CASE
OF
ŒSOPHAGOTOMY,
WITH REMARKS,

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READ MARCH 12TH, 1853.

INCISION of the œsophagus for the removal of a foreign body is an operation which has been rarely performed. It is stated to have been twice executed in France about a century ago, and once again lately, but I can find no record of its having been done in England. The three cases which occurred on the continent have not been related by the operators, but are mentioned by others who did not possess the advantage of witnessing them; the references are brief and incomplete.

The following details of a case in which recently I had occasion to perform this operation may therefore not be without interest, and I venture to add a few remarks on what appear to me to be the chief points of importance as regards œsophagotomy.

On the afternoon of the 22nd of December, I was

sent for to the Middlesex Hospital, to see a boy two years and a quarter old, who had been brought as an out patient, and was stated to have a piece of bone in his throat which could not be extracted. His father informed me that six days previously, the child had "swallowed" a portion of the thick end of a rib of mutton, and that he had since been unable to get any thing down but fluids,—in other respects he seemed to suffer little,—attempts had been made to remove the bone.

On introducing the finger to the utmost extent, deep below the entrance of the glottis and on the right side, a piece of bone could just be touched projecting upwards. I endeavoured to unfix it, but it was too low. Gullet forceps and Weiss's urethra forceps were tried, but could not be applied so as to seize it. A hook attached to a piece of whalebone, and another of strong wire were ineffectually endeavoured to be passed beyond it. An emetic was given which was followed by severe straining, (vomiting did not take place, probably from there being nothing in the stomach :) but the position of the bone was unaltered. Lastly, I applied gentle pressure with the tip of the finger on its point, but it did not undergo the least displacement.

Failed in my endeavours to remove the bone, I desired the child to be received into the hospital, that I might have the benefit of a consultation upon the expediency of extracting it by incision of the œso-

phagus, but the father declined leaving him. There were no urgent symptoms, and some hope was entertained that the bone might become loosened and be expelled upwards, or that it might gradually slip downwards. The usual means were adopted for preventing inflammation, and the father was enjoined to bring the child immediately to the hospital, should any distressing symptom supervene.

For a fortnight, no additional suffering was experienced, but emaciation took place; and on the child being brought to the hospital on the 16th of January, I felt the bone in the same situation as before, and again attempted its extraction. After some delay, caused by the irregular attendance of the parents, I succeeded in obtaining a consultation, and my colleagues having failed in their endeavours to remove the bone, acceded to the propriety of the operation of œsophagotomy, which was performed on the 21st of January, almost four weeks after the accident. For the last few days, the child's breathing had become occasionally oppressed, and more especially so at night. The bone formed no prominence and could not be discovered externally, nor could either of the gentlemen above alluded to, reach it with the finger. I could, however, still touch it, and as it seemed to be fixed at the termination of the pharynx or the commencement of the œsophagus, I determined to cut into the tube immediately behind the lower part of the cricoid cartilage.

The child being laid on its back upon a pillow, and the head turned a little to the left, an incision was made on the right side of the neck in the sulcus between the sterno-mastoid muscle on the outer, and the larynx and trachea on the inner side. It was commenced opposite to the upper part of the thyroid cartilage, and carried downwards about an inch and three quarters in length. In the subcutaneous cellular substance two vessels which bled were tied. Beneath the fascia, the omo-hyodeus muscle presented itself, running diagonally across the wound; it was readily pulled to the inner side, and the division of the cellular substance continued; the knife being directed inwards upon the edge of the larynx and trachea, (so as to avoid the carotid artery,) until the outer part of the sterno-thyroid muscle was exposed. The further separation of the parts was effected by the handle of the scalpel and the fingers. Two vessels which resisted the traction on the cellular substance, and ran laterally into the right lobe of the thyroid gland, which now started into view, had a ligature put round them by way of precaution. By means of a blunt hook, the gland was drawn inwards, and the larynx turned a little round on its axis, but the finger applied behind the lower part of this did not distinguish the bone. A male silver catheter was now introduced by the mouth, and its point made to project through the wound, carrying the dilateable gullet upon it. Into this, a small incision was made, and a pair of polypus forceps being inserted, the blades were expand-

ed, and the wound easily dilated in a perpendicular direction, so as to admit the finger. With this, the bone was felt about half an inch lower down than the aperture, and the forceps being re-inserted it was laid hold of, disengaged, and extracted; and proved to be the spinous process of one of the lower dorsal vertebræ of a sheep.

