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THE TREATMENT OF PHTHISIS BY
GASEOUS ENEMATA.¹

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INDUCED by the importance of the subject, and by the discouraging results of the various methods of dealing with phthisis, we commenced some experiments with Bergeon's treatment with gaseous enemata before reports of investigations by American physicians had appeared in the medical press. Our work has proceeded steadily but slowly, and this report is even yet chiefly of a preliminary nature, since many of the cases are still under observation.

Following the papers which have just been read, and all that has been previously written on the subject, it will not be necessary to speak of the theoretical grounds on which this treatment was first advocated by its proposer, or to dwell upon its details.

Method.—In private cases we have used the Morel apparatus, substituting a solution of sodium sulphide—ten grains in one and a half pints of water—for the natural sulphur mineral water. In hospital practice we have sometimes pursued the same method, sometimes proceeded in the following manner: carbonic dioxide was procured already c

¹ Read by Dr. Pepper at the meeting of the American Physicians, Washington, June 3, 1887.

in the large iron receivers in use for soda fountains. It was passed from these through the solution of sulphuretted hydrogen into a five gallon gum bag, from which the patients then received the injections. Thus in one case the bag contained pure carbonic dioxide, and in the other the gas already medicated. It could not be discovered that it made any difference which method was followed.

The injections were given from one to three times daily; and from two to six or more quarts of gas were employed. The administration of the injection lasted from fifteen minutes to one-half hour or longer, except in those cases in which the tolerance of the bowel was very quickly exhausted, and but little gas could be taken.

It is to be regreted that the observations made are not in every case so complete as could be desired. This was often unavoidable; in some cases because patients were treated in homes where no accurate record of temperature and weight could be obtained; in others, in hospital practice, because patients sometimes left before a final examination of the lungs could be made, and the presence or absence of improvement of physical signs noted.

The total number of patients upon whom the treatment was tried equals 34. 10 of these cannot be regarded as test cases in any sense, since the injections were given during too short a time to allow of any conclusions being formed. In one of these there seemed to be inability to retain the gas in the bowel; in another ill defined but uncertain subjective sensations were produced, and the patient begged to have the treatment discontinued. A third patient died a few days after the treatment began; a fourth has but just commenced the injections; in three cases colic was so

intolerable that the treatment could not be persisted in, and three dispensary patients ceased their visits after two or three days.

Deducting then these 10, there remain 24 test cases to whom the enemata were administered for from 12 to 56 days; the average being 25.

Other treatment was frequently combined with that of Bergeon. Had the results been favorable, this fact might be urged against the justice of our conclusions. As the sequel shows, it can have no influence, except to militate against occasional possession of beneficial action by the gaseous enemata.

Probably the most convenient method of estimating results is to study the symptoms individually, and to notice the effects produced on them by treatment.

Fever.—The greatest improvement was noticed in the reduction of fever. The total number of cases in which a daily record of temperature was kept equals 16. Of these there were 4 whose temperature was more or less reduced during the administration of the gas. In 11 there was no appreciable effect; and in 1 the fever actually seemed to increase. In another instance (one of the 10 excluded from the test cases) it rose quite decidedly during the four or five days in which the treatment was given; though this was probably only a coincidence. In no case was the temperature brought from a persistently febrile to a continuously normal condition.

Weight.—In 20 cases in which the weight was recorded at frequent intervals, there were 8 in which the gaseous treatment was attended by more gain; the greatest increase being eight pounds in thirty-seven days. It is worthy of note that in 12 cases there seemed to be no improvement. In 6 patients the weight remained station-

6 it was diminished, with or without a change in the severity of other symptoms. The increase in weight took place chiefly in hospital cases, and we cannot but believe that it was due very largely to complete rest and good food.

Cough.—Improvement in this respect was not even so marked as in the preceding symptom. In 7 of the 24 cases there was said to be more or less diminution of cough. In 2 of these this was undoubtedly true, as testified to by the attendants and friends. In the others the well-known hopeful disposition of phthisical patients laid the truth of their statements open to suspicion. Moreover, in 1 of the 8 the removal of a large amount of fluid from the pleural cavity was probably the chief agent in producing decrease of cough, if any existed; and another patient was taking a cough mixture as well as the gaseous treatment. In 3 cases the cough seemed actually to grow worse;—this being probably *post hoc* merely.

Expectoration.—As regards the diminution of the amount of expectoration, we were able to come to more definite conclusions, since the question did not depend to such extent on the statements of the patients. Out of 24 cases the quantity was somewhat decreased in 4 instances. In 5 patients it became more abundant, and in one of these, to whom the gas had been given fifty days, the increase was very marked. In the remaining 15 no effect could be perceived.

Bacilli.—The sputum of 30 patients was searched for bacilli, and the microbes found in 27 cases. A second examination was made at the close of the treatment in only 11 cases, and in but 3 of these was there even an apparent diminution in the number of bacilli. It is extremely doubtful whether there

existed here any real decrease in the absolute quantity of bacilli in the sputum.

