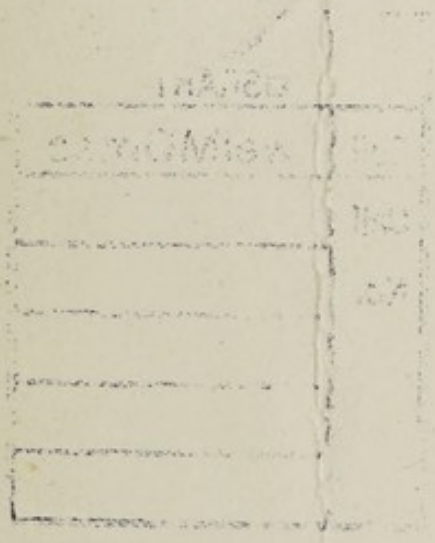
Case of successful amputation at the hip-joint on account of malignant tumour of the femur / by James Spence.



PROFESSOR SPENCE'S CASE OF AMPUTATION
AT THE HIP JOINT.

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SUCCESSFUL

AMPUTATION AT THE HIP-JOINT,

ON ACCOUNT OF

MALIGNANT TUMOUR OF THE FEMUR.

BY

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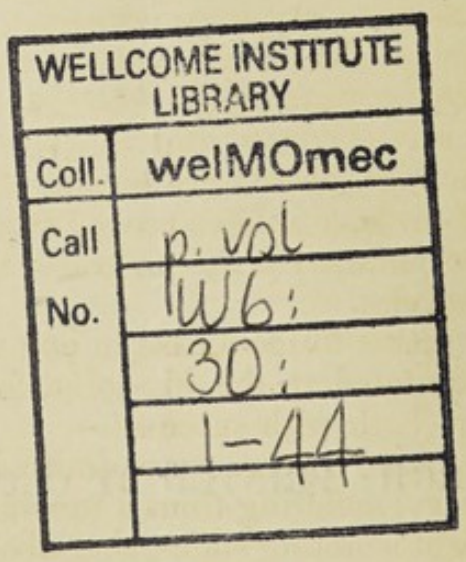

AMPUTATION AT THE HIP-JOINT.

WHILST it is generally admitted that the true principle in regard to amputation for malignant tumours of bone is to amputate beyond the bone affected, yet in the case of the femur, the dread of the immediate risks of amputation at the hip-joint has led practically to the abandonment of the principle, and amputation through, or near the trochanters, in cases of malignant tumour, is often advised, and resorted to, as being safer than disarticulation, unless the growth is so high up as nearly to involve the trochanter. I think this a very serious error, as, I believe, in such tumours, the disease permeates the whole of the medullary and cancellated texture of the femur, and that there is no security for the removal of the disease except in removal of the entire bone, by disarticulation; and from what I have seen of high amputations in the thigh, for malignant tumours, I believe the risks of amputation through or near the trochanters to be as great, if not greater, than those of amputation at the joint. In the latter, the rapidity of performance is greater, the loss of blood less; whilst the risks of pyæmia are certainly less in cases of disarticulation than in amputation through the continuity of a bone, where we have the chances of myelitis, inflammation of the veins of the medullary Haversian canals, and acute necrosis, which are especially liable to occur in the state of the system accompanying malignant disease. In my own practice, out of above one hundred cases of amputation of the thigh, there have been five for malignant tumours of the femur, and of these, four have proved fatal; whilst the successful case was one of amputation at the middle of the femur, for malignant disease of the condyles.

The following seems to me a case in point, as being the second in which I have amputated at the hip-joint, for malignant growth of the femur; and in both with success:—

CASE.—M. W., aged 5 years, was admitted on May 29, 1865, into the Royal Infirmary, suffering from a tumour of the right thigh.

History.—Patient's mother states, that about six months previous to admission the child complained occasionally of wandering pains

in the right thigh, for which fomentations were applied. About three months previous to admission, however, the mother observed the patient walking as if her right knee was stiff; she had a considerable amount of pain in the limb; was sometimes fretful and low-spirited, but her general health was good. On being asked where she had pain, the patient referred it to various parts of the thigh; and on examining locally, the mother observed an oval lump on the outside of the lower part of the thigh, about the size of a "blackbird's egg," and said to be deeply seated. No increase of growth was observed, however, till about ten weeks before admission, when the child is said to have received a blow on the lower part of the thigh (with a chair), and since that time the tumour has been increasing rapidly. Since then, the patient has also complained greatly of pains in the limb, on account of which the part has been fomented, poulticed, and leeched, without any relief. The parents then consulted Dr Thomson of Yetholm, who, recognising the nature of the case, prevailed upon them to send her to the Infirmary. During the last few days, the patient has been losing her appetite, is low-spirited, and complains more of pains.

