colon treatment. I have dealt successfully with cases of reflex weeping, of reflex screaming, and of reflex asthma and other interesting cases, which were clearly due to nervous disturbances arising in the colon. These varied cases have certain features in common. They are associated with colon hardness and tenderness. Symptoms are most likely to come on during periods of functional activity of the colon or when muscular activity in the colon is liable to be started by mechanical vibration. Moreover they are cured, and often speedily, by treatment which lessens the abnormal muscular activity of the colon.

In confirmation of what has been said as to the three chief ways in which the abnormal muscular activity of the colon affects the nervous system, it would be easy for me (as soon as time is available for analysing the material at my disposal) to select, from the hundreds of cases which I have treated during the last thirty years, three parallel series of cases where the condition of the colon, the mode of occurrence of the symptoms, and the results of treatment exactly corresponded, but where in the one series the symptom complained of would be pain, in the second evidences of reflex circulatory disturbance, and in the third series mental depression or mental misery (unaccompanied by any pain) would be the only symptoms complained of, except possibly constipation.

I hope that the further study of this subject will show that these theories regarding pain which I have brought forward have a solid foundation in fact, and that a more general recognition of the part which is played by functional muscular disturbance of the colon in cases which are apparently pure neurasthenia or causeless mental depression may greatly lessen the amount of suffering now being borne by these unfortunate individuals.

TWO HUNDRED AND TWENTY-FIVE CASES OF PNEUMONIA: AN ANALYSIS.

BY

AMBROSE W. OWEN, M.D., B.S.LOND.,

HONORARY SURGEON, ABERDARE AND DISTRICT GENERAL HOSPITAL.

SINCE October, 1917, I have attended 225 cases of pneumonia. I have excluded four patients, aged respectively 72, 70, 66, and 66, in whom pulmonary congestion was a contributory but not the main cause of death. I have tabulated the others etiologically as follows:

	No. of Cases.	Male.	Female.	Deaths.	Male.	Female.	Mortality per cent.
Lobar pneumonia	34	26	8	3	3	0	8.8
Bronchopneumonia:							
Primary and secondary to bronchitis	68	43	25	10	9	1	14.7
Secondary to measles and German measles	30	19	11	6	3	3	20.0
Secondary to pertussis	15	7	8	5	3	2	33.3
Secondary to pertussis <i>plus</i> measles	4	2	2	1	0	1	25.0
Secondary to acute gastro-enteritis..	1	0	1	1	0	1	100.0
Secondary to malaria	1	1	—	—	—	—	—
Influenzal (1,401 cases of influenza)...	72	38	34	6	2	4	8.3
Totals	225	136	89	32	20	12	14.2

The mortality for the series is 14.2 per cent. The youngest case was aged 3 weeks, the oldest 83 years; both recovered. Diphtheria and scarlatina do not figure in the list, and out of several hundred cases of the two diseases (endemic here) I have not seen one in which pneumonia occurred. Doubtless the mild nature of the cases as compared with former days accounts for this. I have included in the list only undoubted cases of pneumonia. Cases marked in my visiting books "pneumonia, capillary bronchitis, etc." have been omitted, as have also many cases of prolonged influenzal pyrexia quite possibly pneumonic in nature, so that I have under- rather than over-estimated the total number of cases.

I make no claim to absolute scientific accuracy in the table, but as I have made a practice of taking notes of all cases of pneumonia I have a vivid recollection of all the cases

and think I am fairly correct. Probably the cases of primary bronchopneumonias are over-estimated and those of influenza under-estimated. A large number of the cases occur in infants and young children, and unless occurring in the influenza seasons, or in houses where adult members are ill with influenza, the differential diagnosis at the lower ages must needs be very difficult.

All the patients were of the industrial class, living for the most part (five were in hospital) in overcrowded, not always overclean, houses, and had as nurse, as a rule, a harassed female already preoccupied with the needs of a large number of children. The mortality, in spite of this, seems to compare favourably with that of hospital statistics. Is it because only the worst cases are sent to hospital, or is it the journey thither?

Recurrences were noted in twelve patients, each having two attacks. I have excluded in this connexion three patients now in a state of chronic bronchopneumonia; I have credited each with one attack, their condition never having resolved. They are liable to attacks of febricula—all, in fact, have withstood influenza, and were I not cognizant of their condition I should have labelled them all influenzal pneumonia, on account of the physical signs.

A study of the cases shows that pneumonia, especially in the fatal cases, is often a disease of ill health. With the exception of the cases under one year, after the infectious diseases (and even in them a certain amount of contributory ill health can often be demonstrated) the possession of a clean bill of health is of paramount importance in the prognosis. I have little fear of pneumonia in a young, undoubtedly healthy adult. This is, of course, well recognized by all physicians, as witness the old German army statistics, mentioned by Osler, in which the death rate among 40,000 picked men was only 3.6 per cent.

Previous Morbidity of Cases.