Dyspnœa was recorded in comparatively few cases, and in only 3 of these did the patients claim that they had experienced any improvement.

Night-sweats.—Here, too, the cases reported are not numerous, as many of the patients did not suffer from them. In 1 case they were checked, and in 7 unimproved.

Physical examination.—The result of the physical investigation of the lungs of each patient was noted at the beginning of the gaseous treatment; and a final examination was made at the close of the treatment in every instance possible. As already explained, the latter could not always be accomplished. Nevertheless, a final study of the lungs was made in a considerable number of cases, and in *not a single case* was any improvement found. Even the patient who of all the 24 had made the greatest—and really very remarkable—progress, exhibited quite as many râles as fifty-six days before, when the treatment was commenced.

General condition, etc.—As regards the general condition of the 24 test cases under observation, there were but 4 in which any improvement could be noticed (2 decided, 2 slight), apart from the amelioration of the symptoms already mentioned. 7 patients grew worse, and 1 died. No observations were made on the temporary effect of the gas on *pulse* and *respiration*. The *appetite* was sometimes increased but usually not much affected. The enemata had a decidedly *hypnotic* influence in 3 cases.

Unpleasant effects.—As regards unpleasant symptoms produced by the treatment, one patient complained of feeling faint after the first injection; another had headache, and another suffered fre-

quently from dizziness. The last patient had been given on one occasion, before we had commenced our observations upon him, about one quart of a mixture of equal parts of carbonic dioxide and hydrogen bisulphide, and promptly developed the most alarming symptoms. The pulse almost disappeared and the respirations became shallow; the patient was covered with cold perspiration, and completely lost consciousness. This condition lasted about three minutes, and the physician with him was obliged to use most energetic stimulation before the patient was out of danger. This incident proves the power and possible danger of sulphuretted hydrogen; but is not, of course, a contra-indication to the proper administration of the gas.

The tendency to nausea if the injection was given too soon after a meal, and the inclination to evacuate the bowels were also noticed in some of our cases.

But the only unpleasant symptom of any real moment was *colic*. This was complained of as often severe in at least 11 of the 24 cases; and, as already stated, 3 others suffered from it to such an extent that the treatment could not be employed. One individual was so severely attacked that he rolled upon the floor in pain. Colic was slight in a few cases, and not complained of at all in many. As other investigators had not written of much annoyance by it, we were led to suspect something faulty in our method of administration, but the most careful investigation has failed to reveal anything amiss.

While true that too large a quantity of gas gave pain, yet the colic was very often not controlled by giving smaller amounts. In some instances, too, equal volumes of gas at one time produced intense suffering, and at other times were well borne. Nor did a slow administration of the injection appear to

prevent the cramp. The presence of air was carefully excluded; and, fearing that the iron reservoirs might possibly contain it, we discarded them for a time, but with no modification of the result. Moreover, colic was as often suffered by the private patients as by those in the hospital where the compressed gas was usually employed. Frequently the bowel seemed to grow more tolerant as time passed, while in other patients the reverse was the case.

A few of our cases serve as excellent warnings against the drawing of hasty and unwarranted inferences. In one of these the patient had abundant expectoration, troublesome cough, and signs of pulmonary consolidation, combined with a large element of chronic bronchitis and emphysema, besides being annoyed greatly by dyspepsia. The enemata were tried for a few days, but abandoned on account of the severe colic. He was then put upon a simple stomachic mixture, combined with good food and rest. He left the hospital after about two months, with the amount of expectoration very much reduced, having gained eight pounds, and saying he had not felt so well for a long time. Had he been able to take the gaseous enemata we would have undoubtedly attributed the good effect to them.

Another patient made the greater part of a surprising improvement in general health two weeks before the injections were commenced. Had Bergeon's treatment been instituted two weeks earlier, it would have gained unmerited credit.

To summarize in a few words our observations: Febrile temperature was sometimes lowered, but never to any great extent. Cough and expectoration were occasionally lessened, but oftener unaffected, and sometimes even increased. Weight was oftener lost or stationary, but a decided gain was frequently

made ; due, perhaps, partly to the gas, and no doubt, in part, to the improved conditions of life. Dyspnœa and night-sweats were rarely benefited ; the physical signs were in no case altered ; the general health was but seldom made better, and severe colic was a frequent and annoying symptom.

Our conclusions—so far as they can be formulated in a preliminary report of comparatively few cases—are : That the treatment of phthisis by gaseous enemata has had very undue value attributed to it ; that it is seldom of any real benefit, but that it may prove serviceable in occasional cases.

Thanks are due Dr. D. T. Lainé, resident physician to the University Hospital, for his coöperation in the study of many cases ; and to Dr. William E. Hughes for the notes of a number of patients treated by him in the Dispensary of the hospital. Prof. William Osler has also courteously placed at our disposal several cases of phthisis in his wards.