On admission into hospital.—Patient appears to be healthy, but is unusually quiet and reserved. Tongue slightly furred; lungs, heart, and other organs, normal. A tumour, of oval form, 5½ inches in length, and about the same in breadth, was found occupying the anterior, outer, and posterior surfaces of the middle and lower part of the femur, just above the condyles. It is of firm consistence throughout, and movable along with the femur. The superficial veins are enlarged, but the skin is not adherent. Patient does not complain of pain on pressing the tumour. The inguinal glands on both sides, as also the right cervical glands, are hard, and somewhat enlarged.

1*st June.*—P. 86. Sleeps well, and is much better in health. Ordered alterative medicine, followed by tincture of the muriate of iron and cod-liver oil, twice daily.

6*th.*—P. 96. Has had more darting pains in the limb. General health continues good. Tumour not perceptibly larger since admission of patient into hospital.

7*th.*—P. 80. Slept well. Chloroform having been administered, Professor Spence made an exploratory incision into the swelling, and discovered it to be a tumour, as diagnosed. The patient's pelvis was then brought well over the edge of the table, and held firmly by an assistant. Professor Spence next, grasping the soft parts with his left hand, entered the point of the knife at the front of the ischial tuberosity, and passing it obliquely upwards in front of the articulation, brought it out almost midway between the anterior superior iliac spine and the trochanter major, so as to form a large anterior flap. Having opened the joint by this first incision, while Dr Gillespie abducted the limb, the disarticulation was effected, and a posterior flap nearly equal in size to the anterior one was cut from within outwards. Immediately thereafter, a sponge

was applied over the posterior flap; Dr Watson compressed the vessels over the brim of the pelvis. The vessels, including the femoral vein, were then ligatured, the flaps stitched together, pads placed over the anterior and posterior surfaces, and bandaged. When the effects of the chloroform had passed off, an opiate was given, but the patient continued very restless, requiring to be held down for some time. No reactionary hæmorrhage took place.

On examining the limb, the tumour was found to be of a greyish colour, of firm consistence, and of a medullary character. Microscopic examination of the abductor muscles of the thigh showed the nuclei of the muscular fibres to be greatly increased in number, and seemingly about to undergo cancerous degeneration. The fibres of the gluteus muscle showed fatty degeneration, but no proliferous cells.

6.30 P.M.—P. 80. Patient has been sleeping continuously for some hours, is very thirsty and restless at intervals, and vomits on trying to take food.

9 P.M.—P. 100. Urine drawn off with a catheter. Opiate given as vomiting continued.

8*th*.—P. 100. Spent a very good night. Urine drawn off with a catheter.

4.30 P.M.—Patient has been sinking gradually, and is now unconscious. Pulse, not perceptible; respiration, rapid and very weak; has slight bronchitis; eyelids partially closed, and eyes oscillating. Ordered Spt. ammon. arom. in five-drop doses, every five minutes; also an enema of beef-tea and wine, and a mustard-poultice to the chest.

6.30 P.M.—Still continues in a very weak state. P. 156, and very weak; respirations, 60 per minute; has had her bowels opened freely. Beef-tea injections given every hour, and sal-volatile at intervals.

11 P.M.—Under this treatment patient rallied gradually; but as the nervous symptoms continued, fifteen drops of sol. mur. morph. were added to the beef-tea injections. P. 140; respirations, 40 per minute and regular; has grinding of the teeth, twitchings of the face, with knitting of the brows, and gives occasional starting and delirious exclamations.

1.30 P.M.—P. 150, weak. Cerebral symptoms and general weakness somewhat increased.

9*th*, 10 A.M.—Has slept well during the night, and cerebral symptoms are absent. P. 140, weak; takes no food, and is supported by enemata; respiration regular and not laboured.

4 P.M.—Continues in much the same condition; has occasional grinding of the teeth and startings of the limbs. P. 112. Supported by enemata.

