Two years ago I endeavoured to satisfy the members of this Society that the Hunterian operation had been too generally or rather exclusively adopted in the treatment of aneurism. In the case for which it was proposed, where the popliteal artery is no less inaccessible than the femoral is readily tied, the advantages of this method over that of opening the sac, and arresting the hæmorrhage by means applied directly to the bleeding orifice, were great and manifest, and naturally led to its immediate adoption for the particular purpose concerned. But there seems reason to think that this favorable impression had too much thrown into the shade what has been called the old operation, since the circumstances may be such as to reverse the reasons for preference, and render this procedure easier as well as safer than the other. For instance, in axillary aneurism the artery is readily within reach up to the clavicle, and may be exposed even higher than the part usually covered by this bone by elevating the shoulder, while ligature of the subclavian is generally a process of great difficulty, and also one of very considerable danger, since it has been ascertained
that at least 50 per cent. of fatal cases result from its performance. In reply to this argument, it is said that the vessel must be deemed unsound at the seat of its rupture, and more likely to bear a ligature with security where it is beyond the confines of the tumour; and it was to such an objection that in my former paper I particularly called attention, as, in regard to this part of the subject, the view which had previously been taken seemed to me erroneous and calculated to mislead.

The doctrine usually taught is that the whole extent of an artery included by the aneurismal sac should be deemed of suspicious soundness, if, indeed, not entirely absent, unless the case is traumatic or proceeding from a wound of the vessel, which, of course, does not imply any morbid condition of the coats; while the spontaneous form, occurring without any assignable cause, or resulting from such injuries as blows and sudden extension, has been held to do so. But even although it were granted that an origin of the latter kind affords ground for suspecting unsoundness at the ruptured part, it by no means implies a similar condition throughout the whole extent of the tumour. For the sac enlarges quite independently of any change in the vessel, and so far from weakening or destroying its coats, rather tends to consolidate and support them, by increasing the density of the surrounding parts. If, therefore, an artery is considered sound beyond the limits of an aneurism of the size of an egg, it should still be so regarded after the tumour enlarges to the bulk of an orange or any greater magnitude, the extent of arterial disease being in no wise proportioned to that of the aneurismal sac. Proceeding upon this principle, and trusting to find a sound portion of artery within the sac, I have repeatedly operated with success by laying open the cavity and securing the orifice by ligatures. Of the cases thus treated certainly the most remarkable is that which I am about to relate, and it so strongly supports the position in question that any further evidence in its favour would seem hardly to be required.
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Robert Lattimer, a seaman, thirty-one years of age, about the end of November last, while working on shipboard, ran with great force upon the handle of a winch, which thus bruised his left groin. Considerable pain was felt at the time, and next day where the blow had been received he noticed a small tumour, which gradually enlarged and became so tender that he left the vessel and went to his home at the town of Annan, where poultices with fomentations were applied, under the impression that the swelling was of a glandular nature. In the course of a few days, the pain having subsided, although the tumour still remained, he again went to sea about the middle of December. Returning from a voyage to Ireland in the month of January, and while entering a harbour on the coast of Cumberland, he narrowly escaped drowning from the small vessel in which he sailed being run down by a steamboat, and to save himself leaped with all his force into another ship. Next day, about two inches higher up than the original one, he felt a new swelling, which became so painful that he applied for relief at the Carlisle Infirmary. There the tumour was recognised as an aneurism, and the patient, being led to regard the operation which had been proposed for its remedy as extremely dangerous, again went home. On the 20th of February, he repaired to the Infirmary of Dumfries, where interference was declined on the same ground. In this state, thus rendered hopeless, he once more returned home, and betook himself to drinking and smoking, with the effect of greatly deranging his health, while the tumour grew apace. He became much emaciated, with his pulse at 130, a troublesome cough, and other symptoms of alarming import.

At this period, Dr. Bogie, of Annan, kindly took an interest in the patient, and offered to send him to Edinburgh, to be under my care, if his health should improve sufficiently for the purpose. The hope of relief, thus held out, seemed to have a salutary effect, as such a change for the better took place that, on the 18th of April, he accomplished the journey of 120 miles by railway without any bad effect, and
was admitted into the Royal Infirmary. Upon examination, I found the tumour even larger than had been expected. It extended in length from below Poupart's ligament considerably above the umbilicus, and stretched from nearly two inches beyond the middle line of the abdomen, towards the right side, completely across the left iliac region, so as to overlap the crest of the ilium. Throughout the whole of this enormous swelling there was a strong pulsation and distinct aneurismal bruit; there was also great pain from pressure on the nerves, and considerable œdema of the thigh, from obstruction of the venous circulation.

