has been described by Günther¹ surrounding the cocci. His observations have been confirmed by Friedländer and others. Friedländer² describes the capsule as having frequently twice, and sometimes four times, the breadth of the micrococci. Externally it is usually clearly defined. If the coccus is isolated, the form of the capsule is geometrically like that of the coccus; if that is round, the capsule is so also; if it is elliptical, then so is the capsule; if the micrococci lie two and two together, the capsule forms a lengthened ellipse surrounding the diplococcus. Not seldom longer chains are found, which consist of three, four, or even more cocci. These are enclosed by a somewhat cylindrical capsule, rounded at the extremities. (Drawings were shown.) Occasionally there is seen in the interior of such a lengthened capsule, in place of the diplococcus or of the chain of cocci, a not very regularly limited rod-like formation, as if the cocci had blended together." Friedländer regards this capsule as a highly characteristic feature.

Up to the date of his paper in the *Fortschritte der Medicin* for 15th November 1883, Friedländer had had more than fifty cases of croupous pneumonia submitted to him for inspection, in only a

¹ *Le Progrès Médical*, 8th December 1883, article by M. Bricon.

² *Fortschritte der Medicin*, 15th November 1883.

few of which were the micrococci not to be discovered; and these belonged to the later stages of the disease, viz., from the ninth to the thirteenth day. They were found in the infiltrated lung tissue, and in the pleuritic and pericarditic exudations. In some cases in which death had occurred in the acute stage, they were found in parts of the lungs which were simply œdematous.

These organisms have been found in the pneumonic sputum by several observers, and by Leyden and Günther in the fluid withdrawn, by means of a hypodermic syringe, from the inflamed lung in the living subject.

The micrococci have been cultivated by Friedländer and others in coagulated blood serum, in gelatinized meat infusion, and on sections of potato. Friedländer regards the nail-shape of the cultures in gelatine as characteristic.¹

These cultivated organisms suspended in water he injected into the lungs of certain animals, with a negative result in rabbits, but with the result of producing fatal pneumonia in mice, in some of the guinea pigs operated on, and in one dog out of five; the other dogs injected had passing illnesses. He also induced pneumonia in mice by causing them to inhale the spray from water in which the organisms were suspended.

It is true that in exceptional cases only were the pathological appearances strictly like those of typical lobar pneumonia in the human subject, in general the infiltrated areas were more disseminated through the lungs; but in some of the animals examined the resemblance was more close, and in all the mice operated on pneumonia cocci were found in abundance in the pleural exudation, in the lungs, and in the blood. The same holds good of the single dog which succumbed to the effects of the injection, and in this case the results closely resembled typical lobar pneumonia.

In the discussion on this subject at the German Medical Congress of last year, Friedländer warns against depending on any single characteristic of the coccus, believing that the whole life-history of the organism must be taken into consideration.²

In striking confirmation of Friedländer's observations comes a communication from Emmerich of Munich, which has more than once been referred to in this country, and which was published in the *Fortschritte der Medicin* of 1st March 1884. In the male prison at Amberg there had occurred since 1857, year by year, more or less numerous cases of pneumonia, for example, in the year 1870, 66 cases; and in December 1880 Kerschensteiner described the epidemic previously referred to, which, from January

¹ Friedländer has, with every precaution, used blood from a case of acute pneumonia for the inoculation of gelatine. One case among six gave a positive result, which was confirmed by experiments upon animals. Mice inoculated with the cultivated organisms sank with typical pneumonia and pleurisy.—*Discussion at the German Medical Congress, 1884.* In the blood of the mouse Friedländer has found the capsuled micrococci.—*Fortschritte der Medicin*, 15th November 1883.

² *Deutsche Medicinische Wochenschrift*, 24th April and 1st May 1884.

to the middle of June, attacked 161 prisoners, of whom 46 died. The disease was principally confined to the prisoners inhabiting two of the dormitories, and suspicion was directed to the material filling up the space between the floor of one room and the ceiling of another, which consisted of a large quantity of sand and (building) rubbish, which had been moistened with water. Some of this material was forwarded to Emmerich for investigation, who obtained from it cultivations of organisms, some of which he afterwards, on the appearance of Friedländer's article, recognised as identical in form and size with the capsuled cocci described and figured by the latter. Emmerich thereupon set to work to obtain pure cultivations, and succeeded in obtaining such as corresponded in every particular of their life history with the pneumonia cocci of Friedländer. Emmerich's article is a model record of patient, laborious investigation, through which the conclusion is irresistibly forced upon us, that here was found the essential cause of the disease which prevailed to such an extent in this prison.