The child bore the operation well, little blood was lost, and no difficulty was experienced from the motions of the larynx, which I had in some measure apprehended from the disturbance of respiration the preceding night, and some action of the *alæ nasi* observed immediately previous to the operation. It was, at first, contemplated to unite the wound by the first intention, but considering the little probability of this taking place, and anticipating a necessity which subsequently occurred, this was abandoned.

For some hours after the operation, the child's breathing was somewhat interrupted by mucus collecting in the throat, about the entrance of the glottis; but this being expelled, partly by the mouth, and partly by the wound, he had a good night. He had been fed by means of an elastic gum catheter passed through the mouth; but the following morning some difficulty occurred in carrying it down, and as it was judged imprudent to urge it, lest ulceration of

the œsophagus had taken place, and pressure might be injuriously applied, it was introduced through the wound, which was easily accomplished, and was the method adhered to. This day was passed tranquilly; but in the course of the second night, the child's breathing was laborious, and on the morning of the succeeding day, was accompanied by wheezing: he was at the same time severely purged. In the afternoon, the difficulty of breathing increased, the countenance became anxious and slightly livid, and death occurred at nine p. m., fifty-six hours subsequent to the operation.

On examination of the body, slight redness was perceived at the under part of the pharynx. There were two points of superficial ulceration, or rather abrasion, in the upper part and on opposite sides of the œsophagus. The opening made in the gullet by the operation was one half in the pharynx, and the other in the œsophagus, or rather, the under half was below the lower margin of the cricoid cartilage. There was no appearance of suppuration between the pharynx and œsophagus, and the anterior surface of the cervical vertebræ. The entrance to the glottis and the cavity of the larynx presented their natural appearance, as well as the upper part of the trachea; but the under part of this tube and the bronchi were inflamed. The right lung, with the exception of its upper part, was hepatized, and portions of it thrown into water, sunk. Sections of it presented a mottled gray appearance and granulated texture, with here

and there a drop of yellow matter from the extremity of the bronchial tubes. In a less degree and more partially, hepatization was observed in the left lung.

The occasional necessity for the operation of œsophagotomy has been recognized by most systematic writers on surgery, and they have adduced certain circumstances as conditions justifying its performance. They have stated that when a foreign body cannot be extracted or conveyed into the stomach—when it impedes deglutition, and by pressure on the trachea threatens suffocation,—*if it projects externally*, the operation of œsophagotomy ought to be performed. Now in the case which has been related, deglutition was *not* totally interrupted; there was *no* apprehension of suffocation from pressure on the trachea; the body did *not* project externally, and yet the operation was requisite.

That extraneous substances have occasionally remained for some time in the œsophagus, as in other mucous canals, the trachea, bronchi, and urethra, without producing threatening symptoms or immediate injury, and have afterwards been expelled or made their way out, is well known; but experience has shown that fatal consequences, from ulceration of the larynx, trachea, and carotid artery, (all of which have taken place,) may likewise ensue. The issue of the present case proves that an additional evil is

to be dreaded from the detention of a foreign body in the œsophagus, for that the diseased state of the lungs was the cause of its unfavourable termination cannot, I think, be doubted, and it seems equally certain that this had commenced previous to the performance of the operation, excited in all probability by the irritation consequent on the presence of the bone so close upon the trachea and larynx. Had this been earlier removed by incision, the result would, perhaps, have been different, for neither by the operation itself, or in its consequences as regards the parts wounded by it, was there any thing to account for the child's death. The rule of practice then ought to be, when a solid substance, though only of moderate size and irregular shape, has become fixed at the commencement of the œsophagus, or low in the pharynx, and has resisted a fair trial for its extraction or displacement, that its removal should at once be effected by incision, although no urgent symptoms may be present. I insist the more upon this point, because I have reason to believe that the operation has been in several instances omitted, when it ought to have been performed, chiefly from its supposed danger and difficulty, but also from a reliance on the powers of nature. I have particularized the low situation of the substance, as a reason against unnecessary delay, because great difficulty is experienced in seizing it when so placed, and the attempts will, I believe, usually fail.

