CASE
OF
ANEURISM
OF THE
EXTERNAL ILIAC ARTERY,
FOR WHICH
THE FEMORAL ARTERY
AND SUBSEQUENTLY THE AORTA
WERE TIED.

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COMMUNICATED BY

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JOHN WINDSOR, æt. 44, a man of rather spare habit, but not otherwise unhealthy appearance, was admitted May 7th, 1829, into the Devon and Exeter Hospital for disease of his left hip and knee. He had been ill about four months;—he was lame;—there was flattening of the nates, and pain about the hip joint and in the knee, which was evidently swollen; but there was no tumefaction either below or above Poupart's ligament. He made no mention of any swelling at that time, but it since appears that he had perceived one in the lower part of the abdomen four months before his admission. Upon the outside of the thigh and nates were marks of two large blisters.

Under the persuasion that this was a case of diseased hip-joint, I ordered rest and an issue behind the trochanter; and when towards the end of the month, I remarked a tumour at the lower part of the abdomen above Poupart's ligament, I was led to believe, that it might proceed from an enlargement of the iliac glands, induced by the irritation of the diseased joint. It increased, however, with great rapidity, and on desiring my colleague, Mr. Barnes, to look at it, he ascertained it to be an aneurism.

The tumour at this time did not at all rise at the pulsations, but when firmly pressed, part of its contents could be emptied, and when the pressure was removed, the blood returned with throbbing: no pulsation was perceptible in the groin or ham; neither was there any coldness of the limb;—a degree of numbness was felt, so slight, however, as to be little noticed; but he complained of much pain in the knee: the stethoscope further declared its nature.

The tumour continued to increase fast; and in the beginning of June it occupied the whole of the iliac region, and projected the lower part of the abdomen considerably. No operation could be performed above the tumour with much probability of success;—and the only one feasible, was that of Brasdor, revived by Mr. Wardrop, on which I determined, notwithstanding an apparent ob-

jection; namely, that from the total absence of pulsation in the groin, it was doubtful whether the stream of blood was not altogether intercepted. The want of pulsation, however, I may here add, appears to me, to be no proof of want of circulation through the artery below the sac, for I am much disposed to believe that the blood, in this case, may flow through it, much in the same way as it does through the veins; the impulse of the heart being lost in the one case on the small arteries, in the other, on the sides of the sac.

The man's constitution was not impaired by hard living;—the pulsation of the heart and arteries indicated no aneurismal diathesis; and he could assign no probable cause for the production of this disease.

June 2d. The patient being laid a little on his side, and having measured exactly half the distance between the spine of the ilium and the symphysis pubis, I made an incision over this point, from a little above Poupart's ligament, to about three inches down the thigh; a large gland then presented itself, which was dissected to the inside; underneath this, the crescentic edge of the fascia lata was visible, which I also divided; I then proceeded, chiefly with my fingers and nails, to separate the parts till I reached the sheath of the vessels, which was at a considerable depth; this I scratched through with a silver knife, and bared the artery,

under which I passed Weiss's needle, and tied it about half an inch below Poupart's ligament.

An operation it may be remarked, beyond an aneurismal sac, is a little embarrassed by the circumstance, that where there is no pulsation before the skin is divided, the surgeon must trust to measurement. In this case it perfectly answered.

• The wound was brought together by one suture and sticking plaster.

Four hours after the operation the man was tranquil, and the bulk of the tumour appeared to be less. At nine P.M. there was a diminution of not less than three quarters of an inch, as well as I could ascertain by measurement, in the following way; namely, by carrying a piece of tape from the centre of the groin to the umbilicus, which was done before the operation, and when measured afterwards, allowance made for the thickness of the dressings.

June 3d. Going on well in every respect.

June 4th. A blush around the wound, arising from the formation of some matter in the course of the ligature, which was confined; by cutting the suture, and separating the edges, it was evacuated, and light dressing and poultices being applied, the inflammation subsided.

At this time the diminution in the measure of the tumour was fully an inch. The temperature of the limb had been uniformly good ; no increase of numbness or any inconvenient feeling : his general health little disturbed, but weak, and his pulse small and weak, from 80 to 90 in number.

