ON CHOLERA, AND ITS TREATMENT BY COLD WATER AFFUSION OR DOUCHE.

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Having had various opportunities of treating cholera, during a service of nine years in India, and of testing the efficacy of cold water affusion in many cases of the worst description, since June 1845, I believe that a report upon this mode of treatment, which has been so immediately in its effects, and beneficial in its results, will merit attention. And, if conclusions may be drawn from the ostensible principle of its action, the real nature of cholera cannot fail to be more distinctly recognised than has yet been acknowledged.

Before entering upon this report, it may be advisable, for the lucido of the subject, to glance at the difference supposed to exist between cholera in Europe and cholera in Asia; and, for the better appreciation of the treatment proposed, to determine, from the copious and accurate data recorded of cholera, what is the leading characteristic of the disease, and what ought to be the object of our treatment in regard to it.

That the difference supposed to exist between the Asiatic and European forms of cholera is one of degree only, not of kind, will be evident on a cursory inquiry. Hence it will also be evident that the treatment applicable in the one form, is equally so in the other. In Asia, where the disease may be said to be indigenous, cholera, true to its history, bursts forth in all its vigour, and from the first appears in its advanced stage, or stage of collapse—in this country denominated its second stage. But when, after its onset in this advanced stage, it subsides in the virulence of its attacks, and the convulsions which lead to real consideration, is a treatment, and less rapidly fatal, it will be found to assume that form of the disease in which vomiting, purging, and cramps, prevail, and to be in every respect identical with the so-called European cholera.

In Europe, on the other hand, where the disease is almost invariably ushered in by vomiting, purging, and cramps, these symptoms constitute its first stage; but when these symptoms have ceased, and when, as dissolution approaches, the first has passed into the second stage, or stage of collapse, cholera in Europe will be found identical with cholera in Asia, so that many are struck down almost lifeless from the first.

How far these symptoms, viz., the vomiting, purging, and cramps (upon which so much stress has been laid in the pathology and treatment of the disease), ought to be taken into account, the known history of cholera in all places, and under all circumstances in which it has shown itself, will be satisfactorily explained by the learned and judicious author of the treatise on which I am about to make some extracts, viz., the work of Jean Baptiste Charles Barthez, published in 1843 in Paris under the title of "Traité de l'Affaissement et de l'Empyème du Choléra.

The vomiting and purging, which are so far from being the most dangerous symptoms, and are often the most remarkable in the least urgent cases, are generally slight, or at least not profuse, in those attacks where the sinking of the vital energies is the most rapid and greatest, and are readily allayed by medicines. The spasms are often slight, or nearly absent, in some of the most rapidly fatal cases.

That these remarks are fully borne out by the history of the disease, all who enter into the subject, and extend their observations beyond their own doors, may satisfy themselves. They will also infer what must be obvious to most who have had experience of cholera in India, that the symptoms in question,—the vomiting, purging, and cramps,—if at all constant in their relation to the disease, seem to be so in an inverse ratio, as in compression of the brain, to the depression of vital energy. In other words, the collapse or apoplexy, with its sequelae, opposed respiration, convulsion, colchicks, bluejyes, etc., is the only invariable symptom, and therefore the leading characteristic of cholera, and ought to be the object of our treatment; not only because it is the only constant symptom, but also, perhaps rather, on the proof which experience will give all who have treated cholera, that reaction is the forerunner of every amelioration in the symptoms during an attack, and the only sign to be depended upon in forming a diagnosis. It was in producing this reaction that the cold water effusion or douche was found so beneficial.

At Calcutta, in June 1845, cholera broke out in the 53rd regiment, to which I then belonged, with the same virulence as attended it in various localities throughout India during that and the succeeding year. Two men, the last survivors of several who had been attacked within two days, were sinking under that fatal collapse which alone, without any other symptoms, marked all the causes that had occurred in the regiment.

