

"In the former of these types, the danger is suffocation; in the latter, it is vital depression, death from asthenia."

When medical treatment has been fairly tried, and when it is proving unavailing, and when death seems imminent from suffocation, not from vital depression or exhaustion, Dr. B. thinks it is the duty of the medical attendant to perform or advise the performance of tracheotomy. Last December, he says, "I was called to a case of croup, and when I arrived I found the child, a girl seven years of age, in the last stage of suffocation. The two medical gentlemen in attendance declared that the patient was beyond the reach of surgery. One of them, who had never seen the operation, strongly dissuaded me from making the attempt; the other, who had at one time been one of my clinical students, on hearing my wish to give the child a chance, persuaded the parents to consent. The little patient was livid, and though I did not use chloroform, as I usually do, it did not wince when I made the incision through the skin. The result was that the child is now alive, and in the enjoyment of excellent health.

"To one who sees the operation for the first time, the hopelessness as to the attempt is only equalled by the surprise and gratification at the result.

"But, while I am so strongly advocating the operation in the circumstances referred to, there is one condition in the suffocative form of those diseases which contraindicates tracheotomy, and which, if discovered, should prevent any one from performing it. When the suffocation depends not only on obstruction of the trachea, but also on effusion of false membrane or the glutinous fluid which precedes it, into the smaller bronchial tubes, then the case is not one for operation. The difficulty, then, is to discover when the false membrane which causes the obstruction to breathing is limited to the trachea and larynx and when it has invaded the bronchia. Percussion and auscultation ought to assist in the diagnosis, but the restless tossing of the child and the noise of the breathing always make this a difficult proceeding.

"There are two signs which appear to me to be valuable guides: one is the amount and loudness of the stridor, which is always great in proportion to the patency of the small tubes and obstruction in the trachea.

"But the most valuable test is a view of the naked chest. When the obstruction is in the trachea, while the bronchial tubes are free, the respiratory movements are continued with exaggerated energy, but the chest will not respond to the muscular efforts. The result is that at each inspiration the flexible parts of the thoracic walls are drawn in with great force, the intercostal spaces are hollowed, and the ensiform cartilage sucked back. But when the small bronchial tubes, and, perhaps, the air-cells, are stopped with the viscid or membranous effusion, the muscular efforts are more feeble and the chest remains puffed out, and the whole aspect is that of a child thirsting for breath, but with the lungs already full and themselves unfit for respiration. In this latter case, I never operate; in the former, with every hope of success."

Dr. B. gives a table of 46 cases of tracheotomy, of which 17 were cured and 29 died. "Tracheotomy in Croup, 16. Cured 6; Died 10. Tracheotomy in Diphtheria, 30. Cured 11; Died 19.

"The average result is precisely the same, viz., one child is saved out of every two and two-thirds operated on; and, as the operation was always done when there seemed no hope of recovery otherwise, it may safely be stated that the lives of these seventeen children were saved by tracheotomy."

28. *Diphtheritic Croup; Tracheotomy; Artificial Respiration; Recovery.*—Dr. B. W. RICHARDSON reported in the *Med. Times and Gazette* (August 2, 1873), a case in which respiration carried out with the double-acting bellows led to the restoration of natural breathing five successive times, and prolonged life for thirty hours, though the patient ultimately succumbed. In the number of the same journal for July 17, 1875, he reports a second case in which the same treatment was crowned with complete success.

The subject of it was a boy five years of age, to whom Dr. R. was called in consultation March 1. The child was suffering from diphtheritic croup, and breathing with so much difficulty that suffocation seemed imminent. He was

restless, at times slightly convulsed, lips blue, and body becoming cold. "The breathing was so noisily shrill, from the narrowing of the larynx, that we had some difficulty in making a correct diagnosis of the condition of the heart, but in a brief interval of quiet I detected that both sounds of the heart were clear, and that there was no obvious indication of obstruction to the course of blood through the right side of the heart, from separation of fibrin." Dr. Wilbe administered bichloride of methylene, which produced rapid and gentle anæsthesia, when Dr. Richardson opened the trachea as low down as he could conveniently, experiencing no difficulty except from a little excess of bleeding from the divided surface of an unusually large thyroid gland. So soon as the opening was made into the trachea, there was sharp expulsion of air from the lungs, together with extrusion of a portion of false membrane. This over, he introduced the outer blades of Fuller's tracheotomy-tube, and through them the inner tube. The child was now allowed to recover from the anæsthesia, the tube being neatly and firmly tied in position. Free breathing through the tube was soon established, and the return to consciousness, from the anæsthesia, was attended by favorable symptoms. The heaving of the chest ceased, the face lost its lividity, and the surface of the body became warm.

The operation was performed at 10.30 P. M., and at 11.5 he was put to bed and fell into a short sleep. To prevent, as far as possible, the danger of death from asphyxia every available means was provided for clearing the tracheal tube, and for changing it if required, and competent assistants provided to watch the patient.

*March 2.* Patient had slept during the night with only two interruptions. He had fed himself with two teacupfuls of milk. He was breathing comfortably through the tube, his body was of natural warmth, and the asphyxia had entirely disappeared. He passed through this day favourably.