From the history of this case it seemed probable that the artery had been ruptured in the groin, and that, if an opening were made into the sac, the pressure of the finger would prevent hæmorrhage, until the clots were turned out and ligatures applied. On the 20th of April, chloroform having been administered, I thrust a knife into the aneurism, about an inch above Poupart's ligament, and at the same distance from where the anterior spinous process of the ilium was supposed to be. Having inserted my forefinger, and found nothing but a confused mass of clots resting upon the bare bone, I made room for the middle finger also, and, still obtaining no satisfactory information, enlarged the wound sufficiently for thrusting in the whole hand, but with such force that the integuments embraced it tightly at the wrist, so as to prevent any escape of blood. I then ascertained that the artery was not in its proper place, and felt that it would be necessary to lay open the sac in order to discover the seat of rupture. But as this could not be done without causing a fatal hæmorrhage, so long as the circulation continued in the vessel concerned, I availed myself of a screw clamp which Professor Lister, of Glasgow, had had constructed for effecting compression of the aorta. This he applied so as to stop pulsation in the right groin, and I then, by means of a probe-pointed bistoury, at once dilated the wound to the extent of six inches, parallel with the crest of the ilium. By the united action of both hands all the blood and fibrinous clots, to the
amount of six pounds by measurement, having been scooped out, the surface of the sac was carefully examined, when a small oval aperture was detected in what might be called the roof of the cavity, towards its inner side, high up in the pelvis. Upon relaxation of the screw, a gush of blood left no room for doubt as to this being the arterial orifice, but, upon examination, it was found to be separated from the vessel by a very dense texture forming the sac. Having divided this, I dissected carefully, so as to bring the arterial coats distinctly into view, and passed a ligature on each side of the opening. When these were tied the blood still issued, though not with the same force as it had done previously, and we therefore inferred that the internal iliac originated from the portion of vessel which had been included. A ligature was applied, with the view of embracing it, and then the clamp was taken off, without any further bleeding. The edges of the wound were kept in contact by silver sutures, covered with dry lint, and gently supported by a bandage. The patient, who had slept quietly during the whole process, then awoke, quite unconscious of the arduous undertaking in which we had been engaged, and which could hardly have been accomplished without the assistance of Mr. Lister, and my colleague in the hospital, Dr. Watson, to both of whom my best thanks are due. Everything went on favorably afterwards: the patient was at once relieved from the pain, which he had been able to endure only through the use of large opiates, the œdema of his thigh quickly disappeared, and a slow but progressive improvement was observable in his general health. On the nineteenth day after the operation all the ligatures came away together, and then the wound gradually contracted.

Of the observations suggested by this case, one that seems very worthy of notice is the complete suppression of hemorrhage which was effected by pressure on the aorta. The idea of doing this is not new, and upon various occasions it has been attempted with more or less success. But
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I am not aware of its ever before having been tested by actual division of the primary arterial branches, and the evidence which has thus been afforded promises to be of much service, not only in operating upon iliac aneurisms, but also in amputating at the hip-joint,\(^1\) or even, perhaps, in the treatment of uterine haemorrhage.

When I began to advocate opening the sac, it was alleged by many, as a strong objection to this procedure, that the large cavity exposed would necessarily be productive of a profuse and long-continued discharge of matter, apt to exhaust the patient. But this apprehension proceeded from erroneously confounding the inner surface of an aneurism with the pus-forming investment of a chronic abscess, from which it is entirely different, being an organized texture that possesses no peculiar action, and is ready to undergo absorption so soon as the cause which produced it ceases to exist. Accordingly, the enormous cavity that was laid open in the case just related afforded little more discharge than might have been expected from an ordinary wound of the same extent.

From the common iliac being throughout its whole extent imbedded in the sac, it is evident that when the patient came under my care, and probably at a much earlier period, the artery could not have been tied without opening the cavity. This circumstance also affords a remarkable illustration of the safety with which ligatures may be applied to an artery within the confines of an aneurismal tumour.

In conclusion, I beg to express my hope that the cases of carotid, axillary, gluteal, and iliac aneurism, which have been treated by opening the sac and tying the artery at its place of rupture, may induce teachers of surgical principles to reconsider the propriety of representing the Hunterian operation as so exclusively the rule of practice as it has hitherto been regarded. For my own part, I feel persuaded that while aneurisms of the popliteal, femoral, and carotid

\(^1\) My colleague in the Royal Infirmary, Mr. Spence, has lately availed himself of Mr. Lister's clamp in amputating at the hip-joint, with the effect of completely controlling the haemorrhage.
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arteries are proper subjects for ligature of the vessel without opening the sac, those of the axillary and iliac arteries should be treated by ligature at the seat of rupture, especially as I have shown that in both of these situations hæmorrhage may be effectually prevented during the operation by pressure applied nearer the heart.

POSTSCRIPT.

September 6th, 1862.

This case was communicated to the Society only a month after the operation, in consequence of my having occasion to be in London at that time. The favourable anticipations of complete recovery then entertained were not realised, as the general health, from having been greatly impaired, did not improve in proportion to the local progress. The patient's state seemed very precarious until the end of nearly three months, when so decided a change for the better took place as to remove all anxiety. But soon after this, from unfortunately sleeping with an open window, inflammation of the pleura was excited, and it proved fatal on the 31st of July. On examination it was found that the external iliac had been torn completely across and drawn up into the pelvis, where its open mouth, being mistaken for a slit, had imposed upon the gentlemen who had assisted me, and myself, so as to make us suppose that the ligatures were applied immediately above instead of below the bifurcation of the common iliac, the whole extent of which was imbedded in the sac. The true state of matters, thus ascertained, tends to strengthen the principle of practice which it was the object of the paper to maintain.