AN ACCOUNT OF A CASE
OF
PULSATING TUMOUR,
IN WHICH
THE URINE CONTAINED CANCER CELLS.

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James Hawks, æt. 53, a greengrocer, was admitted into the Middlesex Hospital, January 20, 1852, with considerable œdema of the whole of his left lower extremity, and complaining of pain in the groin and knee. He was tall and spare; his hair was of an iron grey colour, and his eyes blue; his countenance generally was rather sallow, but his cheek was ruddy.

The left lower extremity was half as large again as the right, and its cutaneous vessels congested. The œdema reached to the crest of the ilium, enlarging the buttock; and the abdominal walls pitted slightly on pressure for some inches above the groin.

On examining the groin, it was found swollen, and its fold almost obliterated by a large pulsating tumour, which lay behind the abdominal muscles. A small portion only of the tumour could be felt below Poupart's ligament, but it extended upward towards the umbilicus, beyond the horizontal level of the anterior superior spine of the ilium.

It occupied the situation of the external iliac artery, and projected about equally on either side of that vessel. Inward, it reached nearly to the mesial line, and outward, far into the iliac fossa, its whole breadth being apparently about six inches. It was not moveable. The greater part of its surface was smooth and firm; but it was lobulated at four or five spots, and the prominent parts were soft.

The tumour could be both seen and felt to pulsate at every beat of the heart. The impulse was distinct, whether the hand were laid upon the tumour or grasped it, and was stronger when the femoral artery was compressed. Yet, though strong, the pulsation was less than is generally felt when a large aneurism, full of fluid blood, communicates freely with a large artery. The force of the pulsation varied at different parts of the tumour; it was greater outside than within, at the soft prominences than at the level and firmer parts: the beat was weak on either side of the external iliac artery, which was, consequently, readily distinguished to be raised and stretched over the front of the tumour.

A rough and loud murmur could be heard over the whole tumour and at the back of the ilium. All the arteries of the body beat hard and round, with a vibrating thrill, at about 90. In the tibial vessels the pulse was weaker on the left than on the right side. The heart was without morbid sound. The lungs were emphysematous, and the chest barrel-shaped.

The glands in the groins were distinct, but not enlarged. A small hard lump, long transversely, could be felt just above Poupart's ligament, on the right side, and superficial to the external iliac artery.

He stated that his father had died suddenly, in four or five minutes after having been seized with a pain in his stomach; that, in his own occupation he was accustomed to stand long, and to carry weights; but that he knew no reason for the disease in his groin, unless it were a fall down an area, that had happened to him eighteen months ago. He had had

acute rheumatism, once severely, and more than once slightly; and he was subject to palpitation and epistaxis.

His account of the present disease varied continually, and he sometimes gave two histories during the same interview. The most credible one seemed to be that it had begun three months before with swelling of both knees; that the swelling of the right subsided, while that of the left extended to the whole limb. His first pain was of a gnawing character, and was felt in the knee. It extended to the ankle, and was then followed by a stiffness and slight aching in the groin. About three weeks before his admission, he noticed a slight beating in the groin, and he has lately suffered severe pain in that part. About a month ago, he used to pass an unusual quantity of water, and was compelled to void it six or seven times in the night. The bowels were costive, and required large doses of medicine to move them; but no collection of obstructed fæces could be detected.

My first impression as to the nature of this disease was, that it was an enlargement, possibly of malignant character, of the iliac glands. The burden of the diagnosis rested upon the character of the tumour; for the presence of œdema determined only the fact of obstruction to the femoral and other vessels, and nothing as to the nature of that obstruction. There could not but, indeed, be a strong presumption that any tumour, of short duration, situated precisely in the course of a large artery, and having both pulsation and bruit, must be an aneurism, however its pulsation and bruit might be modified. Yet, when neither the force of its pulsation nor the character of its bruit were proportioned to its bulk, (supposing it to be an aneurism), when the pulsation, though distinct, was not universal, and the tumour in parts felt even firm, a reasonable doubt might be entertained of its being of that nature. The patient's aspect confirmed that doubt; and a strong solution of iodine was accordingly ordered to be washed over the surface covering the tumour.

