

has hitherto attended such procedures, justly described by the late Mr. James of Exeter, as the "most formidable that could be conceived," it is not surprising that so few operations of the kind have been undertaken by practical surgeons. This want of success, however, should not lead us to abandon the hope that the operation may yet be the means of saving, as it has been of prolonging, life, and adding another to the long list of brilliant achievements that have been already accomplished by surgical art. May we not hope that ultimately the operation will succeed, when the illustrious Astley Cooper, who, as a surgeon, was as philosophical as he was bold, in speaking of the case, in which he, for the first time in the history of surgery, applied a ligature to the abdominal aorta, observed, "if a case were to offer itself similar to that I have told you of, I would immediately perform the operation again; and *my own conviction is, that it can be done, and done with success.*"

ART. II.—*On the Differential Diagnosis of Abdominal Aneurism.*^a

By WILLIAM MOORE, M.D., Univ. Dub.; "King's Professor of the Practice of Medicine;" Physician to Sir P. Dun's Hospital, &c.

OF late years great advances have been made in the diagnosis of thoracic aneurism and intra-thoracic tumours, through the combined application of physiology and pathology; and the same branches of science, when carefully applied to the diagnosis of abdominal aneurisms and tumours, have thrown increased light on their detection. I am happy to see among us in health and vigour a gentleman who was one, if not the first, to give us an accurate detailed account of the *symptoms* of abdominal aneurism. Some forty years ago Dr. Beatty pointed out the deep-seated pain in the back, with neuralgic exacerbation; the agonizing intestinal pain, with occasional complete intermissions and other symptoms, to which I shall allude more fully hereafter. These phenomena were present in a case under Dr. Beatty's care, which proved fatal on the 26th of February, 1829, and in which a large aneurism was found, covered by the crura of the diaphragm, which were expanded and tightly stretched over the sac. The aneurism lay on the three last dorsal vertebrae, the bodies of which it had deeply eroded.

^a Read before the Medical Society of the King and Queen's College of Physicians.

I shall now bring before you the details of two cases of abdominal aneurisms which exemplify symptoms and physical signs, some of which, as far as I am aware, have not been noticed heretofore in connexion with abdominal aneurism.

The first case* was that of James L., aged thirty-two, who was admitted into Sir P. Dun's Hospital on the 31st December, 1868, complaining of pain in the back. For many years this man had enjoyed excellent health, although occasionally he had led an intemperate life. For some years before his death he had earned his livelihood by assisting to coal the "Cunard" steamships; and as he was paid according to the amount of work done, he laboured very hard, often for a day and night continuously. About three years ago, whilst engaged in this laborious occupation, he fell into the hold of one of the ships, and shortly after, for the first time, he complained of pain in the back. He then came to Dublin and placed himself under Mr. Tufnell's care for about three months, when the epigastric pulsation, which he had accidentally observed a short time before, disappeared, and the pain across the back and loins abated. He resumed work, but was soon obliged to give it up, and again to seek Mr. Tufnell's advice. Feeling relieved he again returned to Liverpool, where he was afterwards treated by Dr. Waters.

On admission into Sir P. Dun's Hospital he looked pale and spanemic, still his general health was pretty good. He was of rather an excitable temperament. His sight, speech, and hearing were unimpaired, but his voice was low and subdued. The respiration was regular; he was neither jaundiced nor dropsical; his temperature was normal. The urine showed a healthy reaction and specific gravity, and contained no albumen. He made one complaint, viz., of a severe pain about the last dorsal vertebræ, which at times radiated under the floating ribs on the left side.

On examination there was a pulsation just visible in the epigastrium; in character eccentric, equable, and persistent in all positions; there was dulness on percussion, and a systolic bruit could be heard over the seat of the pulsation when the patient was in the recumbent, but which became inaudible when he assumed the upright position. The pulsation, in the iliac arteries was feeble, but equal. There was increased dulness over the region of the heart, and a peculiar diastolic "click" supplanted

* Reported by Mr. Richard W. White, Clinical Clerk.

the second sound. There was visible pulsation in the radial arteries, and the pulse was 80.

