

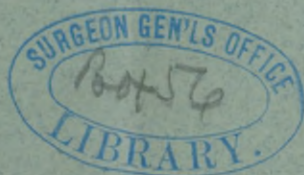
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NOTES ON PNEUMONIA,
WITH CASES.

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PROFESSOR OF THERAPEUTICS AND CLINICAL MEDICINE
IN THE UNIVERSITY OF MARYLAND.

From the Maryland Medical Journal for June 1877.



BALTIMORE;
JOHN H. FOSTER'S STEAM PRINTING OFFICE.
Nos. 2 and 4 North Charles Street.

NOTES ON PNEUMONIA, WITH CASES.

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No subject in the whole range of Clinical Medicine is of greater interest than the study of Pneumonia, whether it be regarded from the point of view of medical history, or on the other hand as illustrating important pathological and therapeutic processes.

In the former aspect it has been the arena upon which various and opposing theories of the nature of inflammation and of the mode of treating it, have been contended for. Nor is it difficult to understand why this conflict has thus centred around pneumonia, when we consider the frequency and the gravity of the malady and the urgent need that has been felt, of relieving it as soon as possible. It is a disease constantly encountered, often great in extent, and involving a vital organ, so that whatever therapeutic observation has to suggest in the treatment of inflammation, here if anywhere the trial must be made. Regarded in another aspect pneumonia may be taken as a type of those diseases which tend to run a definite course marked in general by an open onset, a period of gradual development, a crisis and a decline. In its course may be seen as distinctly as in any other malady the working of that principle of the *vis medicatrix* which has been so much misunderstood and so much abused both by being unduly interfered with and unwarrantably trusted to. The failure to appreciate this principle has led in multitudes of cases to a perturbative treatment often worse than none at all; and on

the other hand a blind confidence in it has been the error of a school which, undervaluing medicine at first, has ended in utter skepticism as to its power and usefulness. And very facile is the descent to this state; disbelief being always so much easier than the mental effort involved in the faithful weighing of evidence.

This *vis medicatrix* may in fact be regarded as a continual tendency to return from the perverted nutrition of disease to the normal nutrition of health. Perhaps, though the point should not be pressed beyond the suggestion of an analogy, it may illustrate on a small scale, and within the narrow bounds of one organism, or still narrower, of a single organ, the principle which as seen working over a wider area is known as evolution. We may term it adaptation to environment when the healthy lung takes on an increased and vicarious action to supply what is wanting in the function of its fellow; or a struggle in which the fittest survives, when exudation matter is absorbed, and the proper structure of the lung remains and is restored to its integrity. The more perfect and highly organized tissue abides; the less perfect disappears.

There is this difference however between evolution as witnessed here and as seen in its wider sphere of action, that the processes observed in pneumonia are rapid in their course and are not accomplished by successive and minute changes. Indeed there is something almost mysterious in the suddenness with which a patient often passes from the urgent dyspnoea of early pneumonia to the comparative ease of a somewhat later stage; the physical cause of the dyspnoea, which is the congestion or exudation, being often even greater in amount at the time when less distress is experienced. And again the same sort of surprise cannot but be felt at the extreme rapidity with which the exudation will be removed, melting away as it were, and the lung clear up and resume its function after the crisis of the malady is passed.

Here as in every other case evolution becomes more intelligible if it be regarded as a *modus operandi*, a plan by which design works.

Explain it as we may, the principle of the *vis medicatrix* im-

plies a tendency, not in the disease, for disease is no substantive thing, but on the part of the organism, to revert to the normal standard of health. This tendency may be aided; obstructions to its play may be removed; and he is the wisest physician whose practice acts with it and upon it, and who abstains from such disturbing measures as are likely to impede it.

Now between these two aspects in which pneumonia may be regarded, the one as illustrating the variations of medical opinion, the other as exhibiting in a most striking manner the conservative working of nature, a very direct connection may be seen to exist.