Of my non-fatal cases phthisis definitely existed in 4. It was diagnosed (before the pneumonia) by a tuberculosis physician in 2 (I was doubtful—both now in good health); 2 were marked "? T.B. element"—both had attended previously at a tuberculosis centre; one was marked "strumous child—liable phlyctenular conjunctivitis"; one "scars neck after T.B. glands"; one "one brother phthisis, other T.B. elbow"; and one occurred in a young boy admitted to hospital for operation for "? chronic appendix or T.B. peritonitis." He developed pneumonia whilst waiting operation, which was postponed until he got stronger, and has not yet been performed. These make 12 tuberculous, or strongly suspected tuberculous, patients; 3 were recent syphilitics, well beyond the secondary stage—that is, the pneumonia was not due to the syphilis. Chronic bronchitis existed in 5, and gouty bronchitis in one. An attack of subacute rheumatism (old undoubted case of rheumatism) was followed by pneumonia in one; he was removed to hospital for treatment of the rheumatism on a cold day, and the pneumonia was due, I thought, to the removal and not to the rheumatism. One man had aortic incompetence—also old rheumatic. One infant was a congenital syphilitic baby and one rickety. Two adults were chronic alcoholics; and one boy, aged 16, a congenital idiot. These make 28 morbid cases, and to these must be added 3 (recurrence took place in 3 of the 28), which make 31 morbid cases out of 193—a percentage of 16.

Fatal Cases.

Two of these were of very tender age—one 6 weeks, the other (a twin) 11 weeks; both followed pertussis. Of the morbid conditions, one, aged 4 months, was a premature (eight months) baby; two, aged 10 and 11 months (former a twin), had "severe anaemia"; one, aged 11 months, was a congenital syphilitic, marasmic baby; one, aged 2½ years, was a paraplegic child who had been so for three months after an attack of myelitis (not poliomyelitis), which I attributed to influenza; one, aged 26, was a dwarf with chronic bronchitis and emphysema; and one, aged 53, was a chronic asthmatic. Phthisis also played a prominent part here; 3 were definitely phthisical: the ages were 32, 25, and 4½ years. The two latter were mother and daughter, and all three were victims of the November, 1918, influenza epidemic. I might mention here that 5 out of the 6 influenza deaths were in "morbid" patients. In 3 cases phthisis was strongly suspected before the pneumonia: No. 1, aged 34 (since his death his wife and a daughter, the latter one of this series, are dead of phthisis); No. 2, aged 3½ years, lasted for three months after pneumonia following measles *plus* pertussis, and

died of phthisis—a sister had died previously of tuberculous meningitis; No. 3, aged 16 months (his only brother had died of phthisis a year previously). Thus 13 out of 32 were "morbid" cases—that is, 40.6 per cent. These figures represent the apparent morbidity; as will be seen later, in one or two cases morbidity probably existed but was not suspected. These facts are more usefully expressed in the following table, which gives also the age incidence of all the cases. It will be seen that 50 per cent. of the deaths were in infants under 1 year, and 75 per cent. under 5 years. The apparently high mortality between 25 and 40 is explained by the high morbidity rate which existed in this series. No death took place between 5 and 25. A man, aged 48, marked "?," with no morbidity against him, was a thin and cadaverous man with whose previous history I was not familiar; also a fatal case, aged 51, was thin and pigeon-chested, but with no actual disease.

Age.	No. of Cases.	Deaths.	Mortality per cent.	No. of Fatal Cases Morbid.	Percentage Morbidity of Fatal Cases.
Under 1 year ...	39	16	41	4	25
1 to 2 years ...	29	4	13	1	25
2 to 5 " ...	50	4	8	3	75
5 to 25 " ...	61	0	Nil	—	—
25 to 30 " ...	10	2	20	2	100
30 to 40 " ...	15	3	20	2	66
40 to 50 " ...	11	1	9	?	—
50 to 60 " ...	6	2	33	1	50
60 to 70 " ...	1	0	—	—	—
70 to 80 " ...	2	0	—	—	—
83 years ...	1	0	—	—	—
Totals ...	225	32		13	

GENERAL FEATURES.

Of the lobar cases 5 were apical (4 right side), and of these 4 were associated with severe delirium; 1 was fatal; 5 were "central," all associated with vomiting, and "? gastric" was the diagnosis on the first visit in 4, ("pn., typhoid, or C.S.F.") for several days in the other. The signs in this latter were not definite until a day or two before the crisis. I remember well wondering at the time how curious it was that three of these central cases occurred in the same street within three weeks of each other (February, 1918), and were very similar in character. I had no suspicion at the time that they were other than lobar; looking back, however, in the light of the influenza epidemics I feel they were possibly influenzal—the epidemic did not start here until late in June, 1918. I wonder, indeed, if all cases of central (so-called lobar) pneumonia are not influenzal in nature (see later). One of the lobar cases developed pericarditis and arthritis, and one empyema. The latter was the only case in which effusion was marked enough to be recognizable; two of the cases were larval, both lasting three days.