Every remedy that could be devised to produce reaction had been tried in vain; they might as well have been put into the patients' breeches pockets, or applied to the bedpost. The exhibition of the nitrous oxide gas was not only fruitless, but far from encouraging. The breathing which under its use became more oppressed and hurried; there was no pulse, nor was it rendered perceptible by the gas; and, as its continued exhibition distressed the patient, it was thrown aside as worse than useless. In despair at the utter want of the most trivial effect from the remedies employed, I made trial of the cold water affusion. I desired the water-carrier to pour water from his leathern bag over one of the patients; and, as the effect was good, then over the other patient, placed naked on a bedstead in the verandah. Attendents were at the same time employed in rubbing the limbs and trunk with their palms, and afterwards with dry towels. A refreshing sensation and comparative reanimation having followed each repetition of this operation, it was had recourse to at intervals, though only with the success of having prolonged life, which was ebbing fast for some hours.

In this success, poor though it was, seemed to warrant the conclusion that, had the remedy been applied while somewhat more of life remained, recovery might have been the result. To test this conclusion by experiment, an opportunity was not long wanting.

On the same evening, as if by some fatal blast sweeping over the barracks, several men were suddenly struck down in a state of collapse. Some retained consciousness (cholera...
amphisia); a few lost it, and were in a state of complete coma (apoplasia), with stertorous breathing; in three cases, attended with convulsions; others, especially towards morning, and during the two following days, were affected by vomiting, cramps, purging with vomiting, and dejections, and the usual concomitants of cholera in Europe.

How many came under treatment at this time, I cannot now venture to affirm; but I believe I am correct in stating that, of all admitted, but two died—one of apoplexy; the other, who was allowed a warm bath, of cholera. The rest, all of whom had been treated from the cholera, were treated by the cold water affusion.

Since the period above alluded to, I have not had an opportunity of treating cases of epidemic cholera. Several cases, however, of endemic cholera among Europeans, while it was, as often happens, epidemic among the natives, have been seen by me in every instance.

One of the most remarkable of these endemic cases occurred at Meerut, in August 1848. A corporal of the 9th Lancers, an atrafilious subject, was brought to hospital at 4 P.M., almost pulseless, having been purged during the morning, and having passed several rice-water dejections on admission into hospital. There were slight cramps, and occasional efforts to vomit. He was immediately placed in a hip-bath, and water was poured over him, while hospital attendants rubbed the limbs and trunk. This was continued until he became chilly, and shivered. He was then removed to a warm bath, dry rubs, which being applied, were much revived by the operation, as was shown by less oppression in breathing, and a more distinct pulse. After remaining in bed for about half an hour, he began to relapse; the pulse sank; vomiting, purging, rice-water, and cramps, returned. He was replaced in the bath, with the same effect as before; and again placed in bed, he again relapsed. The water was again used to recours to, and repeated at intervals as above, according to symptoms, until 10 P.M., six hours after its first application. The respiration then became free, the pulse soft and distinct; the natural warmth was restored, and remained; and the patient slept until morning, when he awoke with a furrowed tongue, feeling weak and drowsy, but without that consecutive fever so often more fatal than the disease itself, and which has always seemed to me to follow most in those cases in which brandy, opium, ammonia, or other stimulants, have been freely administered.

Meagre and unsatisfactory as the above statements must appear, taken as evidence of the efficacy of the treatment advocated, yet, if the action of the remedy shall be thought to afford a satisfactory explanation of its curative effect, one case successfully treated in the manner prescribed will carry more weight with me than many cases, treated by the unknown action of some occult remedy.

