AN ACCOUNT OF A CASE
OF
ANEURISM OF THE ABDOMINAL AORTA,

WHICH WAS CURED BY COMPRESSION OF THAT ARTERY
IMMEDIATELY ABOVE THE TUMOUR.

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History.—The patient (Mark Wilson) is a spare man, twenty-six years old. His occupation as a paviour has required him to use a large wooden rammer for driving paving stones into the ground. Often, in making strenuous efforts, he has overreached himself, and subjected the trunk of his body to severe straining. Eleven months ago, after a hard day's work, he was seized somewhat suddenly with a very severe pain in the back, of a gnawing character, and preventing movement. Two months later the same pain began to be felt in the abdomen, catching his breath, and very severe. He was treated for these pains by several medical attendants, with leeches, blisters, &c. About two months

ago he began to feel a slight pulsation in the belly, and shortly after that time he became my patient at the Newcastle Dispensary, where after a few examinations I became convinced that he had an aneurism of the abdominal aorta. This opinion was shared by the resident medical officer of the dispensary.

The following is the condition of the patient previously to treatment. His abdomen is somewhat spare, so that a distinct pulsation can be seen to the left of and slightly above the umbilicus; the pulsation is most distinct during expiration. On applying the hand, a hard, slightly movable pulsating mass, of a distinct globular form, is to be felt extending from about two inches to the left to about one inch to the right of the umbilicus, and upwards to within three inches of the margin of the left lower ribs. The pulsations in it are very strong, and impinge upon the hand with a sudden stroke, and the expansion of the tumour very distinctly separates the hands when applied to it. The tumour is of about the size of a very large orange. The impulse conveyed to the hand, when laid on the upper part of the tumour, is almost as strong upwards as it is downwards, when felt by the hand applied below the tumour. When pressure is made on the aorta above it all pulsation ceases, and when the pressure is removed a distinct thrill is felt to accompany the rush of blood into the tumour. A line drawn across the abdomen over the umbilicus touches at either end the margins of the last ribs, and encloses between the free borders of the ribs a triangular space (the epigastric region); over the left half of this space there is room enough to compress the aorta against the spine. The aorta below the tumour can be felt, and its pulsations seem in no way to vary from their normal character. By auscultation a feeble bruit can be heard over the tumour. The patient is in good general health; his bowels are subject to occasional attacks of constipation, sometimes being open every day, at others only once in two or three days, which may to a certain extent be accounted for by the large quantity of opiates he has taken to relieve the acute pain which he has suffered.

His arterial system is free from evidence of degeneration.

All palliative treatment having failed to relieve him, after much thought and careful consideration, I proposed to apply a tourniquet above the aneurism, and thus attempt to cure it by compression. It happened, as I have before shown, that between the aneurism and the free borders of the ribs on the left side there was space enough to permit one blade of a tourniquet to press down on the spinal column, and on tightening the tourniquet I found that, by a very nice adaptation, the pulsation in the aneurism could be completely commanded. The instrument used was the ordinary horseshoe tourniquet, made so as to open rather wider than usual, and thus to grasp the trunk of the body.

I took the patient to the Northumberland and Durham Medical Society, to have my diagnosis verified, and to propose my plan of treatment. Several members examined the tumour, and it was admitted by all who did so that the case was unquestionably one of aneurism of the aorta. The president, Dr. Heath, expressed the same opinion in very decided terms. The following is an extract from the 'Report of the Monthly Meeting of the Northumberland and Durham Medical Society, April 14th, 1864:'

"Dr. Murray introduced a patient suffering from aneurism of the abdominal aorta. That it was an aneurism was clear from the fact that when a tourniquet was applied above it pulsation ceased; and on removing the pressure a distinct thrilling rasping sensation was communicated to the hand as the tumour recommenced beating, as if produced by the rush of blood into its interior. As the patient was young, Dr. Murray proposed to operate on the aneurism by pressure. He thought that treatment fully justified, because the disease was otherwise necessarily fatal. Several gentlemen having asked questions and made remarks, Dr. Heath, the president of the society, said "this was a very interesting case; they sometimes met with instances of pulsation of the abdominal aorta, which closely resembled aneurism, but he thought there was no doubt this was truly

a case of aneurism. With respect to the treatment which Dr. Murray proposed to adopt, he thought that since such an eminent surgeon as Sir A. Cooper did once tie the aorta, Dr. Murray was quite justified in employing the milder method of pressure. This was an age of experiment, and he thought the course proposed was a fair and justifiable experiment, and one which possibly might be followed by success."