Bronchopneumonias.—One case occurred after swallowing paraffin; two were "anaesthetic"—after herniotomy and appendicectomy respectively; the latter also developed endocarditis, the former was a suspected tuberculous case. Two of the cases (fatal) took place in the influenza seasons, and were possibly influenzal.

Influenzal Pneumonias.—The physical signs varied. I have no doubt that a good many of these cases were diagnosed as bronchopneumonia and lobar pneumonia in former days, at least by the younger generation with no experience of the 1889 pandemic and before the illuminating experience of the recent pandemics. The cases were so few and far between that they escaped recognition. The central type of pneumonia (see above) was common in the recent epidemics, particularly in the epidemic early in 1922. I remember well one of the latter cases in which, on account of the bilious vomiting, dirty brown tongue, low temperature (100°), and absence of chest pain and dyspnoea, I was not certain that I was not dealing with a case of typhoid until the crisis on the seventh day; before this the signs of pneumonia were not definite. These cases would be more difficult to diagnose

in the inter-epidemic periods, when the term "influenza" is not constantly ringing in the ears. Creeping pneumonia was also common. Many of the cases bore a marked clinical resemblance to lobar pneumonia. Of my 72 cases, 4 were secondary to pleurisy (primary involvement of pleura is commoner in influenza than is generally thought), 28 of the cases were unilateral—at least a diligent search found nothing on the other side. The breathing, however, was not the loud, dry breathing of lobar pneumonia, but was more distant and more "crackly." I suspected acute phthisis in not a few of the cases—a suspicion not borne out in a single case so far; a brisk haemoptysis occurred in some of the one-sided cases, and, curiously, in those in whom it occurred the pneumonia was often of short duration. In two cases of this nature the temperature dropped from 103–104° to normal on the third day, and the patients were out walking (without consulting me) on the tenth day. One of the cases developed acute appendicitis during an attack of influenza; I removed an acutely inflamed appendix and he developed double pneumonia after the operation; it resembled the influenzal cases (much heliotrope cyanosis), so I have not counted it "anaesthetic"; he recovered. One case had intense jaundice—the only one of the 225 in which this was noted. His was a creeping, asthenic pneumonia (temperature 100°) with intense delirium; he threw himself 15 feet out of his bedroom window into the garden below at 1 o'clock on a frosty November morning, his wife and sole nurse—to whom I had given orders that he must not be left a moment—being under the influence of alcohol at the time. He escaped with a few scratches and the crisis occurred two days later. Two of the cases were pregnant—one (third month) carried to term and bore a baby with congenital heart disease (? foetal endocarditis); the mother died three years later. The other (sixth month) aborted a month later and recovered.

These statistics would be incomplete if I did not state that 6 of the patients have died at varying intervals after their attacks; in 4 the pneumonia could be held responsible to some extent for the fatal ending. No. 1 died, aged 26, ten months later of delirium tremens (chronic alcoholic). No. 2 died, aged 3 years, one and a half years after from tuberculous meningitis. Tuberculosis was not suspected until the end. No. 3 died three and a half years after, aged 4½ years, of "chronic interstitial pneumonia"—possibly syphilis of lung, as child was a congenital specific. No. 4 died, aged 47, of "phthisis" three years after influenzal pneumonia when three months pregnant; tuberculosis was not suspected until after pneumonia. No. 5 died, aged 52, of "hysteria gravis" (refused food) three years later; she was examined by six doctors and no signs were found. No. 6 died, aged 10, after an interval of ten months, of "phthisis." A note at time of pneumonia read: "Pn. ? influenzal or tuberculous." Her mother is since dead of phthisis; her father died of pneumonia (suspected of tuberculosis). This case, however, developed severe diphtheria two months before death.

TREATMENT.

I have tried none of the vaunted specifics. The general treatment is as usual—milk, beef tea, albumin water, and plenty of cold water until after the crisis. The most useful drug, in my opinion, is ammonium carbonate—5 grains every four hours for adults and 1 grain for an infant of 1 year, and proportionately according to age. I have often seen a great improvement on the addition of this drug to the medicine, and I now give it in all cases where pneumonia is feared; it seems to act better than the sp. ammon. aromat. Strychnine and digitalis I now never use; the few early cases in which I tried them died; they seem much more useful in the cardiac debility following the crisis—why, I cannot say, unless it be that digitalis raises the blood pressure too much in the acute stage. Morphine I give only to adults, and only in the form of tinct. chlor. et morph. (B.P., 1885), which is soothing without being too depressing to the respiratory centre; 10 minims are given with the carbonate. The hypodermic injection of morphine I think very harmful. I now never give morphine in any form to young children—even the use of tr. camph. co. seems to increase the cyanosis; it must be remembered, however, that the difficulties of controlling the dosage are a factor to be reckoned with in industrial practice. Brandy, I am sure, is of real benefit. I think that the use of the hypodermic syringe—with the apprehension it causes in a good many of the patients—could be done away with without any appreciable increase in the mortality resulting.