For it is just because the disease tends to run a definite course that modes of treatment widely different in character alike issue in recovery. Whatever the system of treatment be, provided it is not such as to interfere too greatly with the successive order of events which constitutes the definite course, sooner or later, sometimes aided by the treatment and sometimes in spite of it, the disease may terminate in the regularity and harmony of health. But it would be a hasty and unfair conclusion to infer that because diverse methods are followed by recovery, therefore one plan of treatment is as useful or as useless as another.

Though cases differently treated may ultimately be restored to health, yet the results are not the same, if one patient under proper management makes a prompt and perfect recovery; and another, through careless and inefficient practice advances "with wandering steps and slow," and at last only through much tribulation enters upon convalescence.

What then are the measures which may fairly be regarded as giving aid to nature, or as directly curative in the treatment of pneumonia?

In the first place, attention to hygienic influences and to the proper physiological action of the various organs is of prime importance.

2nd. Only such food as is adapted to the enfeebled digestion of the patient should be allowed, and yet a sufficiency of this must be secured in view of the debilitating nature of the disease and the tax upon the patient's strength.

3rd. The depurative action of the skin and kidneys must be maintained, for the rapid retrograde metamorphosis of tissue loads the blood with abundant effete products which seek elimination by these channels.

4th. The depressing effect of pain is to be guarded against by the timely use of opium; which however must never be so used as to cause any degree of narcotism, and thus interfere with oxygenation of the blood, which is already impaired by the disease itself.

5th. The refreshment of sleep must be secured to the worn nervous system; and for this purpose the value of chloral-hydrate is often indisputable.

6th. Sedulous attention must be given to the heart: if its action be weak as shown by the pulse and by the lessened tonicity of the first sound, it must be fortified by alcohol or digitalis; if on the other hand the right chambers have in the early stage become distended from the rapid engorgement of the lung, it may even be advisable to diminish the strain mechanically by the abstraction of blood; a procedure which though not often required, does certainly in some cases give sensible relief. Every one knows how much this subject of bloodletting in pneumonia has been discussed; how in former days it was a frightfully abused measure; and how from time to time efforts have been made in late years to reinstate it. The success attending these efforts has been small, and justly so; for it is very seldom required; it probably never aborts a pneumonia, and when it does good, it is upon the simple mechanical principle referred to.

Such are some of the most important measures by which nature may be aided; and if the needs mentioned are met as they occur, the patient will recover more perfectly and more quickly than he would if left to her unaided power. In watching for such needs and applying the appropriate remedies, the highest therapeutic skill in large measure consists; that skill "which looks before and after;" which detects the first evidence of disturbance elsewhere than in the organ primarily affected; and is prepared to meet it. For in no case is the aphorism more true in a literal sense, that "if one member suffer, all the members suffer with it," than it is

NOTES ON PNEUMONIA,

in pneumonia. In this connection an earnest caution may be given in this day of undue tendency to specialism to those younger physicians who at the outset of their careers propose to confine their practice to diseases of the chest. No one can be competent to treat maladies of the central organs of circulation and respiration who has not trained himself for this special work through years of observation and study in general pathology and general therapeutics.

Morgagni found it a less difficult matter to cure diseases of the lungs than to ascertain their existence;* but since the discovery of auscultation the relative difficulty of these two tasks is changed, and through great skill in auscultatory diagnosis is not easily obtained, it is easier than the knowledge how best to treat what the ear discovers.

All these different measures may need to be practiced in managing pneumonia aright; and to do these things is to do much; but yet we may often do much more than merely meet emergencies as they arise, and thus guide the disease along its perilous way.

Of the strictly curative means to be used in pneumonia perhaps the most important is the proper administration of quinia. Clinical observations make it probably a very high degree that if in the very earliest formative period of the disease, a full dose of from 10 to 20 grains of sulphate of quinia be given by the mouth, or under certain circumstances an equivalent amount of hydrobromate by hypodermic injection; the pneumonia may be aborted at the outset.