On Saturday, April 16th, the patient was put under chloroform. (Having lately administered chloroform to a patient for fifteen hours without any apparent injury, I had no hesitation in making a prolonged use of it in this case.) The anæsthetic influence was accordingly kept up for two hours, during which time, except during momentary displacements of the instrument, the pulsation in the aneurism and in the vessels of the lower limbs was completely arrested. On removing the pressure no visible effect had been produced; but he passed no urine for nearly thirty hours. It was found exceedingly difficult to keep up steady pressure, as the patient, being under chloroform, unconsciously moved about a good deal; the irregular action of the muscles of expiration in the abdominal wall added very much to the difficulty, and it became necessary to sit constantly with one hand on the screw of the tourniquet and the other on its anterior or applied blade, and thus to secure the constant pressure required. On neither occasion when the pressure was applied did we escape a considerable number of recurrences of the pulsation from displacements of the instrument. This statement, however, does not apply to the last hour of the second and successful attempt, during which all movement and pulsation were completely arrested.

On Tuesday, April 19th, after much entreaty on my part, the patient again submitted to be put under chloroform. Dr. Heath having carefully re-examined the tumour, and expressed his conviction of the nature of the disease, the tourniquet was applied, and pulsation in the tumour completely arrested. With the assistance of Drs. Nesham and Spencer, and Messrs. Armstrong and Powell, the pressure

and the insensibility were kept up for about five hours. Until the last hour the slightest movement in the tourniquet showed that pulsation in the tumour had not ceased, and that the disease was unaltered. During the last hour the existence of pulsation became less obvious. It was then deemed prudent, lest the patient's strength should be exhausted, to remove the pressure and see what had been accomplished. On finally removing the pressure very slight pulsations were felt, and hopes were entertained that some advantage had been gained. As the femorals did not beat during the application of pressure, the extremities had become cold; and when the patient recovered from the chloroform a fit of shivering occurred. Hot bottles were applied to the feet, and hot brandy and water was given, followed in a short time by a large dose of a mixture of chlorodyne, opium, and belladonna, containing about ʒiiss of the tincture of the last drug, which I find is a perfectly safe dose as an anodyne when combined with an ordinary dose of opium. In the evening he was found restless, and "sore all over," with tenderness at the seat of the aneurism and of the pressure, and numbness of the extremities. To my astonishment the tumour was perfectly pulseless, and every indication of pulsation in the aorta below it had disappeared.

Wednesday, April 20th.—Patient feels restless and slightly feverish, with thirst and hot skin, but the pulse is only 72 and feeble. Bowels open, passes water freely; can stand, although the legs are still numb, and he feels "pins and needles" in his feet. In consultation with Dr. Heath, a most careful examination was made, and the following observations were confirmed by that gentleman. There is no pulsation in the tumour, which is now perfectly stationary, hard, resistant, and lessened in size. Nor are any pulsations to be felt in the aorta below the tumour, in the iliacs, or in the femoral arteries.

Thursday, April 21st.—Patient looks well and feels much better; says he is more free from pain than he has been for several months. There is a very slight movement in

the tumour, which is now a hard globular mass, easily felt, and slightly movable, but evidently smaller than before. At one or two points on the abdominal wall pulsating vessels can be felt, but there is no pulsation in the femorals.

Friday, 22nd.—With Mr. Lightfoot, who carefully examined the case, the following points were made out and verified by that gentleman:—A solid hard tumour, of about the size of an apple, lying to the left of the umbilicus, can be felt, and during deep expiration can be seen. It is motionless to the eye, and by the hand the slightest possible forward movement can be distinguished at its upper border, as if communicated from the aorta pulsating above. No expansion, thrill, or bruit, can be made out. Running over the right border of the tumour a vessel can be felt pulsating, which, from its position and size, is probably the superior mesenteric artery. The femorals are pulseless. All numbness is gone from the legs, and the patient declares he feels quite well.