(It may here be mentioned, that at the last meeting of our parent association Dr Maguire of Manchester read a paper, in which he states that he had recently made post-mortem examinations in ten cases of pneumonia which had died in the Royal Infirmary there, and had found the micrococcus in the affected lungs of every case. In some of the cases the coccus was found in the kidney also.¹)

It seems to me, then, from the consideration of its clinical course, from the occasional occurrence of epidemics of the disease, from its frequent apparent dependence on insanitary conditions, and, lastly, and most of all, from the presence of a special micro-organism in the diseased tissues, we are justified in concluding that ordinary croupous pneumonia belongs to the great class of infective or zymotic diseases.

Now, if this be so—and I may say, in passing, that this doctrine gives much support to the views of those eminent men whom old Edinburgh students revere so much, the late Professor Alison and Sir Robert Christison, who, more than a quarter of a century ago, maintained that a change of type had occurred in the disease, a position which has otherwise been confirmed by recent observations—we may ask the further question, Which of the infective diseases, recognised as such, does pneumonia most resemble? Now, I think that erysipelas is an ailment to which pneumonia has the closest alliance. Both usually occur sporadically, but occasionally in an epidemic form; both have a somewhat similar, more or less definite, duration; both are apt to attack the same individual repeatedly, occasionally many times in succession;² both are now

¹ *British Medical Journal*, 6th December 1884.

² Keller adduces cases in which individuals have undergone attacks of pneumonia nine, eight, six, and five times. Chomel mentions a patient who had pneumonia ten times, and J. P. Frank one who had it eleven times. The enormous number of twenty-eight times is given by Rush.—Mendelsohn, *loc. cit.*

and then attended by the same grave complication of meningitis. Erysipelas, I have no doubt, is contagious; but it is probably very feebly so, except in the presence of a wound. Pneumonia, if contagious at all, is also very feebly so in ordinary circumstances. Sir Andrew Clark has recently recorded¹ a case of relapsing pneumonia, which he regards as unique. That erysipelas also may assume the relapsing form is acknowledged. To these points of resemblance may be added one for which I confess I was not prepared. Leyden asserts in a communication made to the Berlin Medical Society in November 1882, that the micrococcus of pneumonia resembles that of erysipelas; and later, in 1883, he made a further communication to the same Society, "tending to show that exudative meningitis and cerebro-spinal meningitis must be allied to certain forms of pneumonia and erysipelas, for in each of these diseases he had been able to ascertain the presence of the same micrococcus."² It is also stated of Koch that "the dissemination of the bacteria found in a case of pneumonia (and this was anterior to Friedländer's observations) reminded him of those of erysipelas." However, more stress must not be laid on this resemblance than is warranted by the facts; and it is necessary to remember with regard to these "lowly organisms, that similarity, or even identity in form, size, and method of grouping is not inconsistent with the existence of specific differences."³ Moreover, as opposed to these circumstances, may be mentioned the fact reported by the collective investigation committee, that "the occurrence of erysipelas in the same house with pneumonia is extremely rare," though their occurrence together in the same district is frequent.

In this connexion I cannot refrain from reproducing the following history from Campbell de Morgan's article on erysipelas in Holmes's *System of Surgery*, be the inference what it may. The author relates it on the authority of Dr Gibson, who reported it to the Edinburgh Medical and Chirurgical Society:—"An infant was attacked with erysipelas of one foot. The mother was soon afterwards seized with the disease in the head and face. The wet-nurse of the infant was taken with pneumonia, and was removed home, a distance of four miles. Her father, who had had an injury to the head, was soon afterwards seized with erysipelas of the scalp, and died; her sister had low fever with sore throat; and two children in the same house were attacked with croup, and died."

Some authorities believe (Fox) that tonsillitis is the disease which bears most resemblance to pneumonia; but this term is so used to include various affections, that it is difficult to estimate its exact value.

I had intended, when I commenced this paper, to glance at some of the circumstances which have an unfavourable influence on the

¹ *British Medical Journal*, 20th December 1884.

² *Le Progrès Médical*, 8th December 1883.

³ See on this point Dr Sternberg's (U.S.A.) statement in *Lancet*, 22nd Nov. 1884, p. 927.

mortality of pneumonia; but the paper has grown to such a length that I forbear, and pass on to say a few words on treatment.