The first effect of cold water, poured over the head and chest in a small stream from a water ewer, held at a greater or less height by a person standing on a chair or raising his arm over the patient placed in a bath while frictions are applied to the trunk and limbs, is to produce, as in cases of ordinary asphyxia, a convulsive gasp or forced inspiration, succeeded by two or three strokes of quickened respiration. With each gasp, as by a convulsive thrroe, the parietes of the thorax, before immovable, will be observed to expand, and the diaphragm will descend. Simultaneously with each effect of inspiration, the impeded circulation will be found to flow, the pulse to partake of the impulse, and the sluggish pupil to resume its wonted sensibility. These are the first and immediate effects of the water douche. When continued, they constitute reaction; and if this is maintained, the vital energy, even at its last ebb, the natural heat of the surface, and the skin to the touch, will be imparted to the body by the imbibition into the blood, through respiration, of atmospheric air taken in at each forced inspiration; the entire surface being at the same time stimulated by frictions to the limbs. It being evident, according to this view, that the stimulating effect of the cold water douche is to be attributed to its power of exciting the respiratory function to take oxygen into the system, it may be inquired how the experiment with the nitrous oxide gas above alluded to failed so signally. One essential condition to its action was wanting; viz., that expansion of the thorax for the reception of air into the lungs, upon which the effect of the water douches having been so much dependent, and without which none of this as an essential condition in the effect produced by the water douche, I have not had an opportunity of repeating it in conjunction with the gas; but may it not be presumed that, taken together, if they do not prove an antidote to the disease, they are at least worthy of a trial. That the blood of the man in the blood vessels of the brain is often advanced, if not generally admitted; but the effect of this want upon the brain in producing vital depression seems to have been overlooked; while its effect, or that of some poisonous miasms in the system, upon almost every other organ of the body, has been fully insinuated upon as indicative of some particular line of treatment to be pursued.

How symptoms are to be regarded as indicative of treatment has already been noticed. Is it not, however, a general law of the system that any violent shock inflicted upon it as in concussion, compression, some cases of poisoning, and in cholera itself, is followed by vomiting, purging, cramps, and suppression of urine, in a greater or less degree according to the nature of the shock, unless vitality shall have been so overwhelmingly by the force of the injury as to pass away without any attendant symptoms, save suppression of urine? Since I have become convinced that, by its cessation, one of the surest indications that a generous reaction has set in.

In cholera, as in cases of drowning or poisoning by carbonic acid gas, in all of which the post mortem appearances are so strikingly similar, may not suspended sensibility, the degree of which is, as always, proportional to the reflex effect, or carbonized blood upon the brain? For, precisely in proportion to the removal of this effect by the stimulating agency of oxygen imbibed through the respiration, will reaction ensue, and the powers of life return, and all the symptoms that characterised the affection disappear. The mode of using the cold water affusion has been pointed out in the case detailed as having been under its operation for six hours. The most essential requisite for the successful application of this mode of treatment was found to be undaunted perseverance, so long as after each relapse reaction could be induced by its repetition. It was a want of knowledge of the good effect of this perseverance, that caused those two cases first mentioned to be given up in despair. Each time that the douche was resorted to, its effect was of longer duration; until at length, by watching and perseverance, the respiration, "the pendulum of life", was brought to set in motion; details of the numerous cases, treated independently upon it moved in concert, and the brain, the main-spring of life, was restored to its wonted power of maintaining the just equilibrium.

With respect to the state of the atmosphere during the time that cholera prevails, much has been said. One simple fact, familiar to many, I would mention, as I have not seen it alluded to before; the dinnness of lights, and the dulness of fires in cholera seasons, are as striking as their brightness and briskness in this country in frosty weather. If the presence of oxygen is allowed to be the cause of the latter, the former may be imputed to its absence; and the extreme states of feeling in all animated nature, induced upon those who have experienced both, is beyond question.

The mode of applying the cold water douche merely consists in placing the patient in any convenient position, so that, while water is being poured over him, frictions may be applied to the limbs. After the water is poured, the gas is introduced until the depressing effect of cold, shivering, and chattering, sets in, when the pulse will begin to fall. The patient is then to be placed in bed, having been well rubbed. In a short time, when warmth begins to return, relapse will take place. The water is to be repeated in the same manner as above, and so on as often as necessary. After each repetition, its effect will be found to be more palpable and more pro-
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SUTURE.

CASES OF CHRONIC INFLAMMATION OF THE KNEE-JOINT.

The following cases are reported in the Lancet for June 4th and 11th.

