HISTORY OF A CASE
IN WHICH THE
OPERATION OF TRACHEOTOMY
WAS PERFORMED;
WITH
OBSERVATIONS.

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COMMUNICATED BY HIS FATHER.

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HARRIET SMYTH, a robust girl aged six years, the daughter of a farmer residing near Eye in Suffolk, whilst sitting upon some straw in the yard, was suddenly thrown backwards by a pig concealed beneath the heap. She was eating cherries at the moment, and was immediately seized with a violent fit of choking, and every symptom of impending suffocation. This condition lasted an hour, and then she fell asleep. The accident occurred about four o'clock in the afternoon of Friday, July 19th. She was seen an hour afterwards by Mr. Vincent, surgeon, of Rickinghall. Being awakened by slight cough, some emetic and purgative medicine was given, but no

stone was detected in the matters rejected from the stomach and bowels.

The child slept well during the ensuing night, and in the absence of cough, Mr. Vincent concluded that the stone or offending body must have been swallowed.

20th.—Some spasmodic pain in the chest, increased towards midnight.

21st.—At seven in the morning, the breathing was very difficult, and other symptoms of acute inflammation being present, twelve ounces of blood were drawn from the arm, and a dose of calomel and jalap administered. After the operation of the medicine, small doses of calomel and opium were given at intervals.

22nd, eight A.M.—Patient relieved: towards four P.M. she had a violent convulsive seizure with cough, small quick pulse, a livid surface, suffused eye, and every sign of threatened suffocation. It was stated in evidence of the violence of the spasm, that the stools and urine “flew” from the child during these attacks. I witnessed the peculiar manner in which the patient grasped and pulled her throat, crying in a half whisper, “Take it out!” “Take it away!” The spasm subsided after two hours’ continuance, and at eight P.M. she was so tranquil as again to impress Mr. Vincent with the belief that no stone could have passed into the trachea.

23rd.—At noon a similar seizure occurred. There was violent jactitation, and abundant flow of frothy mucus from the mouth. When this fit subsided, a

probang was introduced, and subsequently the child swallowed with greater facility. Cough frequent and sonorous.

The patient was carried to Bury about this time, and seen by Dr. Probert, an eminent physician, and Mr. Smith, surgeon, of the same town. Dr. P. strongly suspected the existence of a foreign body, but felt anxious to witness the spasm before he gave his sanction to an operation.

25th.—Dr. P. and Mr. S. were called to see the spasm at six A.M.: it subsided, however, before their arrival. The child then resorted to its amusements, there being no disorder except occasional cough.

On the 26th the patient was carried home, and remained well until the 1st of August, when the spasmodic attack returned with great violence, lasting two hours. The seizure now recurred daily, varying as to degree and duration.

I first visited the child in company with Mr. Vincent on the evening of Wednesday the 7th instant. She had just recovered from a severe fit of cough, and was sleeping uneasily. When roused, her breathing was laboured and stridulous, pulse small and hurried, countenance anxious and suffused: there were frequent paroxysms of croupy cough, attended by great restlessness, and that peculiar grasping of the throat before noticed. The temperature was sustained. The attacks were now more frequent, and the consequent exhaustion more marked.

No time was lost in preparing for the operation.

I felt satisfied that the foreign body was still in the air-tube ; uncertain as to its immediate escape, I hoped at all events to relieve the respiration, nor was I disappointed in this result.

About midnight, the child being placed supine upon a firm table, and the head and shoulders slightly raised, I made a free incision in the median line. In dividing the subjacent fascia, a large vein was wounded, and tied. The incessant motion of the tube, and its great relative depth in so young a child, retarded our progress ; but I succeeded in dividing vertically three rings of the trachea, together with the connecting membrane about midway between the isthmus of the thyroid gland and top of the sternum. The patient was now placed in the sitting posture, and by inclining the head forwards an oval aperture was produced, of sufficient extent to have permitted the escape of the stone, had it been free to move in the canal.

The effect of this operation was immediate and decisive upon the breathing, which became tranquil ; the cough also ceased. After a brief repose, I determined, before quitting the house, to ascertain whether the larynx was obstructed. For this purpose I introduced a piece of hollow bougie through the wound into the trachea : this however proved unmanageable, from its too great flexibility ; a silver catheter was substituted for the bougie, and pushed upwards fairly through the glottis, which I ascertained by passing my fore finger over the base of

the tongue, so as to touch the apex of the instrument in that situation.

The child was now placed in bed, and obtained some refreshing sleep, breathing wholly by the new opening, through which a frothy fluid passed in quantity.

August 12th.—The cough had returned, but was not so severe as formerly.

13th.—Calomel, which had been given in grain doses every six hours since the operation, was now discontinued, the gums being sore.

Towards the close of the following month, the wound which had been tented was healed. In the beginning of October the child coughed incessantly, and had night sweats, with loss of strength and appetite.