By most writers, œsophagotomy has been re-

presented as only warranted when the foreign body projects externally, which they seem to consider requisite as a clear indication of its presence, and as a guide for the division of the soft parts. This projection *may* facilitate the operation, but is *not* essential to its safe performance. As long as we are certain of the presence of the extraneous substance, the operation may and ought to be undertaken, even though it not only does *not* project, but cannot be felt externally. If the projection of the œsophagus is deemed advisable for its easier incision, the means are possessed of producing this artificially.

In performing the operation, the situation of the external incision will, in some measure, depend upon that of the body to be removed, but as the pharynx, tapering gradually in its descent, terminates in the œsophagus, immediately under the larynx, it is here that a bulky substance is most apt to be detained. In reaching the œsophagus at this place, taking as a centre a spot corresponding to the level of the lower margin of the cricoid cartilage and the first ring of the trachea, the only parts of consequence whose injury is to be dreaded are the inferior thyroideal artery and recurrent nerve, (the superior thyroideal artery being too high to run any risk ;) but these will not be wounded, if the same plan is adopted as that in the case I have related, of separating the deeper-seated parts by the handle of the scalpel and the finger, instead of by the knife. Here, they were not seen during the operation, in fact, they were not within

the sphere of the wound, for on examining the parts after death, the artery and nerve in question were found below, and on the inner side of it. Still I am satisfied by trials on the dead body, that the artery is likely to be divided, if the operation is completed by the knife, and hence, the expediency of proceeding deliberately, cutting but little at a time, sponging carefully, so as to see and avoid the artery, if possible, or to tie it immediately when cut. The recurrent nerve runs less risk, as it reaches the side of the trachea to which it is attached in its ascent, lower down. I do not allude to the carotid artery as being exposed to any peril. I think with Mr. Allan Burns, that "he must be wanton indeed in the use of his knife, who hurts this vessel."

The only real difficulty in this operation is in the last stage of it when the foreign substance does not project, and the œsophagus is about to be opened. If this canal be left empty and flaccid, this is done neither with ease or certainty; but by the introduction of a catheter through the mouth, when the level of the carotid artery has been reached, the soft and dilatable gullet is readily raised upon its point through the external wound, and above the vessels and nerves in its vicinity, so as to be easily and safely opened. Instead of the catheter, Weiss's urethra forceps may be employed, or the instrument invented by Vacca. A "*sonde à flèche*" or a "*dard*" has been recommended by some French surgeons, with which the puncture is to be made from within outwards,

and then upon the stilette which is provided with a groove like a director, the aperture is to be enlarged: this proceeding is more complex, and attended with no advantage. In making the incision into the œsophagus, it is to be remembered, that the recurrent nerve runs in the angle between this tube and the trachea, and therefore, the incision is to be made a little behind this angle. In dilating the aperture in the œsophagus with forceps, I adopted a suggestion of Sir Charles Bell's: had an artery been divided in this situation, the application of a ligature might have been attended with difficulty.

It has been advised, that after this operation, the patient should be nourished solely by means of clysters, and as a certain mode of avoiding disturbance of the parts, it may be worthy of adoption. For the latter reason, and to prevent the effusion of alimentary matters into the cellular substance around the wound in the œsophagus, an elastic gum tube may be introduced into the stomach through the mouth or nose, and left there for several days, or, if this cannot be effected, considering the little probability there is of uniting by the first intention, the tube may be introduced through the wound for the first two days; after this, or even before, the surface of the wound is so agglutinated by effusion of lymph, that no danger of infiltration of the fluid swallowed need be apprehended.

Although unsuccessful in its result, I have not

hesitated to relate the foregoing case, from my desire to remove an impression generally prevalent, that the operation of œsophagotomy is one which is barely justifiable, an impression originating rather in a vague notion of its difficulty and danger, than from an accurate estimate of these. The simple fact of its performance on a child without injury to any important vessel or nerve, will of itself show that although requiring precise anatomical knowledge, it is not an operation of so formidable a character, and may lead to its more ready adoption in cases where it offers the only chance of relief.

New Burlington Street,
Feb. 26th, 1833.

Note.—Since this paper was read to the Society in March there has appeared in the *Journal Universelle et Hebdomadaire* of April 20th, a *Memoir* on œsophagotomy, by M. Begin, containing an account of two cases, (one of them that alluded to by me, as having lately occurred in France,) in which this operation had been performed with success. In both instances the patients were adults, and a piece of bone had stuck in the gullet. The incisions were made on the left side of the neck, in one case (attended with abscess) eleven days after the accident, in the other eight.