On placing the patient on his face no appreciable dulness could be discovered along the spine, nor was any pulsation to be seen. On examining him with the stethoscope from the nape of the neck downwards, no abnormal sounds could be heard till we came down to the *last dorsal vertebra*, when a well-marked bruit became audible (particularly to the left of the spine), which became louder as we descended for about two inches, when it "shaded off," and was lost about the fourth lumbar vertebra. I should say the area of the "bruit" was about five inches.

The patient had a slight bronchitic attack on admission, which was soon relieved. On the day of his death he was unusually cheery. When he suddenly called "to send for the doctor," but before Mr. Gregg, the resident medical scholar, could be brought to him, he was dead.

The *post mortem* examination was made most carefully by Mr. Gregg, assisted by Mr. Wall. In the lungs no lesion was found further than a congestive condition, and some frothy mucous in the larger bronchi, such as we would expect to find from the suddenness of death. The heart was hypertrophied, but the valves were perfect. Atheromatous deposit were present here and there over the thoracic aorta, but there was no dilatation of the vessel. On following the vessel downwards immediately opposite the giving off of the celiac axis, an aneurism was found about the size of a small apple fitting into the left vertebral hollow and lying on the upper lumbar vertebræ, the bodies of which were eroded. The aorta was narrowed for about half an inch below the giving off of the aneurism; the right renal artery was obliterated, and the right kidney was reduced to about one-third its normal size.

In this case the two most prominent symptoms were pulsation in the epigastrium and complaint of pain in the back.

Now, pain in the back and lumbar region may attend abdominal tumours of any kind from mere pressure; hence the differential diagnostic value of this symptom must be taken for what it is worth. Again, with how many affections and under how many circumstances do we meet with abdominal pulsations. Tumours of various kinds overlying the great vessel will carry pulsations, so may an hepatic abscess, or even fecal accumulations in the transverse colon, whilst, in addition, we meet with hysterical

pulsation in spanemic men and women, and pulsations connected with aortic regurgitation.

But we are told by some authorities that the pulsation of aneurism can be diagnosed by its eccentric and expansile character. Now, I think too much stress is laid on this "expansile" character of the pulsation. In the case I have just detailed, no doubt the pulsation was slow, strong, and decidedly expansile; still one of the most eccentric and expansile pulsations I ever met with attended a case of hepatic abscess. For my own part, I consider "persistency and equability," after a careful examination in all positions, the most characteristic features of abdominal pulsation; consequently, when we meet with an abdominal tumour of any kind carrying pulsation in the supine position, place the patient on his or her hands and knees, when the pulsation, if due to an aneurism, will persist, but if due to a tumour overlying the vessel, the pulsation will disappear from the tumour falling off the vessel, unless they are firmly attached by adhesions.

Let us next analyse the stethoscope signs in this case. When the patient lay on his back a systolic bruit could be heard over the seat of the pulsation, which was lost when he assumed the upright position. But here, again, we are met with the fact that a systolic murmur can usually be heard over the abdominal aorta in front, in cases of tumour of any kind overlying the vessel, when the patient is in the horizontal position, and which disappear or are lost when the patient assumes the erect position from the tumour falling off the vessel. Hence the differential diagnostic value of stethoscopic signs heard over the abdomen *in front*, must be taken for what they are worth. But if we place the patient in the *prone* position, and examine him along the spine, in the great majority of cases of aneurism a "bruit" will be heard (as in the case detailed) along the spine, especially to the left side. In the case of an abdominal tumour, with the patient in the *prone* position, no such "bruit" will be heard, inasmuch as no pressure is exerted on the vessel from the tumour falling forward. Thus, in a "*localized bruit*," heard along the course of the spine, we have one, if not the most valuable, physical sign of abdominal aneurism we are as yet possessed of.