Oct. 10th.—She was again seen by Dr. Probert, who feared the lungs were diseased, and ordered sarsaparilla and a nutritious diet. Mr. Vincent still insisted that the presence of the stone was the source of the irritation. He states that he founded this opinion chiefly upon the choking character of the cough.

Oct. 23rd.—At 6 P.M. his suspicion was verified by the ejection of the stone, together with a tablespoonful of pus, during a violent paroxysm of cough.

The child had, in fact, expectorated pus in small quantities for many days before this happy accident.

From this time the cough never returned, and the general health was soon re-established.

The Transactions of the Society contain several papers, wherein the efficacy of bronchotomy has been much insisted upon. Experience has shown that the operation is not in itself hazardous, and that success turns mainly upon its prompt performance. This is true no less of accidental obstructions, than of such as occur during the progress of inflammation.

There is, however, a marked difference between the disorder arising from the presence of a foreign body in the air-tube and that which results from inflammation simply. In the first case the symptoms are paroxysmal or intermittent, in the second they have no remission, and, it may be added, are therefore more rapidly destructive. Hence there is opportunity for doubt and deliberation in the one case, whilst in the other the surgeon has no alternative.

It appears that both in the early and later stages of the above history a very competent judge remained sceptical, if not incredulous, as to the presence of the foreign body. There were not wanting symptoms proper to other forms of disease, and at no time did there exist any clue to the spot where the substance actually lay. It was indeed stated more than once in the present case, and it has been affirmed in others, that the body might be distinctly heard moving with the air up and down the tube, making a flipping or rattling noise (likened on one occasion to the sound of a stone shaken violently in an earthen jar or mug). Without seeking to deny

the fact, I will merely observe that such sounds are often delusive,* and in the foregoing case all the evidence weighs against the belief that the substance was free to move in the trachea.

In section of the air-tube, the escape of the foreign body appears to me to be a calculation secondary in importance to that of affording a prompt and effectual relief to the process of respiration. It is evident that the powers of life depend on this issue, and that these may be secured for a time by an artificial opening, although the source of irritation be still present.

In this point of view the operation was most beneficial ; a vast quantity of frothy fluid was got rid of, the pulmonic and cerebral circulation was at once relieved, and the patient slept, breathing wholly by the new aperture. Time was thus afforded to make a second appeal to the powers of nature, and the part was relieved finally by a different process.

There are some curious facts on record in reference to the length of time for which foreign substances may reside in the air-tube ; the manner of their dislodgment also varies.

In the 5th volume of the Memoirs of the French Academy are two remarkable cases cited by M. de la

* In the case of a boy, narrated by Dr. Farre in the 3rd volume of the "Transactions," who died of *true croup* forty-eight hours after the attack, the mother states "that a noise attended every respiration, which she expressed by the monosyllables 'Flip, Flap.' It seemed to her that something was lifted up every time he breathed."

Martinière. In the first a tradesman accidentally swallowed a louis d'or on the morning of the 5th October 1765. The man survived until the 3rd of February 1771. The right lung was destroyed by suppuration, the left remaining sound. The coin was found placed perpendicularly in the right bronchus, close to the bifurcation of the trachea. The expectoration in this instance is stated to have been insupportably fetid.

M. Louis saw this man in 1769, and proposed tracheotomy, which was overruled. The coin remained unaltered in figure and colour, and on being placed in the rima glottidis after death, passed through it with ease.

In a second case a girl in her ninth year swallowed the rump bone of a pigeon, which unhappily fell into the trachea. She was the subject of hæmoptysis and a variety of pulmonary symptoms, but retained her embonpoint up to the age of 24 years, when she began to decline rapidly. In her 26th year she rejected the substance during a violent fit of coughing. She survived this occurrence eighteen months, dying eventually exhausted by profuse purulent expectoration.

In the first of these cases the mechanical impediment was so complete as to defy all the efforts of the natural surgeon, instituted in either instance at the cost of the patient's existence. The release of the foreign substance in the second case was rather incidental to the progress of disease than due to any circumscribed local action. At this period of our

science it is impossible not to feel that on both occasions the patient might have been rescued by the timely performance of an operation.

Where the body is loosened and rejected spontaneously, one would conclude *à priori*, that this could only be accomplished by means of an abscess. Such however is not always the fact, as is proved by the following case, for which I am indebted to Dr. Paris.

“I was suddenly summoned to visit Miss C. P., a young lady about twelve years of age, under the following circumstances: I was informed, that having put a small cowrie shell in her mouth she had been seized with a violent choking fit, in consequence, as was supposed, of its having gone the wrong way in the act of swallowing it. The spasmodic paroxysm was described as most alarming, and continued for several seconds, which induced her father to thrust his finger with considerable force down her throat, which afforded immediate relief, and therefore convinced him that he had thrust the foreign body into the oesophagus, and that it had passed into the stomach. I saw her about half an hour after the occurrence: she was then breathing naturally, and declared she did not feel the least inconvenience from what had happened. In the course of four or five days a slight cough came on, but it was not characterised by any symptom which could lead to the suspicion of its having been provoked by the presence of any foreign body in the air-passages, and this opinion was confirmed by its speedily yielding to ordinary treatment.