From this day the tumour again began to increase, but up to the 12th it had not exceeded its measurement before the operation ; it had, however, began to show a disposition to point at its lower and outer part. The quantity of nourishment had been throughout as much limited as possible, but the state of his pulse did not seem to authorize blood-letting.

On the 24th, the integuments had become tense and shining, and there was considerable pain. The health hitherto had not been much disturbed, but now evidently suffered ; he looked haggard, and felt ill.

The tumour, after this, increased fast in all its dimensions, more particularly at the part before mentioned, where the integuments soon became dusky red, and œdematous ; and it was evident that sloughing could not be remote ; at the same time the increase of the tumour towards the umbilicus rendered it imperative to take some step without further delay, if it were even proper to do

so, and under these circumstances I called a consultation for the following day.

It has been fully proved, that in cases of aneurism generally, the chance of success is much increased by the early performance of the operation; in a similar case to the present, we have the authority of Sir Astley Cooper in its favour; who regretted that he had not tied the aorta earlier. I could not, however, divest my mind of the belief, that while there was the most remote chance of a spontaneous cure taking place, it would be better to try that chance, than an operation the most formidable that could be conceived. The progress of events, however, now shewed that there was no longer any prospect of relief in that way, and consequently I felt it my duty to try the only mode left, if the patient concurred.

Operation for Tying the Aorta.

July 5th. * About half past three, the man was placed on the table, with his shoulders slightly raised, the bowels having been previously thoroughly emptied.

I made the incision rather lower than in Sir A.

* There were present at this operation, my colleagues, Dr. Miller, Mr. Luscombe, Mr. Barnes, and Mr. Harris, besides other medical gentlemen of this city.

Cooper's case, beginning it an inch above the umbilicus, and continuing it two inches below. I scratched through the linea alba below the umbilicus, and then proceeded to open the peritoneum nearly to the same extent as the external wound. This first part of the operation was somewhat impeded by very copious bleeding from the vessels of the integuments.

As soon as the division of the parietes was effected, the viscera protruded, and the efforts of the poor fellow continuing strong, I soon found myself embarrassed with almost the whole of the bowels : nearly all the colon, and a great part of the small intestines being pushed out, and presently quite distended with flatus, a circumstance frequently remarkable in the operation for strangulated hernia. I found the aorta without difficulty, pulsating strongly, but it was surrounded with dense cellular membrane, and a strong peritoneal covering was likewise interposed between my nail and it.

I may remark that even in the dead subject, it is sometimes a difficult matter to force the nail and finger between the aorta and the spine ; in this case, embarrassed as I was by the coils of intestine, in which my hand was buried, it was particularly so. I enlarged the wound, but it was of little service ; to have obtained sufficient room to

push aside those inflated intestines would have required an incision of enormous extent; and supposing this made, there would hardly have been a probability of retaining them completely within the abdomen by any mode of suture during the exertions which the patient might make, and which it would probably be impossible to prevent.

I endeavoured cautiously to get the point of the aneurismal needle through, and succeeded; but when it reached the other side it broke at the handle, which, in the one I had selected for its curve, was unfortunately of wood. I had little anticipated occasion for so much force. The broken part was so sharp that I was obliged to withdraw it, for fear of injuring the intestines. With some additional difficulty I got my finger, with Weiss's instrument upon it, under the artery; but even after this was effected, it was by no means easy, with the best assistance of my colleagues, to extricate the short needle bearing the ligature, so much did the intestines interfere with every kind of manipulation. When the ligature was underneath, I kept the intestines out of the way with the fingers of both my hands, and placed one of my thumbs on the vessel, whilst Mr. Luscombe drew it, first on my thumb, and then on the artery; by this I prevented any thing from being included, a caution which Sir A. Cooper has particularly dwelt upon. The ligature was then drawn tight, and the tumour became flac-

cid ; at the same time the patient complained of deadness in the lower extremities. The ligature was cut close.

From the tension of the muscles and the inflated state of the intestines, they were not easily returned ; but when they had been replaced, five needles were passed through the integuments, and the wound having been secured perfectly by the quill suture, large straps and a bandage were added, and the man was put to bed.