But again, you may say, do we not meet with a "bruit" along the spine in a case of "obstructive disease" of the aortic orifice and in "spanemia," and therefore how will this physical sign aid us in the differential diagnosis? Well, in the case of aortic

obstruction, the "bruit" usually is not propagated so low down as the lumbar region, but if it is it will be audible *continuously* from the base of the heart along the aorta. *Continuity* would also be the characteristic of a spanemic murmur; whereas, in the case of aneurism the "bruit" is *localized*, the area of its presence, of course, being regulated by the "vis" of the circulation, the nature of the foramen of communication, the state of the sac, and other such pathological conditions. For my own part, I regard a *localized* murmur, heard along the spine in the horizontal position, the most pathognomonic sign of aneurism we are possessed of, and I should advise its being looked for in all cases of continued lumbago or chronic lumbar pains, as I have no doubt this "bruit," if carefully looked for, might have been the means of disclosing many cases of aneurism which were not suspected—cases in which no visible or objective signs of the disease were present over the front of the abdomen. In this view I am happy to have the concurrence of Dr. Beatty, who, in connexion with his interesting case, goes on to say, "he regrets that they were not led to employ auscultation to the spine, as I think it very probable the disease would thus have been discovered."

The second case of abdominal aneurism which I have comparatively lately had an opportunity of seeing, occurred in one of our most worthy members, and whose death was deeply lamented by us all.

On the evening of the 29th of October last, I was suddenly summoned to Blackrock to see the late Dr. H——. I found him writhing with pain; his groans could be heard in the adjoining rooms; he was almost pulseless; his extremities were cold, and he had a ghastly "look," which might be well described as "death in his face." He entreated of me, to give him some relief from an excruciating pain in the abdomen and back, which he had been suffering from almost uninterruptedly for the previous forty-eight hours. I at once administered 50 drops of the solution of morphia; hot fomentations were applied to the abdomen and extremities, and he got brandy freely. In a short time he expressed himself relieved, and he fell asleep. I remained with him till about seven p.m., when I left him, as Dr. Pollock, under whose care he had been for the two days previous, was to visit him about eight p.m. Before leaving I advised that he should get a grain of opium and hot brandy punch if the pain returned with severity. When Dr. Pollock arrived he found Dr.

H. sleeping; he awoke soon after, and was again seized with the excruciating pain, and died almost immediately. I need hardly add that under such circumstances the making any minute physical or stethoscopic examination was simply impossible.

I was unavoidably prevented from being present at the *post mortem* examination, which was most carefully made by Dr. E. Hamilton, assisted by Dr. Pollock; however, Dr. Hamilton has kindly given me the details of the examination, which, in general terms, showed a large aneurism arising very high up between the pillars of the diaphragm. This aneurism had burst into the peritoneum, filling the lower part of the abdominal cavity with blood; it had eroded the bodies of the upper lumbar vertebræ to some extent. As the cause of death was so apparent no examination of the other cavities was made.

Now, it may be interesting to review the symptoms which Dr. H. suffered from for some years previous to his death; and as I was frequently consulted by him for many years past, I am enabled to give you a general outline of his case.

About eight years ago Dr. H. had an aborted fever with bronchitis, in which he was attended by Drs. Stokes, Croker, and myself. From this he soon recovered; but as the cough persisted, we recommended him to go to the south of Europe for some months, which he did. He returned to Dublin about the middle of May following—and here I may mention that in passing through London he consulted Dr. Williams, who told him there was no sign of pulmonary disease about him. He then resumed the active duties of his profession; at times the cough seemed to disappear; he gained flesh, and for the last seven years his weight must have been on an average between fifteen and sixteen stones. However, within the last few years a cough of another character seemed to me to ensue; it was dry, barking, and spasmodic, and from time to time he suffered from “aphonia,” for which he consulted Dr. Smyly, who tells me that the laryngoscope showed an œdematous condition of the vocal cords. From these attacks of temporary aphonia he always recovered, but latterly they seemed to recur more frequently and lasted longer, and at the time of his death he had just regained his voice from an attack of complete aphonia. He never made any complaint of pain referable to abdominal aneurism,* if I except the complaint of lumbago, which

* I have since learned that Dr. H. did complain of pain in the back to others.

he casually made to me on one occasion *only*, about a month before his death. Indeed, I can say with perfect certainty that he had not the slightest suspicion that he was labouring under such a formidable malady.

