A CASE
OF
ANEURISM
OF THE
EXTERNAL ILIAC ARTERY,
IN WHICH
A LIGATURE WAS APPLIED TO THE
COMMON ILIAC ARTERY.

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TO Mr. Mott, of New York, is due the merit of having been the first to suggest and the first to effect the ligature of the Common Iliac Artery. The following case affords a second instance in which a similar operation has been performed. To the practical surgeon it will lose nothing of its interest, either because it is not the first, or because it has not been successful. In fact, paradoxical as it may appear, the progress of surgery

is more likely to be advanced by a faithful account of unsuccessful than of successful cases. In the successful cases nature performs her work in secret, and often leaves us at a loss to determine whether the success which we witness is to be attributed to the efforts of art, or to the unassisted resources of nature. In the unsuccessful cases, on the contrary, we have usually an opportunity of examining after death the effects of our operations, we see the results of those efforts which in concurrence with or in opposition to ours, nature makes for her relief, and are thus enabled to discriminate between the means which are likely to advance, and those which are likely to retard her work. I am further induced to submit this case to the consideration of the surgical profession, because in the operation I adopted a proceeding different from Mr. Mott's, and one which renders the tying of the Common Iliac Artery, or even of the Abdominal Aorta itself, (*so far as the operation itself is concerned,*) comparatively easy and safe.

C A S E.

Private P. M'Gowan, 8th Foot, aged thirty, well formed, and hitherto healthy, was admitted into the General Hospital, Phoenix Park, Dublin, on the 8th of July 1828. There was a pulsating tumour extending from about three inches below the crural arch on the right side, to within about

three inches of the umbilicus. The tumour was divided by a furrow in the line of Poupart's ligament, into two portions.

The lower, or femoral portion, was scarcely compressible, and although throbbing strongly, did not communicate to the hand the peculiar "aneurismal thrill". The upper, or abdominal portion, which formed an obvious swelling in the right hypogastric region, was soft and compressible, as if filled with fluid blood, and at a particular point, about three inches above the crural arch, the aneurismal thrill, (which is caused by the jet of blood from the ruptured artery passing into the fluid blood of the aneurismal sack,) was unusually distinct. There was also a pulsating and compressible tumour, about the size of a pullet's egg, in the right ham.

The man complained of great pain in the thigh and leg, which prevented his walking, and disturbed his rest: pulse 110, full and throbbing, tongue white, but little appetite. He attributes the disease to a fall which he got in wrestling, about nine months previously. He felt but little pain at the time, but two days afterwards he observed a pulsating tumour, about the size of a walnut, at what he terms "the rim of his belly". He continued to do his duty until the 20th of May, when the tumour becoming much larger and more painful, he reported himself to the re-

gimental surgeon. During the last fortnight, the swelling has increased rapidly, and the pain is so severe, that he says he is satisfied to submit to any operation which may afford a chance of relief. From the 8th to the 17th of July he was bled five times. He was put on fever diet, purged daily, and took from twenty to thirty drops of tincture of digitalis, three times a day. The blood, which for the first four bleedings was highly buffed and cupped, presented on the 5th a natural appearance, the pain and fever had abated, and on the 18th of July he was considered to be in a favourable state for the operation.

The operation was accordingly performed at 2 o'clock P. M., on the 18th of July, in the presence of Professors Colles, Macartney, and Wilmot, Mr. Stringer, (the Surgeon to the Hospital,) Dr. Ramsay of Dundee, and several other professional gentlemen*.

* I think it may not be amiss to observe, in this place, that previously to my performing the operation on M'Gowan, I was enabled by the kindness of the gentlemen, who were conducting summer courses of anatomy, to perform preparatory dissections and operations on seven dead subjects. Two of the operations were performed at the Richmond Anatomical School, on the morning of the 18th, and on each trial, *even to the two last*, I found that I performed the operation in a manner much more satisfactory to myself than any of the preceding ones. I mention this not only as a matter worthy of the consideration of those who would limit the opportunity of the student of surgery to the dissection of two, or at the utmost

THE OPERATION.

