On tracheotomy in diphtheria / by George Buchanan.

ON TRACHEOTOMY

IN

DIPHTHERIA.

BY

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In some papers on this subject I have called attention to the two modes in which Diphtheria proves fatal. In one class of cases the death is from asthenia, in another from apnœa. In those in which the patient sinks from debility, the surgeon is unable to ward off the fatal result; in the other, when suffocation is imminent from extension of the diphtheritic exudation into the larynx and trachea, then tracheotomy will prevent the impending death, and in many cases give time for the patient to recover from the disease. While always willing to admit that at certain stages of *croup* tracheotomy was admissible, I was at first a partaker of the wide-spread opinion that it was not practicable in diphtheria; but experience has shown me that it is quite as applicable to those cases of diphtheria to which I have just alluded, as it is to cases of croup.

I have elsewhere published the result of fifteen cases with five recoveries; I now report other six operations, with two recoveries. Such operations require a large number of cases to make the statistics of any avail, but I have always held that this is not an operation to be affected by figures. The question is, "Can tracheotomy save the lives of any children after medical treatment has proved unavailing?" That it has done so is manifest, and the only other point to which I desire to draw the attention of the profession is, to have recourse to the surgical means somewhat earlier in the progress of the case than has hitherto been done. When remedial measures have failed, and when the disease is still extending, then the surgeon should interfere before the strength has been reduced by the ineffectual struggles of the patient to obtain air through the obstructed air-passage. The following cases are illustrations of the results of tracheotomy in diphtheria:—

Case XVI.—On the 1st February, 1864, Dr. Chalmers requested me to visit, with him, the child of Mr. ——, a little girl, aged 5½ years. She had been ailing about a week, but Dr.

Chalmers had not been called till four days after the onset of the disease, when he found her suffering from diphtheria. Mustard was applied to the throat and back, and ipecacuan wine administered. The disease, however, continued to progress, and on the day named I found her in great distress from obstructed respiration. The exudation had evidently extended into the larynx. I at once performed tracheotomy, and gave her instant relief. She bore the tube very well, and rested well at night. Next day she took beef tea and milk, and was much better. She continued to improve for four days, when, as the tube seemed to give her some annoyance, I removed it, and left her breathing quietly. During the night, however, a severe fit of choking came on, and she had difficulty in breathing, for a considerable time. On the fifth day the respiration became more obstructed, and she was wearied out, and died at mid-day.

Case XVII.—T. C., aged 6 years, was seized with symptoms of diphtheria on the 7th of February, 1864. Patches of white exudation were visible on the tonsils and fauces. He was treated, under Dr. Drummond, by inhalation of steam, application of hot fomentations, and by the administration of chlorate of potash. On the 11th, the disease had extended to the larynx, and the patient was then placed under my care. He was removed to a private room in the Infirmary, in order that he might be under the immediate care of my assistant and dressers. On admission, at 2 p.m., the respiration was hurried, difficult, and stridulous; the face flushed; pulse 120, full. As his strength was good I ordered an emetic of ipecacuanha, to be followed by repeated doses of iodide of potassium. At 6 p.m. the breathing was more impeded, but the pulse was still good. The emetic was repeated. At 9 p.m., the dyspnœa was so urgent, and the spasmodic stridor so much increased, that the face became almost livid; and in a paroxysm the patient sprang out of bed and appeared on the point of suffocation. I at once decided on performing tracheotomy. The operation was accomplished with great difficulty, owing to struggles and the occurrence of several spasms. The neck was very vascular, and there was considerable hæmorrhage from a distended skin, which I secured before opening the trachea. The tube, however, was safely introduced, when the struggles at once ceased, and the breathing became tranquil. A large quantity of tough exudation was coughed up, and pulled out of the wound, after which the air-passage seemed completely clear of obstruction.

On the 12th and 13th he was remarkably well, but on the 14th he was feverish, with a white tongue and rapid pulse. On the 15th his skin was covered with a bright eruption of scarlatina; but he was more comfortable since the eruption appeared. On the 17th he was progressing favourably; and as all uneasiness

connected with the tube had gone off, the latter was removed without any bad consequences. On the 25th the wound was nearly closed, and the patient could speak and whistle. Next day he was allowed to go into the ward; but he caught cold, and general anasarca made its appearance. He was again confined to bed, and kept warm with plenty of blankets; and the heat of the room was raised. He got occasional doses of castor oil; and in a few days the anasarca began to disappear. On the 19th of March he was dismissed cured.

This case is peculiarly interesting from the occurrence of scarlatina and then anasarca to complicate the operation, and would lead one to believe that the existence of scarlatina, at least in a mild form, ought not to be considered a contra-indication to tracheotomy, if it should supervene upon an attack of croup or diphtheria.