During the following eight days he was kept quiet in

bed, was occasionally purged, and in the latter part of that period was kept on spare diet. The œdema of the limb and force of the pulse diminished, and the murmur audible in the tumour became soft : but during the same period the tumour itself enlarged one fourth in size, another soft pulsating prominence formed on it, the pulsation acquired new force, and a great increase of pain took place. The pain assumed a strong pulsatile character, and was so severe as to prevent his sleeping.

Not every large artery, raised and stretched by a tumour, communicates pulsation to that tumour. It is not uncommon to meet with tumours, both solid and fluid, having that relation to large arterial trunks, yet without a trace of pulsation.

On the other hand, so rare are the instances in which tumours that are not aneurismal, have a vigorous pulsation, that it may be said to be the duty of the surgeon, when in charge of such a case, to prove that it is *not* of that nature before he is at liberty to withhold the remedial measure, which is indispensable in a like case of aneurism. Recalling, then, the facts, that this tumour had a lateral and a slightly expanding, as well as a forward beat, and that it occupied precisely the situation of an iliac aneurism ; observing further, that while the general circulation had become tranquil, and averaged seventy-two beats in the minute instead of ninety, yet the tumour had increased both in bulk and in the vigour of its pulsation, and its wall had yielded and become soft at a new place ; and considering also that the proximity of the external iliac artery alone could certainly not account for the force of the pulsation ; I could not resist the presumption arising from the likeness of the tumour to an aneurism. There was one contingency, suggested to me by a case of aneurism which I had previously witnessed, which not only appeared likely to exist, but also furnished a probable solution of the peculiarities of the case. It was that of the aneurism having been formed high up at the back of the artery, and of a great part of the blood in it having

coagulated. The case to which I refer, was one in which a large aneurism in the calf possessed a feeble bruit in its early stage, but no pulsation during the time in which I had the opportunity of observing it, and felt so firm that, amidst conflicting opinions, it was rather held to be an encephaloid tumour than an aneurism. The inch of posterior tibial trunk that intervenes between the origins of the anterior tibial and peroneal arteries, had given way on its anterior surface. The anterior tibial bound the open vessel down to the interosseous ligament, and prevented its rising with the aneurism. The force of the current of blood escaping from the vessel was therefore spent against the bone, and had eroded it, whilst that collected in the sac, receiving only a weak reflected impulse of the arterial current, had coagulated.

Upon the presumption that the case was one of aneurism, no delay was admissible in resorting to the indispensable remedial measure. The tumour reached too high to leave any hope of success from the ligature of the external iliac artery, and it therefore became requisite to secure the common iliac.

The operation was performed as far back as possible, to avoid separating the peritoneum from its connections to an unnecessary extent, as well as to escape the dangers involved in the anterior operation, from the close adhesion that membrane sometimes has to the tumour. A curved incision along the crest of the ilium, commencing at the extremity of the twelfth rib, and ending an inch from the anterior superior spine, afforded ample space for the necessary manipulation. The only unusual occurrence was hæmorrhage, to the extent of six or eight ounces, from the loose tissue behind the peritonæum.

Although the patient's lungs were known to be emphysematous, chloroform was not withheld; it was administered with much caution. The inhaler was often taken away for one or two breaths, and when he struggled, or became livid, or his pulse flagged, it was removed altogether. A quarter of an hour consequently elapsed before he was ready for the operation, but at length after a struggle, in

which his pupils contracted, and his pulse rose to 120, his limbs relaxed, and his pulse fell to 80. The influence of the chloroform was obtained and kept up without inconvenience, and without any apparent danger.

When the operation was concluded, he continued for half an hour in a state of catalepsy. He was easily roused from it, but soon relapsed. His pulse meanwhile was at 64, and his face and lips were pallid.

As consciousness partly returned, he felt pain in the groin; and an hour or two after the operation it became so severe that he was constantly groaning on account of it. It was relieved by some large doses of opium, but returned through the evening and night, as often as the effect of the opium passed off—even while the pupil remained contracted.