The first incision commenced at the anterior extremity of the last false rib, proceeding directly downwards to the os ilium, it followed the line of the crista ilii, keeping a very little within its inner margin, until it terminated at the superior anterior spinous process of that bone, the incision was therefore chiefly curvilinear, the concavity looking towards the navel. The abdominal muscles were then divided to the extent of about an inch, close to the superior anterior spinous process, down to the peritoneum ; into this wound, the fore finger of the left hand was introduced, and passed slowly and cautiously along the line of the crista ilii, separating the peritoneum from the fascia iliaca, the peritoneum touching the fore-part, and the fascia iliaca the back-part of the finger. A probe pointed bistoury was now passed along the finger to its extremity, and by raising the heel of the knife, while its point rested firmly on the end of the finger as on a fulcrum, the abdominal muscles were separated from their attachments to the crista ilii by a single stroke. By repeating this

four subjects, but as affording a proof, if indeed proof be wanting, that operative surgery cannot be usefully cultivated without almost unlimited means of practising dissection, and that, as it has been well expressed, " We must choose between mangling the living or the dead ".

manœuvre, the wound was prolonged until sufficient room was obtained to pass down the hand between the peritoneum and the fascia iliaca. Detaching the very slight connections which these parts have with each other, I was able to raise up the peritoneal sack with its contained intestines on the palm of my hand, from the psoas magnus and iliacus internus muscles, and thus obtain a distinct view of all the important parts beneath; and assuredly a more striking view has seldom been presented to the eye of the surgeon; the parts were unobscured by a single drop of blood; there lay the great Iliac Artery, nearly as large as my finger, beating awfully at the rate of 120 in a minute, its yellowish white coat contrasting strongly with the dark blue of the Iliac Vein which lay beside it, and seemed nearly double its size; the ureter in its course to the bladder lay like a white tape across the artery, but in the process of separating the peritoneum, it was raised from it with that membrane to which it remained attached. The fulness of the Iliac Vein seemed to vary from time to time, now appearing to rise above the level of the artery, and now to subside below it. Nothing could be more easy than to pass a ligature round an artery so situated. The fore finger of the left hand was passed under the artery, which with a little management was easily separated from the vein; and on the finger, (which served as a guide,) a common eyed probe furnished

with a ligature of moistened catgut was passed under the vessel. A surgeon's knot was made in the ligature, and the noose gradually closed, until Mr. Colles, who held his hand pressed upon the tumour, announced that "all pulsation had ceased!" A second knot was then made, and one end of the ligature cut off short. On examining the vessel after it had been tied, it was found to be full, and throbbing above the ligature, but empty and motionless below it. The external wound was united by three or four points of suture, and supported by long straps of adhesive plaster. The operation was completed in twenty-two minutes; the patient, who was a firm minded man, made no complaint during the operation, not even when the ligature was closed upon the artery. The tumour, immediately after the operation, was diminished nearly one-third, the diminution being confined to the abdominal portion; ten minutes after the operation, the pulse was 96; at 7 p.m. Mr. Stringer, finding the pulse full and bounding, took 20 ounces of blood from the arm; at 10 p.m. I found him tranquil, no pain, pulse 88, the limb, with the exception of the toes, warm: Saphena Vein full; additional flannel was wrapped round the foot.

Saturday, 19th. Had some sleep, no sense of throbbing, pulse 88, toes warm, but not so warm as those of the left foot; no pain of the abdomen, even on pressure; bowels not open; or-

dered an ounce of castor oil, and an enema if necessary.

Sunday, 20th. An uneasy night from pain and rumbling in the bowels; no stool, temperature of both limbs equal, five grains of calomel, three hours afterwards an ounce of castor oil, and two drachms of oil of turpentine, opened the bowels at four o'clock, and removed all uneasiness from the abdomen. It was now, just fifty hours after the operation, first observed by Mr. Corr, (one of the House pupils,) that there was an obscure pulsation in the tumour.

Monday, 21st. There is decidedly a pulsation in the whole tumour, obvious both to the touch and to the eye, but there is no "thrill", as if the contents of the sack were fluid. No pulsation in the Femoral Artery below the tumour, and none whatever in the aneurism at the ham, which is reduced to half its original bulk. Pulse 88, skin cool; no pain; temperature, as ascertained by repeated trials with the thermometer, at the groin 98° , at the hams 97° , at the ancles 94° , at the ball of the *left* great toe 87° , at the right 88° .

Tuesday, 22d. Pulsation still evident, accompanied (in the opinion of some of the observers) with an obscure thrill; tumour not increased; no pain; pulse 86; no pulsation in the ham.

23d. No change.

24th. Little or no change, unless that the pulsation in the abdominal portion of the tumour is perhaps more distinct. Ordered to be bled (in the erect position) *ad deliquium*; tincture of digitalis, 20 drops every third hour; fever diet.

The object of this treatment was to diminish the force of the circulation through the tumour, in the hope that its contents might coagulate. It was plain, that from whatever source the blood was derived, it was flowing into the aneurismal sack, but with diminished force.

25th. (7th day.) Countenance pale, pulsation *more* distinct, the thrill quite perceptible, no pulsation in the Femoral Artery below the crural arch, blood drawn yesterday buffed, and cupped; 12 oz. of blood taken from the arm; digitalis increased to 30 drops, three times a day; diet as before.