During the operation he suffered very much, and was at times extremely faint ; small quantities of brandy and water were therefore given : after which a dose of laudanum in brandy and water. This appeared to revive him, but he complained of great pain in both the lower limbs, which on the aneurismal side soon increased to agony, and although opium was repeatedly given, it did not cease till he died. He also complained of pain in his head, and that light distressed him.

The temperature of the lower limbs was maintained as much as that of the trunk, but it fell in both, and about seven P.M., the same evening, he expired, complaining as much of the agonizing pain in the leg, (chiefly at the knee,) as he had done from the time of the operation.

Examination of the Body.

July 6th.* At 10 A.M. the body was opened, and the following account contains a summary of the facts then and subsequently observed.

The tumour was considerably collapsed, and the discolouration on its surface gone. The wound measured four inches.

On opening the abdomen, a considerable quantity of blood, partly coagulated, was found in the cavity among the intestines: this may have proceeded either from the vessels of the parietes, which bled copiously, or from a small branch, which during the operation was observed to be wounded in one of the under folds of the mesentery, scratched, most probably, with the handle of the broken aneurismal needle. It would have been better to have secured this at the time, though it involved the necessity of placing another ligature within the abdomen. There was no perceptible injury of the intestines; they were still distended with air. After pushing aside many convolutions, I arrived at the aorta, round which the ligature was firmly drawn, at a point which by measurement was five lines below the inferior

* Mr. Luscombe, Mr. Barnes, and Mr. Harris were present at the examination, besides other medical gentlemen.

mesenteric artery, and eleven above the bifurcation of the common iliacs. It was about an inch below the duodenum.

In the ligature were also included some very dense cellular membrane, and a small vein which was traced along the coats of the aorta, and terminated in the inferior mesenteric. This we all supposed at first to have been a nervous flet, and believed that it might have explained the extraordinary pain he felt. The vena cava was quite free and unhurt.

The aneurismal tumour was of enormous size, extending, even in its collapsed state, from the upper part of the thigh, to the side of the vertebral column, and filling the whole of the ilium. It projected on one side far into the pelvis, and on the other occupied the lower back part of the abdomen. The ilium on which it rested was perfectly bare and scabrous, and absorbed nearly through to the acetabulum; indeed hardly any of the pubis on that side was left, as far as the symphysis*.

The outer and lower part of the tumour where the sloughing was threatened, was very thin, the

* It is not improbable that this affection of the bone may have produced the symptoms which were attributed to diseased hip-joint.

walls being formed by the attenuated muscular fibres and skin, and it was torn in removing the tumour. At this part the blood was fluid and grumous; the sac elsewhere was thick and dense, *and the peritoneum adhered most firmly to its anterior surface.*

The weight of the tumour was three pounds fourteen ounces and a half.

The following was the state of the vessels. The division of the aorta into the common iliacs natural: that on the left side could be followed to its division. The internal iliac was natural, but the external was immediately implicated in the tumour, along the anterior surface of which it ran, and could be traced, broad and flat, about two-thirds its length, at which point it was abruptly lost.

On opening the sac, no traces of the posterior part of the artery could be found at this point, but about an inch and a half lower down, it was again recognized, forming a pouch, out of which proceeded the femoral arteries.

The sac was for the most part filled with concentric laminæ of organized fibrine, but it also contained much coagulated and some grumous blood.

In the aorta there were some diseased spots, but the lower part of the external iliac, which formed the pouch before mentioned, was thickened and diseased in the highest degree.

With respect to the arteries below the sac, the following circumstances were observed. The external iliac did not terminate in the common femoral as usual, but gave off two trunks of nearly equal size, and from the inner, which corresponded with the profunda, the epigastric was given off.

The ligature had been applied to the superficial femoral, about half an inch, or rather more, below a point which corresponded with the situation of the epigastric; above the ligature was a perfect clot, reaching as high as the external iliac; below it were the remains of a clot which had been disturbed by a probe. At the point of ligature, the artery was completely obliterated, and a large quantity of dense lymph was deposited externally, so as fully to restore the apparent size of the artery viewed from without; through the lymph passed the thread of the ligature to the noose, which was completely and firmly buried in it.