In the forenoon of the day following the operation he had little pain, and having taken no opium since 4¹/₂ A.M., he was recovering from the drowsiness which he had experienced from the combined effect of the chloroform and opium. His pulse had risen to 128; and the left limb, which had been colder than the right after the ligature of its arterial trunk, was five degrees warmer than the other limb at the foot, and half a degree warmer at the groin.

At 5, P.M., he began to vomit small quantities of his food, and in the evening tenderness was felt near the wound, and a copious oozing took place from it. Tympanites at the same time came on, and drowsiness. Towards night the circulation through the left limb failed: its entire surface became mottled with patches of stagnant or nearly stagnant blood, its superficial veins refilled slowly when emptied by pressure, and the temperature diminished.

In the night a deep stupor came on, and at 8, A.M., the following morning, forty-three hours after the operation, he died comatose,—the failure in the circulation of the limb becoming more marked, and the foot at last being observed to be shrunken and dark.

Examination of the body twenty-eight hours after death.

—The whole body presented proofs of extreme decomposition of the blood. It exhaled an extremely offensive odour, and the course of the cutaneous veins was in many parts marked by dark puce-coloured lines of transuded blood. The whole of the left lower extremity was deeply stained and mottled from the same cause, and the colour was darker than it had been during life. Most of the loose cellular tissue contained bubbles of air. A gust of putrid gas escaped from the peritonæal cavity as soon as it was opened, and the peritonæal surface of the stomach was raised by very numerous and large air-vesicles. The left leg crepitated slightly, though it was not swollen, with emphysema. The pleuræ contained bloody serum, but no air was ascertained to have been formed in them, or in the pericardium. In the anterior chamber of the right eye, however, a bubble of air floated, which was equal in bulk to one fourth or one fifth of the whole aqueous humour.

The wound was covered with unorganised lymph. The peritonæum was entire; but slight inflammation had taken place over more than one third of it: the inflammation was most marked in that part which adjoined the wound. The peritonæum presented lines of vascularity wherever portions of bowel adjoined; there was a trifling loss of the lustre of the serous surface; and the fluid at the back of the cavity was slightly turbid. The liver was large and fatty, the spleen small and soft.

The kidneys were small and soft. Their tubular part was quite healthy, but the cortical portion was thin, and dotted everywhere with small, soft, white, cream-like deposits, which were ascertained by microscopic examination to contain cancer-cells. The ureters were healthy.

The bladder was raised much above its natural situation, but was perfectly healthy. Its mucous surface was pale, smooth, and perfectly healthy. It contained a third of a pint of turbid urine, with flakes in it. On examining with the microscope some which had been pressed out through the urethra after death, it was found to contain an abun-

dance of cancer-cells,—large irregular aggregations of spherical cells, caudate cells, and circular cells with one, six, or more sub-cells. Besides these there were epithelium scales, and single round globules or cells. The cells from the kidneys and those passed with the urine through the urethra were not alike.

The heart was rather large. The lungs were emphysematous, and did not collapse. The brain was in an advanced stage of atrophy, combined with serous compensation.

Behind either external iliac artery was a mass of enlarged glands affected with encephaloid cancer. That on the right side was comparatively small, situated within the pelvis, and still half an inch distant from the artery. The mass on the left side was situated on the edge of the pelvis, and formed a very large tumour, which had grown freely inward toward the mesial line, and externally had dislodged the psoas and iliacus muscles. The tumour was lodged in the bifurcation of the common iliac artery. The external iliac, girt at its origin above, and bound down by Poupart's ligament below, arched over the tumour, and was tightly stretched and flattened. The internal iliac beat against its posterior part, and the obturator ran beneath it to the thyroid foramen, so that except at the body of the pubes, the tumour was encircled in artery. Moreover, at the posterior and deeper parts the large gluteal, sciatic, and internal pudic arteries ran through the tumour in their way to the greater sciatic foramen. The whole tumour was enclosed in a dense capsule or fascia, which was particularly thick and adherent at its anterior part, and included the external iliac artery and vein in one mass with the tumour. At the soft and prominent lobes of the tumour the fascia had given way, and the growth protruded, yet it remained so tense as to retract considerably when divided in laying open the artery.

