Case of aneurism of the aorta, with laryngeal spasm, in which tracheotomy was performed : with remarks / [J. Warburton Begbie].

VII.

CASE OF ANEURYSM OF THE AORTA,

WITH LARYNGEAL SPASM,

IN WHICH TRACHEOTOMY WAS PERFORMED,

WITH REMARKS.

(*Read to the Medico-Chirurgical Society of Edinburgh, November 18th, 1857.*)

In June, 1851, on the occasion of Dr. William Gairdner bringing under the notice of the Medico-Chirurgical Society a case of aortic aneurysm simulating laryngeal disease, there occurred an interesting discussion, bearing chiefly on the question of the propriety of performing tracheotomy in certain cases of thoracic aneurysm, as a means of affording temporary relief. Since the publication of the views then expressed, more particularly by Professor Miller and Dr. Gairdner,[1] Dr. Stokes' original and complete work on 'Diseases of the Heart and the Aorta' has appeared, where, at page 596, he expressly states, that in his opinion there may be circumstances in which the justifiableness of the operation does not admit of doubt. At the same place, Dr. Stokes mentions, however, that he is unable to give the results of any experience of his own on the subject. Dr. Walshe, in his work, makes a nearly similar remark.[2] A case of aortic aneurysm, presenting several features of interest, having recently been under my care in the Royal Infirmary, in

[1] See 'Monthly Journal of Medical Science' for 1851.

[2] 'Diseases of the Lungs and Heart,' p. 774.

which, after much anxious deliberation, I considered it necessary to authorise the performance of tracheotomy, I am anxious now to submit the details connected with it to the judgment of the members of the Society.

W. C—, æt. 41, a shoemaker, of very irregular and intemperate habits, was admitted on the evening of September 4th, 1857. Partly from himself, but chiefly from a near relative, who subsequently visited him in the hospital, we received the following details as to his previous history. He had enjoyed good health till within the last twelve months. During that period has been affected with cough, and uneasiness in the breast, though not with actual pain. For three months has felt his strength falling off; and his friends have noticed his appearance during the same time become materially altered. Three weeks ago he went to Fifeshire, in the hopes of being benefited by a change of air. In Kirkcaldy he consulted a medical man, who advised him to return home. On the day of his admission to the Infirmary, he applied at the New Town Dispensary, where, on account of the peculiarity of his voice, the medical officer on duty, without further examination (as he appeared to be much exhausted), recommended him for admission to the hospital as a case of laryngeal ulceration. The patient was first seen, and carefully examined by me, on Monday, September 7th, at noon.

Previous History.

He is a slight man, but without any appearance of emaciation. Face pallid; countenance remarkably anxious. Is now suffering greatly from dyspnœa, amounting to orthopnœa; respirations are very frequent; expiration certainly prolonged; and during the rapidly recurring and very severe paroxysmal exacerbations of the dyspnœa, from which he has suffered since his entrance to the hospital, it is also accompanied by marked laryngeal stridor. Voice evidently considerably altered, being suppressed in character, and husky. Cough, which is also frequent, is short and imperfect; expectorates a very small quantity of viscid mucus; has never spat blood. The veins of the neck, especially on the right side, are considerably distended. The trachea in its lower third recedes, and is evidently subjected to pressure, being with difficulty moved by the fingers. Slight degree of fulness over upper sternum, and at the right sterno-clavicular articulation. Pulsation visible above the sternum, at root of neck, and very distinctly felt, especially to the right side. Fremitus perceptible over upper sternum and a little to the right. On percussion, there is impaired resonance—amounting over the sternum itself to decided dulness—from below the middle of the right clavicle to the left sterno-clavicular articulation. Over the sternum the dulness extends lower than in the sub-clavicular region, and is continuous with the cardiac dulness. Over the upper sternum, and at sternal extremity of right clavicle, there is a distinct prolonged systolic bruit, which is immediately followed by a heavy, almost metallic sound. The bruit is

Symptoms on Admission.

audible in the carotids, most distinctly in the right. Apex of heart beats at sixth left rib, and a little to the outside of the nipple—the impulse is considerable. Area of cardiac dulness is increased. Over the base of heart the normal cardiac first sound is partially heard, while the second is obscured by a distinct blowing murmur, which continues to be audible over the ventricle. Pulse small and frequent; equal in both radials. Pupils natural, and uniformly equal. Respiratory murmur much less pronounced than usual, but equal over both sides. On the previous day the patient had been bled to ten ounces, with considerable relief to the dyspnœa.

September 8th.—Diagnosis formed after the examination of yesterday, was, aneurysm of the arch, very probably involving the innominate, causing direct pressure on the lower portion of the trachea, so inducing a considerable share of the dyspnœa. From the frequent and severe paroxysmal exacerbations, I thought it likely that the recurrent, probably on the right side, was also involved in the pressure caused by the dilated vessel. The heart enlarged somewhat, and incompetence, to a certain extent, of the aortic valves.

Diagnosis.