For its good effects to be most obvious it must be given very early, when the crepitant r le denotes engorgement, and before exudation has occurred; or still better, if the case be seen early enough, when with the general symptoms of an impending pneumonia, the practised ear detects the harsh, puerile respiration which sometimes precedes fine crepitation, indicating, as held by Dr. Stokes, the very earliest stage of dryness and arterial injection.

We may not speak too positively of this strictly curative action

* *Quam difficile est morbos pulmonum curare; quanto difficilius eosdem cognoscere.*

of quinia; but it is rendered antecedently probable by some of the remarkable properties of the drug. And first, its proven antipyretic action may be thus distinctly curative; for there is certainly a direct connection in some way between a rise of temperature and the extension of the disease; so that it is fairly supposable that an agent having the power to restrain the temperature may also check the extension; and this may be effected in the very incipiency of the attack. Again, the power which quinia has been shown to have of checking the amœboid movements of the white corpuscles and the proliferation of cells, would seem to explain further its beneficial action at the outset of pneumonia.

Prof. Bartholow in his excellent work on Therapeutics expresses a very decided opinion on this point: "Administered at the critical moment" he says, "a commencing fibrinous pneumonia, a pleuritis, an endocarditis, may be suppressed by a full dose (fifteen to twenty grains) of quinia." But while thus receiving the sanction of recent authority based upon the furthest advances that have been made in our knowledge of this drug, its use in this way is by no means new; for it was employed long before any special observations upon its antipyretic action or its influence on the cellular elements had been made. No doubt, in many cases the beneficial effects of quinia have been referred to a malarial complication supposed to exist, when in reality its action has been of a wholly different character.

Briquet in his great work on the Therapeutic uses of Quinia published more than twenty years ago, expresses his own disbelief in its efficacy against any inflammatory affections except such as are complicated with malarial disease; and he specifically denies its possession of a property which recent observation has abundantly proved; "*quand la raison de la fièvre*" he remarks, "*est une véritable phlegmasie, celle-ci (i. e. the quinia) ne peut plus ni ralentir le pouls, ni diminuer la force de ses pulsations, ni faire baisser la température du corps.*" But in the same connection he states that the Italian physicians Rasori, Tommassini and their followers employed quinia in numerous cases of pneumonia and other inflammations as a remedy directed against the inflamma-

tory process. A similar practice, he admits, prevailed also among many French physicians who regarded the drug as a true antiphlogistic. The very extensive use of quinia in the Southern States of this country in the treatment of pneumonia complicated with malaria would be sure to lead to its employment in which no such complication existed; and so we find that many years ago the opinion began to gain ground that the quinia was beneficial in some other way than in virtue of its antiperiodic action. Prof. Wm. T. Howard, formerly of Warrenton, N. C. and now of this city, in one of a series of papers which constitute a most valuable treatise upon Malarial Pneumonia, published as far back as 1859, and 1860, thus writes; "In certain cases of pneumonia we have often given quinine with great benefit, when no reliable evidence of a malarial element could be detected, upon the most rigid analysis of all the vital phenomena presented. We cannot admit that in these instances, the periodic fever element must have tainted the system, merely because quinine was of unmistakable service. To assume the presence of this element, in the total absence of any other proof of its existence, is simply to beg the question."*

Any amount of evidence might be still further adduced in proof of the value which has been ascribed to quinia by the ablest physicians in the treatment of pneumonia; but it has been only within the last few years that a satisfactory explanation of its mode of action in this disease has been found in its power of checking abnormally high temperature, preventing the amœboid movement of corpuscles, and restraining the proliferation of the cell elements in the inflamed part.