Enlarged white glands, yielding a creamy juice on section and pressure, were found in the loins and beneath the pleura. A few of the glands in the groins were partly filled with firm, and not creamy, malignant substance. These glands

were small and hard. The gland in front of the right external iliac artery was diseased.

There were small masses of malignant disease in different parts of the pelvis, some of which involved and raised the peritonæum. For the most part, however, they were arranged in the line of the absorbents, between the enlarged iliac glands and a central tumour situated between the bladder and rectum, and behind the prostate. It sprang out of the substance of the prostate; for that gland, though quite natural in size and form elsewhere, was at its posterior part identified with the growth; and a section of the two showed their tissue to be continuous. The prostate and tumour together were rather larger than a hen's egg. The left vesicula seminalis was included in the tumour; its walls were not distinguishable from the surrounding cancerous substance, but its cavity was not yet obliterated. The right vesicula seminalis was misshapen and thrust outward, except at its anterior extremity, which passed with the right vas deferens through the growth to the prostate. The interior of the tumour was divided by many thick fibrous bands into compartments which were filled with the softer cancerous deposit; and in one part a small round glossy calculus was found, similar to those which occur in the prostate. The section was partly of a pink colour and partly white. The prostatic portion of the urethra was capacious and healthy.

The left common iliac artery was about an inch and three-quarters in length; the ligature had been placed at about seven-eighths of an inch from either extremity of the vessel. The whole artery, was filled with coagulum from end to end.

The Transactions of the Society already contain a very comprehensive paper, contributed by Mr. Stanley, on the "Pulsating Tumours of Bone." And yet, even if the case above detailed had presented no additional features of practical importance, I should have ventured to recall the attention of the Fellows to the subject, the more especially

when I recollect that of the five cases in which the operation for the ligature of the common iliac artery has been performed in London, this constitutes the third in which the disease was supposed to be of aneurismal, but proved to be of malignant nature. The conditions which are stated by Mr. Stanley in his Paper to be requisite for the production of pulsation in a tumour, were here fulfilled. The tumour was bound down by a fascia, and adjoined a bone. But the sources of pulsation, in the present instance, were more abundant than in any previously recorded case. Systematic works contain rules for distinguishing a pulsating tumour above an artery, and a similar tumour beneath an artery; but no writer, so far as I am aware, has contemplated the necessity of distinguishing from aneurism a tumour receiving pulsation from one trunk on one side of it, from another trunk on another side, and from large branches within it at the same time. And, after having considered this case, I must confess myself unable to point out any plain and positive means of diagnosis, should such a tumour present itself again in a like situation, and in as critical a period of its existence, as in the eight days in which I had the opportunity of observing this. The distinction can be drawn only by the observation of other tumours, and of any characteristic state of the general health, if either exist. It is plain that the presence of any other tumour, and even of an altered gland in another part of the body, would merit an attention which the predominating influence and peculiar character of a vigorously pulsating tumour would go far to usurp; but I am not sure that the detection of a rounded tumour extending upward from the back of the prostate, would, in a man, aged fifty-three, have caused a suspicion that so rare a disease existed as primary cancer of the prostate gland—so rare, indeed, that Lebert denies its existence, and that the Hunterian Museum contains but a single specimen. The one means of distinguishing the disease, discovered in the present case, might (though a rare contingency) be useful in a future one. During life some urine was seen after it had been drawn off

through a catheter; it was quite clear, and no further examination was made of it. But that which was pressed out through the urethra after death was abundantly pervaded with cancer-cells. It is a matter of little practical importance whether these elements of the malignant disease were shed by the kidney or the prostate. It is, however, worthy of remark that microscopic examination of an excretion, though an unusual practice, might have the effect of determining the nature of a doubtful case, and preventing an operation, even though the symptoms presented should seem very positively to require one.