SARCOMA UTERI.

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It is one of the many services which Virchow has rendered to pathology, to have rescued the term Sarcoma from the somewhat vague senses in which it used to be employed, and to have applied it to a group of tumours whose source he has carefully traced, whose structure he has elaborately described, and whose relation to neighbouring groups of tumours he has clearly defined. They spring from a connective-tissue basis, and may therefore be found in all parts of the body where areolar tissue, bone, cartilage, skin, mucous membrane, and the cognate textures exist. In structure they have an affinity with the tissues from which they take origin, consisting of cells, and an intercellular substance freely traversed by bloodvessels. But they differ from the simpler homologous growths—such, for example, as a fibrous tumour—in that the development and increase of the cells predominate over the development of the intercellular substance, whilst the cells tend to assume distinct forms; and from the heterologous growths, the carcinomata, they differ in that there is a distinct formation of intercellular tissue, though of rudimentary type, and not a mere infiltration of cells among the pre-existing tissues. The cells present either, 1st, a fusiform or oat-shaped outline, when we have the spindle-celled sarcoma; or, 2d, they are more distinctly circular when we have the round-celled variety. Sarcomata with stellate cells and with large myeloid cells are found more rarely, and only in special situations.

Such tumours have long been occasionally noticed as occurring in the uterus. In his chapter on Fibro-plastic or Sarcomatous Tumours, Lebert[1] gave the history of a case, with microscopic drawings, where the disease sprang from the cervix uteri. Hutchinson recorded a case of intra-uterine sarcoma very fully in

[1] Physiologie Pathologique, ii. 154, 1845.

the Transactions of the Pathological Society of London in 1857,[1] under the designation of Recurrent Fibroid Tumour of the uterus. In the following year[2] another case was brought before the same Society, under the like designation, by Callender; and the same cases, with a more complete clinical history, are related by West,[3] who had the care during life of the second patient, and to whom belongs the merit of giving the affection a place, though not clearly defined, among the diseases of the uterus. In his lecture on Sarcoma,[4] Virchow described its occurrence in the uterus from instances that had come under his own observation, and gave reference to previously-recorded cases. But it was not till after the appearance of Gusserow's essay[5] on Sarcomes of the uterus that the subject received due attention, and gynecological literature began to be enriched by the observations of Hegar,[6] Winckel,[7] Spiegelberg,[8] Chroback,[9] Leopold,[10] Paul Grenser,[11] Ahlfeld,[12] and especially by a more elaborate thesis by Kunert, an abstract of which is given in the "Archiv für Gynaekologie"[13] in 1874. So late as 1873 the subject is meagrely treated by Barnes;[14] and it is only in the works of Schroeder[15] published last year, and in the last edition of Thomas,[16] which came into my hands two days ago, that a distinct chapter is accorded to Sarcoma of the uterus. Let me add, that I have looked through the index of the Transactions of our own Society, and that of the Transactions of our younger but more prolific sister in London, without finding a reference to the subject, unless an interesting case recorded by Hall Davis[17] as one of intra-uterine Fibro-plastic Tumour belong to this category. Let this be an apology for bringing four cases under your notice, and offering a few remarks regarding them.

The first case is one where we have probably to do with a uterine myoma or fibro-myoma undergoing sarcomatous transformation.

CASE I.—*Probable Fibro-myoma—Repeated Removal and Recovery—Development of Myo-sarcoma—Removal and Recovery—Development of Sarcoma—Removal of Portion, and Death of Patient.*

I first saw Mrs B., a widow, of 46 years of age, mother of several

[1] Vol. viii. p. 287. [2] Vol. ix. p. 327.
[3] Lectures on the Diseases of Women, 3d ed., 1864, p. 328.
[4] Die Krankhaften Geschwulste, B. ii. p. 350, 1864-65.
[5] Archiv für Gynaekologie, B. i. p. 240, 1870. [6] Ibidem, ii. 29, 1871.
[7] Ibidem, iii. 297, 1872. [8] Ibidem, iv. 344, 1872. [9] Ibidem, iv. 549.
[10] Ibidem, vi. 493, 1874. [11] Ibidem, vi. 501, 1874.
[12] Ibidem, vii. 301, 1875. [13] Ibidem, vi. 111.
[14] Clinical History of the Diseases of Women, p. 825. At p. 752 he quotes Hutchinson and Callender's cases of "recurrent fibroid."
[15] Krankheiten der Weiblichen Geschlechtsorgane, p. 284. He gives the history with drawings of two cases observed by himself.
[16] Practical Treatise on the Diseases of Women, 4th ed., p. 539, 1875. Has met with four cases, but their histories are not recorded.
[17] Transactions of the Obstetrical Society of London, ii. 17, 1860.