Aconite is another agent which may be strictly curative of pneumonia if used at a sufficiently early stage. By lessening the febrile movement and retarding respiration it relieves the lung, and its power of diminishing the heart's force and lowering arterial tension would tend to check the spread of the inflammatory process and favour the action of the skin and kidneys, thus promoting the removal of the products of inflammation. Clinical

* North Carolina Medical Journal, March 1860, page 253.

observations are numerous in confirmation of what might be expected of the drug on physiological grounds; and in doses of from one to three minims of Fleming's Tincture of the Root given every one, two or three hours according to the effect produced, it will be found to lessen dyspnœa and tensive pain, to diminish frequency of respiration and to prevent the extension of the disease.

The good that it does is often very obvious in cases to which it is suited; but it is a remedy to be used with great caution whenever an asthenic state is shown, for if the heart's tone be too much impaired, the loss of strength will interfere with the solution of the disease.

In estimating the value of any mode of treating pneumonia it must be admitted that in some cases conditions are involved which may prove fatal notwithstanding the most judicious management. Thus the very extent of the disease is a source of peril, if a large part of one lung become rapidly involved; and still more so if both lungs are affected. Or the intensity of the fever may be destructive of life, the excessive heat apparently paralyzing the heart. Or again, the occurrence of pleuritic effusion on the opposite side may render respiration impossible. These and other conditions that might be named, may put the case beyond all treatment.

The following cases of pneumonia are selected from among eighteen treated during the last four months, and they are given here not from their conformity to the usual type, but on account of their somewhat exceptional character, and to show the behaviour of the disease under some complications that may occur in its course.

CASE I. Mary B. 18 years of age, was seen first on January 10th, 1877, presenting the symptoms of hurried respiration, quick pulse, high temperature and pain in the left side, all pointing to some inflammatory thoracic disease; and the diagnosis of pneumonia was established by dulness on percussion and a diffused crepitant râle over the lower lobe of the left lung. It was ascertained that the patient was in the seventh or eighth month of pregnancy. Now pneumonia is not very common among pregnant women; but pregnancy very gravely complicates the disease.

NOTES ON PNEUMONIA.

Grisolle had seen only four cases in such subjects; he collected however the reports of eleven other cases, making with his own a series of fifteen; and of these fifteen cases eleven died, five after abortion or premature delivery, and six without abortion having taking place.

In the present case the temperature ranged at from 103° to 105° , so that the use of quinia, as an antipyretic was suggested; but there was an objection to employing it in this way under existing circumstances. It is maintained by some writers that it determines contractions of the uterus, and may thus bring on abortion. This action, it is true, has not been proved, and the very many cases in which it is given to pregnant women for malarial fever without such effect being produced, would seem to discredit the opinion. Yet the large doses of ten, fifteen or twenty grains in which it requires to be given as an antipyretic may possibly produce the effect even though the smaller doses ordinarily employed in intermittent fever might be safe; so that it is probably most prudent not to give it in large doses during pregnancy; and its use in this way was therefore withheld in this case. The patient progressed favorably and resolution of the pneumonia began with a decline of temperature. While this was going on however, she imprudently exposed herself by getting out of bed, had a chill, followed by a rise of temperature to 105° ; and on examination the upper lobe of the same lung was found to be involved in pneumonia, which spread throughout its whole extent. The abortion which the patient had escaped in the earlier period, now took place; if indeed it is to be regarded as an escape, when according to Grisolle's statistics more deaths happen in such subjects when it does not occur than when it does. Abdominal pains began which were not controlled by opium, and resulted in the premature delivery of a seven months fœtus which breathed for twenty-four hours. In this relapse the patient was from the shock of the miscarriage more critically ill than she had been in the earlier part of the disease; the heart was much weakened and it was necessary to stimulate with brandy; quinine was also used as a tonic, and nourishing food administered. The newly affected lobe passed regularly through the various stages,

and the patient recovered perfectly. On describing this case to a medical friend of large professional experience, he told me of a similar one within his own knowledge in which general bleeding had been prescribed for the pneumonia and the patient had recovered without aborting; whence he seemed to infer that the present case might have gone safely to term, had bloodletting been practised. But this conclusion would not be borne out by the experience of Grisolle who with most of his contemporaries was a persistent and unflinching bleeder, so that whatever chance of life bleeding would afford to either mother or child, was given by his practice; and yet whether abortion occurred or not, the mortality which he reports in the pneumonia of pregnancy was very large.

