

## **Case of successful ligature of common iliac artery / by W. B. McKinlay.**

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C A S E

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OF

SUCCESSFUL LIGATURE

OF

COMMON ILIAC ARTERY.

BY

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## C A S E.

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GEORGE TAYLOR, aged 30, miner, was admitted into the Paisley Infirmary on the 12th of September 1863.

On admission, he was found to have sustained a compound fracture of the tibia of the right leg about the middle. There was also extensive bruising of the soft parts of the leg.

While pursuing his avocation as a miner in an ironstone pit, a large piece of stone, weighing several hundredweights, fell out of the excavation he was making, upon his leg. The stone remained upon it for a considerable time, the efforts of seven of his fellow-workmen being insufficient for its removal; and it was only after breaking the stone into fragments that he could be extricated.

After his admission, considering that he was an apparently healthy man, it was thought proper, on consultation with my colleagues Drs M'Kechie, Richmond, and Taylor, to give the leg a chance before proceeding to amputation. The limb was accordingly put up in splints with an interrupted bandage, and a system of irrigation was pursued, the anterior aspect of the leg being slightly covered with lint. A week after admission, diffuse cellulitis, together with disorganization of the effused blood, set in, with a profuse discharge of foul thin pus.

Patient complained of hot burning pain in the limb, and this was accompanied by profuse sweating, especially at night. Matters continued much in the same state for another week. Free openings were made for the escape of pus, which drained away in large quantities. At this time no crepitus could be distinctly felt, and this, together with a sense of firmness when the leg was raised, were causes which induced a second consultation to advise further delay; his strength being in the meantime supported with generous diet and wine.

Towards the close of the third week the symptoms of irritative fever rather increased in severity, and another opening was made for the escape of pus, which was still of a fetid character.

Crepitus being now slightly felt, a third consultation was called; and on Monday, 5th October, exactly three weeks and two days



subsequent to the receipt of the injury, amputation was performed at the lower third of the thigh, the tissues around the knee not being considered sufficiently sound. There was nothing to remark during the operation, which was performed by two flaps, the anterior one the longer. Very little blood was lost, and the arteries were easily secured by ligatures.

Next morning patient was much better, and the pulse was calmer than it had been for a fortnight previously.

*7th October*, stump was dressed. The margin of the posterior flap showed a slight tendency to slough. With this exception the wound seemed healthy.

*9th.*—Healing process going on favourably, and union seemed to be advancing. Shortly after the visit this morning, Dr Taylor, who was acting for me in my absence at the Social Science meeting in Edinburgh, was suddenly called, the stump having been found to be bleeding profusely. Pressure was immediately applied to the femoral artery, when the bleeding ceased. Patient was put under chloroform, and the flaps separated. In the process of separation it was observed that very considerable union had taken place, and that an abundance of healthy granulations had formed. When the vessel was completely relieved of the pressure the hæmorrhage had entirely ceased, and it did not commence again, so that the bleeding point could not be ascertained. The flaps, after being exposed for a short time, were carefully placed in opposition, and cold-water dressing was applied to the stump.

In the evening patient was weak from loss of blood, about one pound having been lost in the morning; but he was cheerful and free from shock. Absolute quiet was enjoined, and he began to improve until next evening, when I was sent for, the hæmorrhage having returned. It was immediately restrained by pressure, and the artery was subsequently secured by means of an acupressure needle. Very slight oozing continued for a few hours after the artery had been secured, but not much more than what soiled the cloth around.

Next day, *10th October*, he complained of slight uneasiness in the stump, but progressed favourably; he was constantly watched and kept quiet. All dressing was removed, with the exception of a piece of wet lint; and he went on very favourably. On the *17th*, that is, seven days after the introduction of the needle, it was removed; the stump was granulating very well.

On the third day after the removal of the needle another bleeding took place in a much larger stream than before. The acupressure needle was buried deep in the flap, so as to secure the main trunk, when the hæmorrhage entirely ceased.

On the second night after this, patient felt as if something had given way in the stump, when it was found to be bathed in blood. Compression upon the femoral was immediately had recourse to, and an acupressure needle was introduced higher up, with the effect



of at once controlling the bleeding. Patient was in a very weak condition, but still he was cheerful.

*20th Oct.*—As the patient was already excessively reduced by the severe and repeated hæmorrhage, and as the means for arresting the bleeding at the stump had always failed, it was resolved, on consultation, that the femoral artery ought to be tied. The patient having been put under chloroform, the artery was tied in the usual manner at the apex of Scarpa's triangle. No blood was lost in the operation, and there was no subsequent oozing. A drachm of solution of morphia was given at bedtime.

*21st Oct.*—Patient passed a comfortable night; pulse weak, but calm and regular. He feels a good deal better.

*25th Oct.*—He is in good spirits. Appetite excessive (this has been the case to a greater or less extent all along). Pulse improving in strength. Wound was dressed, and contained a quantity of good laudable pus.

He continued to progress very favourably, always taking his food well, and keeping in good spirits. His cheeks gradually lost their blanched look, and the wound over the femoral as well as the stump looked very healthy; the former nearly healed.