“About ten days after this I was again sent for, in consequence of the appearance of an eruption over the body, very much resembling that of scarlatina accompanied with slight fever ; but there did not remain the least vestige of cough or bronchial irritation, and the rash was speedily cured by some saline purgatives. As far as I remember, an interval of a fortnight occurred before I again visited her, when I found a return of the cough, much more violent than usual and accompanied with slight hæmoptysis. This, however, again subsided, and she remained for many months in perfect health ; her breathing was never disturbed, she indulged in her usual active habits and daily exercise, and declared that she was perfectly well. I should state that the pulse was never accelerated, and I was induced to refer the cough to some local irritation, occasioned by the violence with which her father had thrust down the shell. It was about twelve months after the accident that the following event occurred, which clears up the mystery in which this curious case had been involved.

“She had danced at a ball during the whole evening, and at its conclusion, in the act of moving briskly, she was suddenly attacked by a violent spasmodic cough which threatened suffocation, when by a sudden and convulsive expiration, a substance was ejected from her mouth with such force as to be carried to a considerable distance. This proved to be the remnant of the shell, the animal principle of

which had disappeared, and its earthy matter alone remained."

The following case is described at length by Mr. Bullock, in the eighteenth volume of the Medical Gazette. I refer to it in this place as illustrative of another series of symptoms, having a more rapidly fatal termination in the very young subject. I think it not improbable that my patient would have been destroyed in the same manner, but for the timely succour of the operation.

May 21st, 1836.—A little girl swallowed by accident a small pebble, whereupon she was seized with violent cough, became black in the face, and was nearly suffocated. She rallied, and some days afterwards complained of soreness and nausea, but swallowed without pain or difficulty. Emetics produced no effect.

May 25th.—She was very carefully examined, yet there did not appear any evidence of the presence of the stone, either in the œsophagus or trachea.

May 27th.—There has been cough occurring in paroxysms with hoarseness and mucous expectoration; also a sharp pulse and hot skin. These symptoms were speedily relieved by calomel and blisters.

June 20th.—She is reported to be quite well.

July 6th.—She was attacked with pneumonia, for which she was very actively treated without success. The disease proved fatal on the twelfth day.

Now it is stated that from June the 20th until July the 18th, the date of her decease, there was no return of the convulsive cough, nor any uneasiness about the throat.

On laying open the windpipe, a quartz pebble was found lying partly within the cricoid cartilage and partly in the trachea: it was of the size of a large horse bean, and retained in its situation by organized lymph. The mucous membrane beneath the lymph was ulcerated, and the calibre of the tube so nearly obstructed, as to render the passage of a common probe difficult. The mucous membrane throughout was thickened and congested. The lungs, especially the right, presented the conditions of engorgement, hepatization, and purulent infiltration. The tubes were loaded with muco-purulent fluid. A pint of turbid serum was found in the right cavity of the pleura. The bronchial glands were enlarged and suppurating.

In conclusion, it would appear that nature is capable of procuring the spontaneous liberation of a foreign body in some cases, whilst in others an irritation only is induced which, if prolonged, is fatal alike to the lungs and life of the patient. In the latter class of cases the difficulty of ascertaining the exact locality of the foreign body, the age of the patient at the time of the accident, and the particular state of the habit, are all questions which bear upon an inquiry having reference to the performance of an operation. In childhood, for exam-

ple, the progress of incidental disorder is more rapid than during the adult period. In Mr. Bullock's case, every important local symptom had ceased to exist for a whole month preceding the day of the child's death: the breathing was not materially affected during that interval, notwithstanding the narrowness of the air-passage. Again, reference was made to the cricoid cartilage in M. Louis's case, but the coin was found after death lodged in the right bronchus. Sometimes the presence of a foreign body may be only matter of suspicion; or, on the other hand, there may be no doubt as to its existence, although its exact position may be very obscure. In either case, a due estimate of the powers of life and special attention to the degree of dyspnoea are essential to the formation of a sound opinion.

From the foregoing narrative may be gathered the expediency of performing tracheotomy in doubtful cases. The risk incurred by early operation is trivial as compared on the one hand with the speedy relief so obtained, and on the other with the fatal consequences of neglecting it altogether.

I have only further to bear testimony to the inexpediency of putting any tube into the trachea after operation, whether elastic or metallic; a sufficient opening may and ought always to be provided by the knife. Where a foreign body is present, such procedure induces excessive spasm, and can only operate in aggravation of the mischief.