The next case is one of pneumonia complicated with empyema, which had an unusual course.

CASE II. Charles R. aged 29 years, entered the Hospital of the University of Maryland in my service December 29th, 1876. Auscultatory examination showed well-marked dulness over the lower lobe of the left lung with bronchial breathing, together with some degree of dulness and the crepitant r le over the upper lobe. Pneumonia had no doubt commenced at the base and had involved the entire lung. Quinine in doses of ten grains controlled the temperature which had reached 105° , and twenty grains of chloral-hydrate ensured rest at night. The case progressed favorably, and in two or three days resolution was denoted by the returning crepitation; but the percussion dulness instead of diminishing with the appearance of this sign, as it should have done in the regular course of the pneumonia, remained apparently stationary for a few days, and then perceptibly increased, until the whole surface posteriorly and anteriorly yielded an almost perfectly flat sound. All respiratory sounds on that side lessened and faded away, and vocal resonance and fremitus ceased. The signs of large fluid effusion had unmistakably taken the place of those of pneumonia. But the increase of this effusion had been so gradual that the breathing was but little embarrassed, and while thoracentesis was contemplated as likely

to become necessary, it was determined to await for a time the course of events.

Then an unusual and unexpected occurrence took place. On the 10th of January 1877, thirteen days after the patients admission, he suddenly, in an effort of coughing, expectorated more than a quart of pus, which continued to be discharged in variable amounts by day and night for more than two weeks until three gallons were evacuated. The source of the pus in the pleural cavity was obvious, for the dulness lessened and the line of its level fell gradually lower and lower, while respiratory murmur became audible at first in the upper part of the chest and afterwards when the purulent flow ceased, down to its very base.

It may be somewhat difficult to explain how the opening which had certainly been made through the lung into a bronchus, could give egress to so much fluid of such consistency as pus, and yet not give ingress to air. In some way or other, possibly by a valvular form, it was barred to the access of air, for there was no sign of pneumo-thorax, and the expectorated pus showed not the least fetor. Gradually it diminished in amount until about the middle of March all expectoration ceased; respiratory murmur could then be heard over the whole chest, and the only remaining sign of the previous condition was some degree of imperfect resonance on percussion, due no doubt to thick false membranes. About the first of April the patient left the Hospital declaring himself perfectly well.

Now what was the lesson taught by this case? Does it afford an instance of the superiority of nature's methods to those of art, and show that it is better to leave such a case to her unaided resources? By no means; for the spontaneous evacuation of the empyema, if it occur at all, is apt to take place either through the external parietes at a point too high up to admit of free escape of the fluid, or more rarely, as in the present case, by an opening through the lung. In either way pneumo-thorax with a consequent offensive state of the fluid, is likely to occur; and a condition so full of hazard to the lung, if it could be anticipated, ought to be prevented by drawing off the fluid through the chest wall with the aspirator.

In the New York Medical Journal for September 1876, I have pointed out the conditions which demand this operation, and reported cases in which it was resorted to with the happiest effect. The most important of these conditions are, when an effusion reaching half way up one side of the chest persists for three or four weeks, or increases in amount; and secondly, when there is much embarrassment of respiration, especially when paroxysms of dyspnoea occur.

In reference to the former of these conditions in the present case, the earlier stage of the effusion was masked to some degree by the previous existence of pneumonia; and as to the second, the respiration was at no time so embarrassed as to cause any degree of dyspnoea. At the time when the operation was contemplated, the remarkable result occurred, from which the patient seems entirely to have recovered.