*3d.* At 1 o'clock A. M. the breathing became embarrassed, owing to plugging-up of the tube, and as the tube could not be cleared in position, Mr. Lovell was obliged to remove the inner tube. It was nearly choked with a compact mass of secretion, which adhered with great firmness. The patient now breathed easily through the outer blades of the tube, and they therefore were left simply in place. In a few hours the breathing again became embarrassed; at 3 P. M. the tracheal opening was plugged, and the patient was asphyxiated. The blades were promptly removed, and a portion of the membrane was expelled. He now for a short interval breathed through the wound, and then ceased to breathe altogether, and to common observation appeared to be dead. At this juncture Dr. Wilbe and Mr. Lovell, who happily were present, passed the elastic tube of the double-acting bellows into the wound, and set up artificial respiration. The artificial respiration brought back animation in a few minutes, and natural inspiration followed; but the artificial process had to be repeated, at times, during a quarter of an hour before independent breathing was fully re-established.

After the natural respiration was completely restored, the outer blades and inner tube were reintroduced into the trachea. The breathing continued easy during the rest of the day.

On Thursday, March 4, at 3 A. M., the breathing having once more become laborious, the tracheal tube was cleared with a feather, after which, for several hours, the breathing remained free. In the afternoon the blocking-up again occurred, and at 4.30 P. M., at a consultation at which we were all present, it was agreed to remove the metal tube, and to introduce a larger-sized vulcanite tube. As the new tube was being inserted, some false membrane was coughed through it. The patient continued to breathe easily through the vulcanite tube until 11 P. M., when some temporary obstruction occurred, and the respiration was for a little time laboured. In the course of this day the child ate a little beef finely minced, and some small pieces of orange; at intervals he took a teacupful of milk.

On the three following days the breathing at times became difficult, so that it was necessary to remove the tube and replace it with a larger vulcanite one, and portions of diphtheritic membrane were discharged.

*8th.* The tube was removed, and was replaced by a clean one at 8.15 A. M.

In the afternoon of the same day, after visiting the patient with Dr. Wilhe, we found the breathing sufficiently free when the vulcanite tube was out of the trachea to warrant the suggestion that the wound should be left simply open. The patient was now fairly convalescent.

From this time recovery took place rapidly. There was a slight paralysis of the glottis, and for a day or two, when the patient swallowed milk, a little of it flowed into the trachea, and escaped by the wound. But this difficulty soon passed away. The external opening healed up soundly, and in a few weeks I had the pleasure of making a friendly call, with Dr. Wilhe, to find the boy restored to perfect health.

29. *Chloral in Sea-sickness.*—Dr. OBER states, that, of all the numerous remedies he has tried for sea-sickness, chloral, recently recommended by M. Giralès, is by far the best, and is indeed very efficacious. Bromide of potassium, which, before the introduction of chloral, was the substance that did most good, is far too slow in its effects, and requires to be given in too large doses before any marked effect is produced, while the quantity of water necessary to enable it to be swallowed forms a serious obstacle to its employment in this affection. Chloral, on the contrary, given in the form of syrup, in a dose of from 1 to 1½ or 2 grammes, procures a calm and tranquil sleep, on awakening from which the patient finds himself, if not completely cured, at least in a state of relative comfort. On the first day of the voyage, this sleep should be at once secured by giving the patient 1 gramme (15 grains) at a single dose, and the following days 1½ or 2 grammes may be given during the day, by taking a spoonful of the syrup every hour. As a general rule, under this plan, in two or three days the sick passengers have become accustomed to the sea, and are even able to take their meals at the table. The chloral, to be useful, must always be free from all alteration, and from the action of humidity. When it has not been kept in a very dry place, so that it has become somewhat deliquescent, in place of the calm sleep so much desired, it may produce nervous irritation, sometimes of great violence. In pregnant women, several of whom the author has had in charge, this medicine also furnishes excellent results. He has not found voyaging by sea exercise any effect upon the progress of pregnancy, even violent sea-sickness not having induced either hemorrhage or premature labour. Still, voyages exert a special effect on the uterus, for under their influence there is always produced a premature return of the menses, and, in feeble women, the discharge may be sufficiently great to call for medical intervention. Constipation, which is the usual accompaniment of sea-voyages, should be most carefully obviated in the subjects of sea-sickness. Moral treatment, too, especially for women, is of great consequence, for no one can be more demoralized than the subject of sea-sickness. Chloral acts here admirably, by reason of the refreshing sleep which it procures; and the presence of the medical man greatly encourages the patient in his efforts against the state of depression that prevails. He should be encouraged, whenever possible, to come on deck to inhale the fresh air and escape the abominable smells of the cabin. The subjects of sea-sickness usually complain of insatiable thirst, and many take an immense number of lumps of ice to relieve it, but at the end of thirty-six or forty-eight hours this immoderate use of it gives rise to violent irritation of the stomach, to which is added the sensation of a hot iron passed along the œsophagus. Others prefer iced lemonade, of which they drink glass after glass, rejecting it by vomiting immediately afterwards. Brandy or whiskey is the favourite drink among the American passengers. But of all such liquids iced champagne is the best, taken in tablespoonfuls every ten or fifteen minutes. In these small quantities it is easily borne, and acts beneficially. With respect to food, the patient should be left much to his own tastes—under-done and broiled meat being, however, preferable when he can eat such. He should not be restricted to fixed hours of meals; and although on the boats the table is served five times a day, the intervals are still too long for him. It is preferable to follow Dr. Brown-Séquard's mode of treating dyspepsia with obstinate vomiting, the patient taking every quarter or half-hour one or two mouthfuls of bread and meat, or other food, with a little