The question suggests itself, what connexion, if any, existed between the thoracic symptoms, viz., "cough," "dyspnea," "aphonia," and abdominal aneurism, or would not the aphonia and dyspnea be more accurately accounted for by pulmonary phthisis? I think I will be able to show you that in Dr. H.'s case these thoracic symptoms were not due to phthisis, but symptomatic of abdominal aneurism. First, of the aphonia: it was of an ephemeral or temporary character, and recurred from time to time. Often the loss of voice was complete, it differed from the aphonia of laryngeal phthisis in these respects, the loss of voice in phthisis being usually a gradual process; but once established, in most instances, being permanent. In Dr. H.'s case the *variations* of the voice within certain periods, and the temporary character of the aphonia, seems to be explicable by pressure on or irritation of the recurrent laryngeal nerves. Again, the cough was of a semi-laryngeal, dry, barking, spasmodic character, accompanied with dyspnea; in these features it differed from the cough of chronic phthisis; in addition, there was no general wasting, for at the time of Dr. H.'s death he must have weighed between fifteen and sixteen stones; the only part of his body which did look pinched was his face, and in chronic phthisis the face is usually the last part of the body to show dyscrasia. Further, from the most careful inquiries, I do not find the family history to be phthisical; his father died comparatively advanced in life of some abdominal disease, probably aneurism, whilst his mother lived to a very advanced age.

Another point suggests itself, might there not have been an aneurism of the thoracic aorta giving rise to the symptoms above mentioned? Well, that is possible, as no *post mortem* examination of the thorax was made. But if an aneurism of the ascending or transverse portion of the aorta had existed, in all probability there would have been complaint of neuralgic pains over the chest; or of "angina," or of "dysphagia;" or some difference in the pupils, or in the pulse at the wrists, or increased venous radiation over the chest, or dulness on percussion, with a second centre of pulsation with "bruit;" or if aneurism of the descending portion of the arch had existed, interscapular pain would probably have been

complained of; there would also very likely have been persistent dyspnea from pressure on the bronchus, or deficiency and inequality of respiration in either lung, with eventual diminished capacity of the side. Now, not one of these symptoms or physical signs were present.

Well, if these thoracic symptoms were not due to disease of the lungs or great vessels in the chest, how can they be explained in connexion with the abdominal aneurism in this case? If we reflect for a moment on the seat of the aneurism, we find it surrounded by the greatest prevertebral plexus of nerves in the whole body, the semi-lunar ganglia of the solar plexus, in which plexus we have the connexion with the sympathetic system in the chest kept up through the medium of the greater and lesser splanchnic nerves; and as far as we know at present, the pneumogastric nerve terminates in the same great central plexus. Now, pressure exerted on this great ganglionic centre is reflected on the larynx through the pneumogastric and its tributary the recurrent laryngeal nerve; hence the "aphonia," whilst the cough and dyspnea are explicable in the same reflex manner, inasmuch as the pulmonary plexus is mainly made up of the pneumogastric and sympathetic, and no doubt the phrenic nerve contributed to the dyspnea from the high position of the aneurism and consequent pressure on the diaphragm. In this case, therefore, the prominent symptoms of abdominal aneurism were *thoracic*. The only symptom pointing to disease of the abdominal aorta was the *transient* complaint of lumbago made to me on one occasion *only*, as I have already mentioned, about a month before his death, when he was suffering from complete aphonia. You may naturally inquire if I can adduce any analogous cases to endorse the explanation of the thoracic symptom I have thus imperfectly detailed to you. I answer I can, and for this purpose I will again allude to Dr. Beatty's case, to which, as I have already said, we owe so much. Now, in the comments which have been made in Dr. B.'s case (and they have been very numerous), *all* importance is attached to the pain in the back, neuralgic exacerbations, &c.; little or no value seems to have been given to *two* symptoms, viz., "dysphagia" and "dyspnea," after the patient took fluid, symptoms which, considering the great advance that has been made in the diagnosis of latent tumours through the medium of reflex nervous symptoms, seem to me of the greatest interest and importance. In Dr. Beatty's case the situation of the