On the tenth day after the application of the ligature to the femoral, the patient, feeling something warm trickling down his leg, looked, and found some blood oozing from the wound over the femoral artery. A person who had been kept constantly watching him immediately compressed the femoral above the wound, and sent down stairs for the house surgeon (Mr J. W. Taylor), who was in immediate attendance, and found the blood welling up from the wound in very large quantity. The wound was immediately plugged with a compress dipped in a solution of perchloride of iron and glycerine. This, along with compression of the femoral artery above, restrained the hæmorrhage for a time. Having been sent for, I at once applied Skey's tourniquet to the limb above the wound, so as to compress the femoral artery without preventing the return of the blood from the lower part of the stump. Patient was constantly watched, and the application of the tourniquet was successful in restraining the bleeding.

Patient complained bitterly of the pain caused by the tourniquet during the night, and had to be kept under the influence of morphia. Next day the pain had diminished considerably, and he did not complain of it much during the rest of the time. It was resolved, on consultation, to try if the tourniquet would arrest the hæmorrhage. On the third night, however, hæmorrhage set in once more, but was controlled by a readjustment of the tourniquet. It now became evident that pressure would not succeed, and it was resolved to apply a ligature upon the external iliac artery, which was done next morning, in the ordinary way—that is, an incision of about four or five inches was made about three-quarters of an inch above Poupart's ligament, in the line of the fibres of the external oblique,



and the subjacent tissues were carefully divided until the peritoneum was reached; this was carefully pushed back and the artery reached. The ligature having been applied, the wound was drawn together by means of silver sutures, and compresses on each side were applied. Little more than a teaspoonful of blood was lost. Not a single bad symptom followed. The strictest quiet was observed. Small doses of morphia were administered to allay an irritating cough which came on, and which proved very troublesome on account of the wound. In a few days his appetite returned, and the assurance of present safety promoted a cheerful tone of mind. Matters went on steadily improving until the twelfth day about four in the afternoon, when bleeding from the external iliac vessel suddenly took place without any reason. The wound was plugged, a compress applied, and the hæmorrhage controlled. There was no further bleeding till the evening, when, about 8 o'clock, blood was found welling up in large quantity by the sides of the plug. I was sent for, when I immediately applied Lister's abdominal tourniquet, as no pressure on the wound would suppress the flow of blood. The application of the tourniquet succeeded for a short time, the patient complaining of horrible agony all the while, and being very restless. After an involuntary jerk of the body caused by pain, hæmorrhage commenced again, when I immediately cleared out the wound, and having slightly enlarged it, I plunged my finger to the bottom, and by that means was so far able to control the bleeding. I then directed a pair of artery forceps along my finger, and succeeded in seizing the bleeding point; a ligature was passed down over the forceps, and the artery which had been completely divided was tied. This ligature was in the highest degree unsatisfactory, seeing, that after the first knot was tied, and before the second could be secured, the forceps came away, with a small portion of tissue within their grasp. No bleeding, however, took place, although the pressure of the tourniquet was taken off.

The patient was very much sunk by the repeated hæmorrhages; his lips were bloodless, his eyes sunk, and he could scarcely speak above a whisper; it seemed also inevitable, that should another hæmorrhage take place, death must immediately ensue.

The state in which he was having been duly explained to his friends, they at once expressed their willingness that any means which seemed likely to save him should be had recourse to.

A consultation was called, when it was resolved that a ligature should be applied to the common iliac artery. Accordingly, at 5 o'clock in the afternoon of next day, in presence of my colleagues Drs Richmond and Taylor, and also of Dr Leitch, surgeon of the 41st Regiment, and of Messrs Donald and Colligan of Paisley, chloroform having been administered, I proceeded to operate. The wound previously made was enlarged to the extent of nine inches, and the peritoneum was slowly and carefully pushed back until the division of the common iliac was reached, when, the longest aneurism needle



I had, having been armed, it was gradually insinuated under the artery from within outwards, the artery was distinctly felt, and also the bifurcation or division below where the needle had been passed. The wound was so deep that the end of the handle of the needle was barely above the wound: the ligature having been seized and pulled through by a hook, was tied by means of directors with a notch on the end, and the wound having been closed, the patient was removed to bed. Not above a tablespoonful of blood was lost.

Cough, as after the last operation, proved very troublesome, and was kept in abeyance by means of morphia. No other symptom worth mentioning manifested itself. The wound was dressed next day, when it was found to contain a quantity of healthy pus. Notwithstanding the previous failures, patient expressed himself perfectly sure of the success of this operation. Next day wound was healthy, pulse improving.

Fifth day.—Wound dressed; looking extremely well; granulations abundant and healthy. To have lime-juice  $\mathfrak{z}i$ . thrice daily. Appetite good.

From this time he continued steadily to improve, not a single bad symptom having followed. His appetite was voracious, and he was constantly asking for an addition to his diet. His cheeks rapidly lost their anæmic paleness, and he took on flesh rapidly. The lime-juice was discontinued upon the twenty-eighth day after ligature.

On the thirty-eighth day the ligature was removed, and the wound, nearly healed before, progressed with astonishing rapidity; in every dressing there was a very distinct progress. On the 31st December he was dismissed, the wound being entirely filled up.