10 P.M.—P. 130, and weak. Same treatment continued.

12.30.—P. 140, and weak. Consciousness returned and patient is inclined to sleep; cough somewhat increased, and pain in

the abdomen complained of. Ordered a large poultice over the chest and abdomen; takes some food.

10*th*, 4 A.M.—P. 120. Has been sleeping calmly, but is beginning to start somewhat, and grinds her teeth slightly.

8 A.M.—P. 104. Very weak; is unconscious; grinds her teeth; lies with her eyes wide open, and complains of great tenderness in abdomen. Enemata continued, and poultices on abdomen.

10 A.M.—P. 116. Drinks milk heartily; stump dressed and looking healthy.

12 M.—P. 120. Weak; some of the old symptoms returned. Enema given. From this time forward, patient gradually recovered. None of the cerebral symptoms returned, and appetite gradually improved.

11*th*.—P. 100. Is in good spirits; slight erythema along the edge of the wound. Some stitches removed. Discharge somewhat increased.

12*th*.—P. 108.—Patient continues to do well. This morning she took a hearty breakfast of porridge and milk, in addition to tea, toast, and eggs. The stump looks very well; there is not much discharge, and it is of a healthy character. As the cough is troublesome she is ordered to-day the following mixture:—℞ Ammon. sesquicarb. grs. xxiv.; tinc. scillae, ʒii.; decocti Senegae, ad ℥vi.; sig. a teaspoonful every three hours.

13*th*.—P. 104, of good strength. During the night she slept well, but was observed to start occasionally. Plasters applied to stump, and stitches removed. Dressed with soda lotion.

15*th*.—P. 90; bowels regular; appetite good.

17*th*.—All the ligatures except one have separated. General health continues to improve. At the inner angle of the stump is a hard, red, and painful swelling, evidently an abscess commencing to form; for this fomentations were applied. P. 110.

21*st*.—P. varied from 104 to 120 during the night. Stump looking very well. Sleeps soundly. Appetite good.

23*d*.—P. 104. Yesterday, passed four, and to-day eighteen ascarides lumbricoides, of which some were very large. Ordered a purgative, followed by ℞ Santonin, gr. viii.; sacchar, ℈i.; M., et divide in pulv. iv.; Sig. one to be taken night and morning.

25*th*.—Passed two more worms of the same kind, but smaller. Appetite has fallen off somewhat. The abscess in the groin burst to-day at the outer angle of the stump.

July 3*d*.—Since last report convalescence has been uninterrupted. To-day passed another small worm, which was the last.

From this date onward the patient improved daily. Appetite returned by degrees. The femoral ligature was withdrawn on July 6th, and the incision healed up without the slightest bad sign, and remains quite sound at the present date.

Remarks.—Besides the interest which attaches to a successful

case of amputation at the hip-joint, that just recorded possesses interest in regard to the diagnosis of the disease, and the condition and treatment of the patient after the operation.

The general history of the disease from its commencement; the obscure wandering pains referred to the thigh long before any alteration in the limb was detected, and then the appearance of a small but distinct lateral swelling as described by her mother, together with the subsequent rapid growth and increased pain, were all very characteristic of malignant disease of the femur. On the other hand, however, there was not the slightest appearance of the peculiar cachectic state which so generally accompanies malignant growths; the child was of ruddy complexion and plump, her appetite good, and all the functions natural, though she was restless and somewhat irritable at night. The mother, however, had with her another younger child, evidently affected with strumous swelling of the periosteum, bones, and glands. At the time of the patient's admission into hospital there was no lateral projecting swelling, simply an elongated ovoid swelling, or enlargement of the femur, from the condyles to near the trochanters. Under these circumstances the question arose,—Might not these symptoms be caused by periostitis and subacute ostitis, and perhaps incipient necrosis? To my own mind, the absence of rigors or febrile symptoms at any time during the progress of the disease, the distinct lateral swelling noticed at first, and the peculiar ovoid form of the enlarged femur, seemed pretty conclusive as to its being a malignant tumor of the bone; but still, under the circumstances, before proceeding to such an extreme measure as amputation at the hip-joint, I considered it right to resort to an exploratory incision, as recorded in the report. In many instances a free exploratory incision will at once satisfy the surgeon as to the true state of matters; but here it had a tendency to mislead, for owing to the cancerous deposit being situated partly within the medullary canal of the femur, and partly between the periosteum and the shaft of the bone, and easily separable, it resulted that when I introduced my finger into the incision, I felt the bone bare and loosely connected, with swollen periosteum, just as in a case of necrosis, so that I had to enlarge the incision considerably to judge of the true state of the swelling. I draw attention to this, because unless I had been pretty well decided before as to the nature of the disease, the condition presented in this case, so different from the irregular softened mass mixed with osseous spiculæ, generally met with in malignant osseous tumours, might have led to a wrong diagnosis and most disastrous results.