Case I. Thomas T., aged 81 years, a serofulous looking child, was taken into Isaac's ward, in St. Thomas's Hospital, under Mr. South, on September 23rd, 1851. The patient had been ailing from infancy, and was attacked about three years previous to admission with severe pain in the knee-joint. This acute inflammation subsided after a little while; a twelvemonth passed with comparative ease, when the pain returned, and the child entered Guy's Hospital, where he remained fifteen weeks, and then repaired to St. Thomas's. On examination, the knee was considerably swollen, the pain not very severe, but the boy complained when pressure was made on the patella. There was no much swelling and fluctuation above the inner condyle, and between the ham-string muscles, and also on both sides of the head of the tibia. The leg could be moved without assistance or pain, and the child did not recollect having struck the knee, or received a blow upon it.

Emollient applications and rest were ordered. The swelling gradually increased for the next three weeks; and in about six months, the matter came to the surface, and pointed. An opening was made in a bolting part below the knee, and about four ounces of thin yellowish matter were evacuated. The boy's health kept up pretty well, but the discharge weakened him. Five months after admission, four sinuses had formed around, above, and below the knee; they all discharged thick purulent matter, of turbid or turbid-consistant. The ends of the sinuses seemed somewhat enlarged, the leg was flexed on the thigh, and the boy's health was declining, although he had been kept on nutritious diet. When, six months after admission, amputation was performed, whilst the patient was under the influence of chloroform. Very little blood was lost, but the boy vomited several times during the operation. There were found thickening of the synovial membrane, adhesions of cartilages, and caries of bone.

Case II. A. E., aged 15 years, a strumous girl, but in tolerable general health, stated that her left knee had been in a morbid condition for twelve years. Enlargement and inflammation of the joint were supposed to follow an injury with which the patient met when only three years old. Rest and the usual mode of treatment enabled her after some time to move about on crutches; but she remained liable to attacks of inflammation, which necessitated rest and confinement to bed.

It was after a fall, and a consequent injury to the joint, that

Mr. Burkett first saw this patient in Guy's Hospital in the summer of 1852: the joint was then almost fixed, but allowed slight flexion, which gave great pain; the patella was immovable, and the limb drawn backwards. The patient had been kept at rest for about two months, the inflammatory action subsided, but again commenced as soon as movement of the joint was permitted.

The girl now became quiet, returned, and was cured by the idea of confinement to the horizontal posture. At her earnest request, the limb was amputated on 21st September 1852.

On examination of the joint, the cartilages could no longer be seen; isolated points of inflammation, in little pustules and there, were observed; and some vascular fringes and soft formations were in contact with the bones, which were soft and spongy, and contained much adipose matter.

Case III. William B., aged 14 years, was admitted to St. Bartholomew's Hospital, September 1852, under the care of Mr. Stanley. He had been employed at saw-mills, and generally enjoyed good health, and stated that, while working one day, a boy dived into a pool of water, he felt the water and was thrown into the air. The boy then fell, and the knee-joint was injured. The swelling increased, the patient was brought to the hospital.

On examination, Mr. Womnall considered that fluid was effused in the joint, and he made an incision over the articulation, but it failed. Purging had been used. The swelling diminished, but it increased in a few days, and pain towards the inner part of the thigh was complained of. The boy was now put in a splint box, small doses of mercury were prescribed, and twelve leeches were applied to the joint. The improvement took place, the leeches were repeated. Two days after this, an indwelt and painful spot was noticed on the thigh. Leeches relieved the pain, but the boy was becoming emaciated, and signs of hectic fever appeared.

One month after admission, an opening occurred spontaneously on the external part of the knee; much pus escaped, and pressure on various parts of the joint caused purulent matter and blood to escape.

Mr. Stanley, on taking charge of the case, enlarged the opening into the articulation, and gave exit to a great deal of pus mixed with blood. No change of importance occurred for the next few days, except that the whole texture of the thigh assumed a boggy feel, and fluctuation was detected on its sides. An exploratory incision was made both on the inner and outer aspect of the thigh. Serum mixed with blood was evacuated, and the probe, passed into the wound, struck upon bone. The Mr. Stanley removed the quadricep muscles of the thigh, and the joint was purified. After this treatment, an attempt to move the limb was made, but it had little effect. The swelling increased, the patient was brought to the hospital.

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