Case XVIII.—W. R., aged 3 years, began to show signs of being ill for some days before medical assistance was called for. On the 18th March, 1864, Dr. Cassells was asked to attend, when he found the whole back part of the mouth covered with diphtheritic exudation. The treatment consisted in supporting the strength, and the use of chlorate of potash and dilute mineral acids. The patient continued to improve a little each day till the 22nd, when the larynx was evidently invaded. Treatment was continued for twenty-four hours longer; but on the evening of the 23rd the obstruction to respiration became so great that I was sent for. I found marked evidence of considerable laryngeal and tracheal effusion. The stridor was continuous, and the agony great; the face was cold, and the lips bluish. I at once performed tracheotomy, with the most marked relief to all the symptoms. The tube was introduced; and, as usual in these cases, the child fell asleep in half an hour after the operation. Every thing went on satisfactorily; so that on the evening of the 27th I removed the tube, and left him breathing quietly through the wound and mouth. Next morning he was quite well and lively, was playing about the bed, and took breakfast with great relish. About mid-day while running about the room, he said he felt he was choking, and became very pale. Dr. Cassells, who happened to be in the vicinity, was called at once, and on his arrival, found the child on the point of death. Indeed he died a minute afterwards. The wound seemed free from obstruction, and the exudation had altogether disappeared from the fauces. The cause of death was not ascertained.

Case XIX.—Esther W., aged 3½ years, complained of sore throat on the 24th March. Dr. Greenlees, who was called, at once perceived it was a case of diphtheria, and treated it accordingly. The stages of the disease were so rapid, that by midnight the

larynx was affected, and, suffocation seeming imminent, I was sent for. By the time I arrived it was plain that there must be no delay, as the poor child was suffering severely. The pulse was not so strong as could be desired, and the face was cold and puffy; still it was so early in the disease I did not hesitate to perform tracheotomy. The relief was instant, and next morning the child was very well. There was at first some difficulty in getting her to take nourishment, this, however, was soon overcome, and she took milk, beef tea, and wine, with relish. Matters continued to go on nicely for five or six days, but, on the morning of the 31st, the breathing became more laboured, and the face got flushed—signs of fresh obstruction further down than the opening. I had retained the tube in the tracheal opening the whole time, fearing what had now occurred. By the evening the symptoms became more distressing; and the little patient died, worn out, on the seventh day after the operation.

Case XX.—On the 1st April, 1864, I was called to see E. T., aged two years. He had been attended by Dr. M'Millan since the 27th March. Iodide of potassium, in frequently repeated doses, had been prescribed, also emetics of ipecacuan. The symptoms amended for a few days, but on the 1st April it was evident that the exudation had extended into the larynx. When I saw the child it seemed to be suffering chiefly from the dyspnœa, but in the intervals of the paroxysms it was quiet, and rather weak. The duration of the disease was rather unfavourable to its strength, but, judging from the vigour with which he rose up and swallowed milk and other fluids, I determined to operate. The struggles of the boy during the operative procedure rendered it rather tedious, but nothing could be more gratifying to myself, as well as to the parents, than the perfect quiet which followed the introduction of the tube. The little patient got on nicely for four days; but on the morning of the fifth, it was evident that the symptoms were returning. Unable to stand against a renewal of the disease after the previous exhaustion, he gradually sunk, and died on the fifth day after the operation.

Case XXI.—On the 19th July, 1864, Dr. Renfrew requested my opinion in the case of A. M'D., aged 2½ years, who had been suffering from diphtheria for a week previously. The child had been ailing for two or three days before Dr. Renfrew was called in. On the 17th it was evidently a case of well-marked diphtheria, but the exudation seemed at first confined to the fauces. Notwithstanding every care, and as faithful an application of remedies as could be obtained in so young a child, the disease continued to advance, and on the morning of the 19th the breathing became obstructed. When I saw the little girl she was suffering very markedly from laryngeal obstruction, the exudation having plainly

extended into the air-passages. The parents were informed of the imminency of the danger, and at once consented to the performance of the operation. As usual the lodgment of the tube in the trachea was the occasion of instant relief, and, before I left the house, the child was asleep, breathing quietly. Her progress to cure was uninterrupted. She rapidly got stronger, and could sit up and take food. I left the tube in till the seventh day, when I removed it without any trouble to the child. She made a rapid and perfect recovery.

I have performed tracheotomy twenty-one times, with the result of seven recoveries; and if it be remembered that the patients were all on the point of death from suffocation, it cannot but be regarded as an encouragement to the surgeon to endeavour to save life by operative interference in the later stages of this most fatal disease.