The method of operating in this case was the same as that I adopted in the case of L. S., published in this Journal, vol. viii. page 585, and I think it the best in such cases where we have the power of choosing our procedure. Amputation at the hip can be readily performed by cutting one very large anterior flap, and disarticulating

and dividing the posterior parts almost directly backwards; but as examination shows that even at an early period the muscles near the diseased bone are liable to be affected, it is of vital importance to plan our operations to avoid proximity to the tumour, so as to diminish the risk of retaining any morbid tissue in the flaps. Hence I prefer two shorter flaps to one very long one, as it must encroach more on the altered parts by its greater length. Rapidity of execution in this operation is of great importance, as diminishing the risk from loss of blood; and in cases of tumours where we have the leverage of the whole limb, the disarticulation may be accomplished in from ten to twenty seconds. The chief things to be attended to for its rapid performance are,—attention to the position of the patient; that the hip projects well over the table, whilst the pelvis is kept firmly secured, so as to prevent the body receding: this allows the limb to be fully depressed after the anterior flap is formed, and also facilitates the other movements necessary for enabling the knife to be passed readily beyond the trochanter major, so as to cut the posterior flap. The direction given to the knife in passing it across the front of the limb to form the anterior flap is all-important as to the ease with which the subsequent steps will be accomplished. In operating on the right thigh, the surgeon, standing on the inside of the limb, which must be abducted, and slightly flexed on the pelvis, should enter the knife immediately in front of the tuber ischii, and carry it steadily in an oblique direction across the front of the joint to a point nearly midway between the great trochanter and crest of the ilium. In doing this great care must be taken to make the knife pass close in front of the head of the femur, so that when the flap is formed and raised, the capsule will be found to be opened, and when the limb is forcibly depressed the head of the femur either at once starts out, or a single cut upon it divides the remaining portion of the capsular and round ligaments, and nothing remains to be done but to clear the trochanter major, and form the posterior flap. In this case the common femoral artery was commanded by manual pressure, and the vessels on the posterior flap by a large sponge firmly applied the instant the limb was severed. The abdominal aorta could have been readily compressed if required; but, as I have found in other cases, the means above mentioned were quite sufficient, and less blood was lost than in an ordinary amputation of the thigh. In this as in other successful cases I have recorded, the femoral vein was tied to arrest bleeding, and I believe, as I have stated elsewhere, that instead of being hurtful it seems rather to do good, by preventing pus or unhealthy discharge entering the venous circulation by the large open mouth of the vein kept patent as it is by its fascial connexions.

The progress of the case as given in the report shows how much success in such operations depends on careful after-treatment, watchfulness of symptoms, and persistence in appropriate remedial measures, even when the condition of the patient seems very hopeless.

It will be noticed that the urgent unfavourable symptoms in this case did not supervene till about twenty-four hours after the operation, when the risk from primary shock and reactionary hæmorrhage had passed. The morning report on the 8th June was, "Pulse 100; spent a very good night," and at my visit at noon the child presented no unfavourable symptom; but shortly after 3 P.M. symptoms of restlessness, nausea, and a state approaching to collapse, as detailed in the report, set in suddenly, and at 4 P.M. she seemed to be rapidly sinking. I believe that, but for her being very carefully watched, and the prompt and continued use of external and internal stimuli, the little patient must have soon died.

The character of the symptoms was peculiar: there had not been the slightest amount of reactionary oozing from the stump, and the child had slept well after the operation. Yet the state must have been the effect of the operation on the nervous system; although it is just possible that the tenderness of the abdomen, the grinding of the teeth, and convulsive startings, may have been due to the presence of so many large intestinal worms; for though the more severe symptoms passed off, and she gradually began to amend, yet her rapid and thorough convalescence dated from the time the worms disappeared under the use of the santonine.

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