In the aorta, the appearance of clots both above and below was imperfect. The short time which

intervened before death, perhaps prevented their being firmly formed.

The hip-joint was examined, but there was no clear evidence of disease within it.

Having now stated the principal circumstances which belonged to its history prior to the man's death, as well as those appearances which were remarked after it, I shall proceed to offer a few observations which naturally suggest themselves.

I have to express my regret that I was in the first instance deceived as to the nature of the case, marked as it was by the symptoms of diseased hip, which were further confirmed by the evident disease of the knee. I do not, however, think that the poor fellow's fate was materially influenced by my not having ascertained the existence of aneurism at the time of his admission, for it appears that I could not then have tied the external iliac, excepting where it was either highly diseased, or implicated with the tumour. I may add, that my mind was also so much satisfied with the reasoning and facts adduced by Mr. Wardrop, that I certainly should have been induced to have given his operation a trial. Nor can I think that the result of this operation will prove unfavourable to Mr. Wardrop's plan; for it is evident, that a considerable and satisfactory alteration was pro-

duced by tying only one of the trunks which led from the iliac, and had the distribution been natural, it is not improbable a cure would have been obtained.

With regard to the second operation, I should say, that if I could have placed a ligature round the common iliac instead of the aorta, I should have much preferred it; and it was an object I kept in view. Indeed it was on this account that I made the chief part of my incision below the umbilicus, which gave me the power of proceeding in either way, as circumstances might permit. If then it be asked why I did not rather attempt the operation from the side of the abdomen, in the way Dr. Stevens and Mr. Atkinson tied the internal iliac, and which has also been recommended by Sir Astley Cooper subsequently to his operation with reference to the aorta, my answer is as follows :

This mode of operating, which is calculated to obviate the necessity of opening the peritoneum and exposing the bowels, can only succeed in those cases where there is no adhesion of that membrane; but in this case I thought it highly probable that adhesion did exist, and the examination after death verified the supposition. It would have been absolutely impossible to have detached it; and I think it will be conceded, if it

is necessary to open that sac at all, that the aorta is much more easily reached through an opening below the umbilicus than in the side; and with reference to the common iliac, that it would be quite as easy to trace it from the aorta downwards, as from the sac upwards. In the present case, the difficulties which arose from the protrusion of intestine, and the immense elevation of the tumour, prevented me from commanding the common iliac in such a way as would have enabled me to tie it in safety in a reasonable time. But where obstacles did not exist to such a degree, I can easily believe that this might be effected, and that there would be less chance of implicating the ureter, than if tied at the lower part.

In the cases to which I have referred, there was no deviation from the natural structure of the parts within the abdomen, the diseases for which these operations were performed, being more or less remote. But I believe it will be found, that where there is an aneurismal tumour on the hollow of the ilium, and the peritoneum adherent, it will most materially interfere with any operation in this situation.

The great difficulty I experienced in this case, (and it has been a common one in many species of aneurism,) arose from the opposition afforded

by the tough investments of the artery, which I could hardly pierce with my nail; and I think it must have occurred to many surgeons to find, that the nail, after it has been moistened some time, as during an operation it must be, loses considerably of its firmness. It struck me, on this occasion, that a perfectly safe instrument might be devised to remedy such inconvenience in operations on parts deeply seated. A thin ring of silver, ivory, or horn, might be adapted to the distal joint of the forefinger, which at the back might be continued on in the form of an artificial nail. It would not deprive the finger of the power of touch, while it would arm it with sufficient force to make its way through any investment. This might be put on at any period of an operation.

As to the immediate cause of death in this case, it may be remarked, that the shock of so great an operation might well sink a man whose strength was already much impaired, but he revived decidedly after it; and when I left him it was not entirely without hope, though my anticipations could not be very sanguine, considering the time and the degree to which the intestines were exposed, independent of the effect of the ligature. The symptom which most demands elucidation

was the terrible pain in the limb, which seemed far to surpass that of the operation. For this I can assign no adequate reason, nor did the examination of the body afford any, at least as far as I could with the utmost care discover. There was no evidence, during the time he lived, of the circulation below the ligature having failed.