aneurism could not have given rise to mechanical pressure on the œsophagus, nor could it have pressed on either bronchus, for if so these symptoms would have been persistent; and, in addition, continued pressure on either bronchus would have entailed a difference in the respiration in the respective lung which, from the careful examination of the chest which was made by so many distinguished stethoscopists, no doubt would have been discovered. Hence as direct pressure will not explain the symptoms of dysphagia and dyspnea in this case, to what then could they have been owing? Manifestly to reflex nervous action of the pneumogastric. And if so, Dr. B.'s case would go to show that "dysphagia" may be added to "aphonia" and "dyspnea," as a symptom of abdominal aneurism.

But I can adduce another case of abdominal aneurism in which a symptom of very great interest in a comparatively remote organ occurred, and which the author considers was due to the presence of the aneurism. I refer to a case of abdominal aneurism, read by Dr. Seaton Reid before the Belfast Pathological Society, and published in the *Dublin Hospital Gazette* in 1860. It was the case of a man, aged forty, who had been employed lifting heavy weights. The *post mortem* examination showed that, with the exception of some atheromatous deposits, the calibre and coats of the aorta appeared normal until within an inch and a half of the origin of the celiac axis, where it became dilated to nearly double its natural size, and continued so for about an inch below it. From the vertebral surface of this dilatation, two sacs, or perhaps a bilocular aneurism, were given off; that on the left side of the vertebra was about the size of a cricket ball, whilst that on the right was the size of a large cocoa nut, and had dissected its way between the diaphragm and the pleura, extending into the cavity of the chest fully six inches; and perpendicularly to the same extent, firmly attached to the bodies of the four last dorsal and two upper lumbar vertebræ. Over the anterior portion of this large sac the great splanchnic nerve could be seen, stretched; there was a slight amount of dilatation of the innominata. The *right pupil* was markedly smaller than the left.

Dr. Reid remarks from the slight amount of dilatation of the innominata and the healthy state of the aorta in this patient, there was no possibility of pressure being made in the cervical region, and therefore we are forced to inquire if the contracted state of the pupil might not have been owing to the pressure that must have

been made on that portion of the sympathetic that forms the great splanchnic nerve, by its being stretched to such an extent over this large aneurism on the right of the vertebra. I shall not occupy your time further on the present occasion than by drawing what seems to me to be practical inferences from the two cases I have brought before you. The first exemplifies a physical sign of aneurism which heretofore has not been sufficiently appreciated and looked for, viz., the presence of a "*localized*" *bruit along the course of the spine*. It seems to me to be the most pathognomonic sign of abdominal aneurism we are as yet possessed of, and in all cases of long-continued pain in the back and lumbar region it should be carefully looked for.

The second seems to me instructive, as showing that cases of abdominal aneurism may occur in which the symptoms, which heretofore have been considered especially characteristic of the disease, may be absent—the most prominent symptoms being *thoracic*.

ART. III.—*Thoracic Aneurism*. By THOMAS HAYDEN, M.R.I.A.,
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Hospital; Professor of Anatomy and Physiology Catholic
University, &c.

WILLIAM FAY, aged twenty-eight, a cabman, of intemperate habits, first came under my notice about January, 1866, suffering from chronic laryngeal symptoms, manifestly the result of his irregular life. After a short course of treatment in hospital he was restored to his ordinary health, and discharged. Shortly afterwards he strained his back in lifting his cab, and then, for the first time, complained of pain in the lower dorsal spine. He became an extern-patient of the Mater Misericordiæ Hospital on the 22nd of June 1868, and was re-admitted shortly afterwards. He then suffered from severe pain of a paroxysmal character in the epigastrium, and extending to the sides and back; pulse 84 and weak, but regular, and equal on the two sides; pupils normal and equal; severe pain in the left gluteal region; cardiac impulse strong; in the scrobiculus cordis a loud bellows murmur was heard, which was synchronous with the pulsation of the abdominal aorta. Occasionally a second murmur was likewise heard in this situation, diastolic in time, cooing in character, and resembling very closely a musical venous murmur.