Saturday, 23rd.—Observation of the tumour corresponds with the notes of yesterday in every particular. The pulsation of small arteries in the abdominal wall is now pretty distinct. The patient is sitting up and out of bed, feels better than he has done for months past, and is free from pain. Eats well and sleeps well.

Sunday, 24th.—Going on well.

Monday, 25th.—Still improving, and is moving about freely. The tumour is now much diminished in size, and no pulsation can be distinguished. (Observation confirmed by Dr. Spencer.)

Tuesday, 26th.—The patient has been out this morning, and walked about a quarter of a mile. On ceasing to walk he felt as if a cord was tied around his waist, and was quite numb below that level. He feels his legs numb and weak, but in other respects is quite well and in good spirits, declaring himself to be better than he has been “for eleven months past.” After careful examinations, the observations previously made were this morning confirmed by Messrs. Fife and Armstrong. Mr. Rayne, after a very

careful examination, also expressed his conviction "that there is now no blood passing through the tumour." Dr. Gibb and many other medical gentlemen in the town, after examining the parts, came to a similar conclusion.

May 1st.—Patient still improving. Legs warm and stronger, but still numb when he walks far. Had an attack of diarrhoea, which ceased on taking a few doses of chalk mixture. No pulsation in the tumour or arteries below it.

5th.—Still improving. Took a long walk two days ago, and, except a feeling of numbness and weakness in the legs, was no worse for it. Tumour carefully examined this morning in the presence of several medical men, when the following points were observed and verified:—"The tumour is stationary, harder than before, and lessened in size. Its periphery lies seven inches from the sternum (the patient having a long chest) and five inches above the pubes, four inches from the anterior superior spine of ilium on the left side, and five inches from the same point on the right side. It lies a little more to the left than to the right of the umbilicus." No bruit can be heard, and the aorta above can be felt beating in the epigastrium.

11th.—Patient still improving, tumour pulseless, and diminishing in size.

Remarks.—I need offer little comment on this case, especially as the patient will be introduced at the meeting of the Society. I would note, in the first place, that we have in it a most complete triumph for the advocates of "compression" in the treatment of aneurism. The disease, though one which has baffled all attempts to cure it, yet in this instance disappeared by means of treatment lasting but a few hours, and involving the use of a known and simple expedient.

Secondly, here is actual proof that a sudden occlusion of the aorta can take place without violent symptoms or great inconvenience ensuing.

Again, the case shows that in compression, as has been

noted by an eminent surgeon in the north, "the actual cure takes place very rapidly, probably in less than an hour;" for, till within the last hour of the treatment, the slightest movement in the tourniquet was followed by most violent beating in the aneurism.

As an instance of the dependence of a curative process on the influence of chloroform, this case is most striking; for no man, exhausted with pain and weary of life, could have borne for five hours, without an anæsthetic, such tremendous pressure as was here employed, even though that pressure were to save his life.

POSTSCRIPT, July 7th, 1864.—The patient has obtained a situation as a "fitter," and feels equal to the work. The only unfavorable symptom now present is a numb pain in the knees after walking, which disappears after resting a few minutes. The lower limbs are plump, but flabby; the rest of the body is well nourished. The tumour is now scarcely to be felt, and the aorta, iliacs, and femoral arteries, are still quite pulseless.

POSTSCRIPT, September 26th, 1864.—I have seen the patient this morning, and he looks well. He only complains of slight weakness and pain in his back and legs. The numbness no longer exists. He works as an engine-fitter from 6 a.m. till 8, and sometimes 10 p.m.; in addition to which he has to walk nearly two miles to and from his work. The abdomen and limbs are now plump and fat. Only slight hardness, which is evident on *deep pressure only*, is perceptible at the site of the aneurismal tumour. There is no pulsation in the aorta below the site of the tumour, but above it a very distinct thud can be felt to strike dead against the applied hand. There is now distinct pulsation in the right femoral artery, but no certain evidence of it in the left. The patient says "he now feels as well as ever he did in his life." Five months have now elapsed since pulsation was felt in the tumour.