Having failed to perceive any degree of relief to the spasm by the exhibition of several remedies, including the inhalation of chloroform, before leaving the hospital this afternoon I instructed my able and attentive resident physician, Dr. Brydon, that, in the event of a very severe and apparently likely to prove fatal attack of dyspnœa supervening, the operation of tracheotomy should be performed. I communicated the nature of the operation to the poor patient, and explained to him exactly what we expected might be the result in the event of its being performed or otherwise; he entreated that it might be done. During the afternoon he became quiet, and slept for a short time; but a little before 6 p.m. was suddenly seized with most severe spasm, when a modification of the operation of tracheotomy was performed by Dr. Inglis, one of the resident surgeons. No unusual difficulty was encountered, and there was little hæmorrhage. The operation, according to my directions, was performed higher in the trachea than ordinarily, owing to the pressure exercised upon the passage below, and to avoid all possible risk of wounding the dilated vessel. The cricoid cartilage and two upper rings of the trachea were cut. The patient remained in the sitting posture during the operation, and upon its completion immediately manifested the greatest relief. All the resident physicians and surgeons witnessed the operation; and they agreed in stating that when seen before the operation the patient appeared to be "*in extremis*;" and, further, that a remarkable freedom from dyspnœa followed its performance. This improved condition continued. He was seen frequently during the evening; and at night there was no recurrence of the spasm, and his breathing appeared greatly relieved. He was able to lie with the head lower; and, what is most satisfactory

Tracheotomy.

to me, he indicated most clearly that he was sensible of the relief afforded by the operation. Most unfortunately, a little after 4 a.m., he was permitted to rise to stool, and returned unaided to bed. No increased embarrassment of the respiration occurred; but he appeared to sink quietly and rapidly. At half past four he was dead, having survived the operation about ten and a half hours.

The body was examined on September 11th; and from the careful and accurate report of Dr. Haldane I now give the following particulars:

Post-mortem Examination.

"The heart was enlarged; the left ventricle, in particular, being dilated and a little hypertrophied. The aortic valves were incompetent. The ascending aorta was slightly dilated (its internal circumference half an inch above the valves was 3·4 inches), thickened, and atheromatous. An aneurysm of a spherical form, as large as a good sized orange, arose from the arch of the aorta, just at the junction of the ascending and transverse portions. The anterior wall of the sac adhered to the back of the sternum, and to the external end of the right clavicle and first right rib. The aneurysm projected upwards into the root of the neck. The innominate artery arose from the upper wall of the sac near its posterior border; it was much shortened (not more than half an inch in length), its commencement being involved in the aneurysmal dilatation. The sac contained some fluid and loosely coagulated blood, as well as several concentric layers of decolorised fibrine. When the contents were removed it was found that anteriorly the sac had partially given way, and that the wall was here formed by a portion of the back of the sternum (which was very slightly eroded), and the right sterno-clavicular articulation; the joint, however, not being opened into. The opening by which the aneurysmal sac communicated with the aorta was rather larger than a crown piece. The remainder of the transverse portion of the arch of the aorta, as well as the first three inches of the descending aorta, were considerably but uniformly dilated; just beyond the origin of the left sub-clavian artery, the external circumference of the aorta was five inches. Both of the brachiocephalic veins crossed the sac, and were considerably stretched and compressed, the compression being greater on the left than on the right side. The trachea was pushed backwards, and was situated fully two and a half inches behind the top of the sternum; its lower part and the commencement of the right bronchus were somewhat compressed. The nerves on the right side were not at all interfered with; the left pneumogastric and recurrent were slightly stretched over the dilated aorta. On examining the larynx, the rima glottidis was found to be much diminished in size, owing to considerable œdema, so that the inferior vocal chords were almost in contact, and the ventricles of the larynx appeared nearly obliterated. There was no congestion of the mucous membrane of the larynx or trachea. No other important morbid appearances."

Only two points in this account of the dissection call for present remark:—1st. The freedom of the right recurrent and

pneumogastric. Judging from the position of the pulsation and dulness on percussion, I had thought that the nerves of the right side would be involved; they were, however, free, and those of the left, as is certainly more commonly the case, were stretched. 2nd. The œdema glottidis, if not altogether a new pathological condition in connection with aneurysms at the root of the neck, is certainly a most interesting circumstance. That it did not result from any inflammatory exudation is indeed most probable; and I quite agree with Dr. Haldane in ascribing its production to the compression of the veins at the root of the neck, by the aneurysmal dilatation.

The occurrence of the severe laryngeal spasm may now probably be best explained, partly by the affection of the rima, and partly by the stretching of the left recurrent.

This case, then, was one of laryngeal stridor, while, at the same time, the trachea was compressed by an aneurysm. In such circumstances, I need scarcely say, the performance of tracheotomy can of course be only expected to give a present relief.

Accepting the division of aortic aneurysms with reference to the performance of tracheotomy—or the modified operation of the present case—into three classes—1st, aneurysms directly compressing the air-passage; 2nd, aneurysms exciting laryngeal dyspnœa by pressure, or other interference with the recurrent nerves; 3rd, in which both conditions existed—the case I have detailed belonged to the third class; and, partaking as it did of the nature of both of the others, the question as to the performance of tracheotomy in it must be judged by a consideration of all the circumstances connected with it. Had the direct pressure on the trachea been more marked than it was, I am inclined to think that I should not have counselled operating; but while, no doubt, a certain amount of the dyspnœa resulted from it, I felt sure the greater part, paroxysmal in character, was the consequence of other interference. It was on that account the operation appeared to me expedient as a "*dernier ressort*;" and we have this consolation, that it changed into a quiet death what would otherwise, in all probability, have been attended by great suffering. The case was rendered still more unfavorable by the existence of enlargement and valvular disease of the heart; to which, indeed, I think the death is to

be directly ascribed. Unfavorable as it was, I fully believe that life was prolonged by the operation for the ten and a half hours.