26th. (8th day.) The ligature came away last night, but was lost in the bed; pulse as yesterday: on turning in the bed he suddenly felt a severe pain in the thigh and knee, "as if" (to use his own expression) "the knee was tearing off of him"; said "the fore part of the thigh was all numb." He cried out from pain: in ten minutes it subsided.

It now became a subject of great interest, to determine the cause of the return of the pulsation, after it had ceased for fifty hours. Has the blood returned by the free anastomosis between the Internal Iliacs? or has the catgut ligature become macerated, and given way? The pulsation is stronger than could be expected, if the tumour were supplied only by the collateral source of anastomosis; the prevalent opinion therefore was, that the ligature had given way.

27th. Less pain in the knee and thigh; in other respects as yesterday.

28th. As yesterday, but complains less; asks for nourishment: the wound is quite healed, with the exception of about an inch, in the middle of this line, the hole through which the ligature escaped is apparent. Pulsation in the tumour nearly as strong as before the operation; yet the whole bulk of the tumour is reduced by at least a third.

At 6, p. m., while he was sitting up in his bed, taking some gruel, the blood suddenly gushed from the wound, and deluged the bed. He fell backwards, and expired in less than a minute. The body was examined at one o'clock on the following day, in the presence of Messrs. Colles, Wilmot, Cusack, Stringer, Porter, and several other professional gentlemen.

Dissection.

The intestines being removed, the peritoneum raised, and the great abdominal vessels laid bare, the Common Iliac Artery, at about three-fourths of an inch from the bifurcation of the Aorta, was lost in an oblong tumour, about three-fourths of an inch in diameter, and one and a half in length; the tumour terminated upon, but did not communicate with, the aneurismal sack. On cutting into the tumour, about half an ounce of greenish pus flowed from the wound, and discovered the artery, which appeared somewhat contracted at one part, and its coats deeply indented, but not cut through, marking the place where the ligature had been applied. On blowing into the Iliac Artery from above, bubbles of air escaped freely from the external wound from whence the blood had issued; water injected by a syringe escaped by the same passage; clearly establishing the important fact, that the ligature, which was of cat-gut, had been dissolved by the heat and moisture of the wound, and thrown off, before the obstruction of the artery, or the coagulation of the blood in the aneurismal sack, had been completed. It further appeared that the dissolution of the ligature had caused a small abscess to form in the place which it occupied. On slitting up the artery, the internal and middle coats were found to be completely divided in the

whole circumference of the vessel, and small portions of lymph adhered to its internal surface. The poplitæal aneurism was far advanced towards a cure; the contents of the sack were quite solid, and the tumour was reduced to about the size of a walnut: the artery, for six inches above the sack, was filled with a firm coagulum*.

The most important inferences to be drawn from this case are,

1st. That the operation of tying the Common Iliac Artery, is not only a feasible, but (when performed in the manner described in this paper) is an exceedingly easy operation. The difficulties which Mr. Mott encountered, and which prolonged the operation "to nearly an hour"†, are clearly referable to the circumstance of his incision having been made *too low*. This in the first place brought him in contact with the aneurismal tumour, from which he was obliged, with great labour and considerable risk, to detach the peri-

* The parts are deposited in the museum at the Park Street School.

† "The operation lasted rather less than an hour." Vide Dr. V. Mott, New York. "Successful Ligature of the common Iliac Artery."

toneum * ; then he had the whole mass of the tumour between him and the artery which he was to tie : and lastly, he had the intestines pressing down upon him, and producing such a complication of difficulties, as I believe few men but himself could have encountered with success. All these difficulties however, might, I think, have been avoided, by getting at the artery from behind and above the tumour ; in a word, by an incision, which should begin where Mr. Mott's terminated.

2d. The question has often been proposed, "whether, under any possible circumstances, a surgeon would be justifiable in passing a ligature round the Abdominal Aorta?" Without venturing to give a decided opinion upon this subject, it may not be amiss to observe, that in several instances, aneurisms of the Abdominal Aorta have undergone a spontaneous cure, in consequence of the obliteration of the artery above and below the tumour.

I have given, in the 2d volume of Dublin Hospital Reports, the history of a case of this

* "With the tumour beating furiously underneath, I now attempted to raise the peritoneum from it, which we found difficult and dangerous, as it was adherent to it in every direction." See "Successful Ligature," &c., by V. Mott, New York.

kind ; and the preparation illustrative of it, is now in the museum of Guy's Hospital, where it was deposited by Sir A. Cooper, to whom I transmitted it in the year 1819.

If such an operation should be determined upon, I have no doubt, that by a proceeding similar to that which I have described in this paper, a ligature could with great ease be passed round the abdominal aorta, without interfering with the cavity of the abdomen.