As to prophylaxis. It is doubtless important to avoid a chill in order to escape its debilitating influence, and in order that bronchial catarrh, which favours the onset of pneumonia, may not supervene; but it is equally important to adopt such measures as we should do with a view of preventing other zymotic diseases,—enteric fever, for instance, and erysipelas; to see especially that the atmosphere which surrounds us is as free as possible from contaminating influences.

With regard to the treatment of the disease when present. I am opposed to all lowering measures. It may be that cases now and then occur in which excessive dyspnoea, with the right side of the heart engorged, may call for a moderate blood-letting; but I own I have never seen a case in which I have been tempted to do this. In my view pneumonia should be treated much as we do a fever. The patient should be placed in a pure atmosphere with an equable temperature, and supplied with a moderate amount of easily assimilated nourishment,—not too much, lest we overtax the already over-burdened kidneys, which are probably the main agents in eliminating the poison from the system. For the relief of pain in the side, moderate doses of opium, in the form of Dover's powder or hypodermic injections of morphia, are useful. A small amount of albumen in the urine does not contraindicate the employment of these, provided we have no reason to think that organic disease of the kidneys was previously present; if there is reason to think this, opiates should if possible be avoided altogether.

I am in the habit of surrounding the side with hot poultices, and usually from the beginning have given frequent moderate doses of carbonate of ammonia,—the latter at first, I own, somewhat empirically, later it may be useful in supporting a failing heart. Where the pyrexia exceeds a moderate amount, say 103° , I have great faith in the use of quinine, and give it in commencing doses of 10 grains at night and 5 in the morning; larger doses may be given if the smaller fail in reducing the temperature. In administering quinine in large doses by the mouth, it is important to give it after food, and if necessary to divide the dose, administering the divided doses at intervals of twenty minutes or half-an-hour. If the stomach does not bear quinine well, it may be given per rectum or hypodermically. I have not, however, had much experience in these methods of administering the drug: in one case in which I employed the hypodermic method there was no effect produced on the temperature, possibly because the dose was too small.

I have occasionally seen such good effects in pneumonia from quinine administered for the pyrexia, that I am inclined to agree with Dr Burney Yeo in thinking that we do not give it often enough, and should be inclined in future cases to give a trial to its systematic administration from the first.

With regard to the use of cold applications in pneumonia, I have

no experience; others, I am aware, have found them useful. Excessive pyrexia calls also for the administration of alcohol in moderate amount, and this is also indicated by any signs of failing circulation, especially a feeble first cardiac sound. Here digitalis may also find a place.¹

IV.—ON CERTAIN FATAL CASES OF RAPIDLY GROWING BRONCHOCELE.

By JOHN A. MACDOUGALL, M.D., F.R.C.S., Consulting Surgeon, Cumberland Infirmary, etc.

(Read before the Carlisle Medical Society, 9th April 1885.)

(Continued from page 333.)

CASE IV.—On 16th February last I was asked to see a case of Dr Moffat's in consultation with Mr Brown and himself. The patient was a lad of 20, a solicitor's clerk, and was the subject of severe dyspnœa, the result of a large bronchocele. He had had goitre of very moderate size for several years; indeed, we know that in July last, when Dr Moffat was attending him for another ailment, its presence was by no means marked. During the autumn it began to increase in size; he became short-winded; and it was noticed by his fellow-clerks that during the effort of reading aloud a peculiar hissing sound attended his respiration, and his voice became low and suppressed. He was then under medical care. Biniiodide of mercury was applied locally, and iodine and iodide of potass were given internally. As these remedies seemed to exercise little influence on the growth, fluoric acid was prescribed as directed by Woakes. Unfortunately, as is so often the case with such patients, his attendance on his doctor was very irregular; and although accurate measurements were kept, they were only obtained at long intervals. Their record, however, is one of constant and gradual increase in the circumference of the neck.

A fortnight previous to the time of my seeing him he was compelled, by increasing dyspnœa, to leave his office and remain at home. Then very energetic measures were employed for his relief, but relief did not come. Severe spasm and breathlessness, greatly aggravated during the night, made their appearance, and sleep and rest were difficult to obtain. During this time the tumour grew apace, and within these fourteen days his neck had increased in circumference by at least 2 inches. For the two nights preceding our conjoint examination, his condition was so anxious that Dr Moffat remained with him.

At the time of our visit his mother reported that after daybreak his condition had been a comparatively easy one; and when first

¹ Since the above was written, evidence in favour of the usefulness of quinine in pneumonia has been accumulating.