children, in consultation with Dr David Gordon of George Square, on 12th July 1870. She was pale from great anæmia, with a weak, quick pulse, and complained of great pelvic distress. The evacuation of the bladder especially was accomplished with great distress and difficulty. A tumour, the size of a child's head, was found rising above the pelvic brim, firm and fixed, and having all the characters of a uterine fibroid. On vaginal examination the pelvic cavity was felt to be completely occupied by a soft, fleshy, elastic mass, which the combined examination showed to be of a piece with the supra-pubic tumour, and which occupied the whole anterior wall of the uterus. The os uteri could, with difficulty, be detected high up towards the promontory of the sacrum; and the pelvic excavation was so completely blocked up that catheterization of the bladder was almost impossible. The loop of a straight chain-écraseur was applied as high up on the growth as possible, and a nearly circular portion was removed, measuring $4\frac{1}{2}$ inches in diameter, and $2\frac{1}{2}$ inches in thickness. On section it presented a uniformly smooth surface of pale pinkish colour, with two islands in it presenting the familiar cotton-ball structure and clear white glistening aspect seen on section of an ordinary fibroid tumour of the uterus, and separated from the softer surrounding tissue by a connective-tissue capsule. The larger part of the tumour was composed of fusiform nucleated cells, with an intercellular matrix having a fibrillated appearance, and running for the most part in small sections in parallel directions. It presented a marked contrast with the irregular wavy arrangement of the fibres and connective-tissue corpuscles seen in the fibromatous nodules. In some places among the bundles of spindle-cells there were to be seen rounded nucleated cells, rather larger than white blood-corpuscles.

The patient's earlier history, as Dr Gordon informed me, presented nothing remarkable; her elder children having been born without any difficulty. But on 30th November 1865 the birth at the full time of her sixth child was impeded by a soft elastic swelling, which was then, for the first time, discovered in the right side of the vagina, and which necessitated the use of the long forceps, which was applied by Sir James Simpson, Dr Keiller also being present. Within a year, on 22d October 1866, having again carried a child to the full time, the delivery had to be terminated artificially by Dr Keiller, who turned and extracted the infant by the feet. Except in connexion with her labours the patient had not complained of special distress arising from the tumour; but in the following year it began to be attended with a copious serous discharge, and to produce pain and considerable difficulty in micturition. In June 1867, accordingly, a portion of it was removed with the écraseur by Sir James Simpson, with the effect of relieving the patient for a time from her discomfort. By November 1868,

however, her distressing symptoms had returned to such a degree, that removal of another slice of the growth was attempted. The tumour at that time must have been very dense and tough, for though the portion removed was of smaller dimensions than that which came away in my hands subsequently, Dr Gordon tells me that the chains of two different écraseurs with which the tumour was seized snapped asunder, and Sir James had to cut through the constricted part with strong scissors. Again the patient was for a time relieved; and again the mass, which had been felt in the abdomen, seemed to lessen considerably. But on 3d February 1870, the vagina having again become blocked up, a third lobe of the tumour was removed; and on 24th February a fourth portion. The relief experienced by the patient lasted till the following year, when she was fain to submit to an operation for the fifth time—the amputation in July 1870 of the mass I have described.

After the operation the patient rallied speedily and satisfactorily, and the relief afforded by the operation tided her over three more years. In the spring of 1874, however, her old symptoms began to trouble her; the watery discharge became more profuse than ever; the dysuria returned; and in addition, in April she had a severe attack of menorrhagia, and her health began to deteriorate under repeated uterine hæmorrhages. I saw her again in October 1874, and found her greatly reduced in strength, with a waxy colour, and anxious expression of countenance, more pronounced than one sees in cases of mere anæmia or marasmus. There was no marked elevation of the fundus uteri above the pubes; but the vagina was occupied by a tumour the size of the fist, with a smooth surface, and having a soft, sodden feeling, bathed with a copious faintly putrescent discharge, and bleeding easily when somewhat roughly handled. We deemed it desirable to give her the chance once more of a temporary relief and rally, and on 31st October, with the écraseur, I removed the projecting mass, Dr Ogilvie Will of Aberdeen being also present. The chain of the instrument cut through with great ease, and with something like the sensation one experiences in cutting through a cauliflower excrescence. The structure of this last amputated mass much resembles that removed in 1871, except that there are now no traces of fibroid tissue; the round cells are more numerous, and are found running in parallel rows in a fibrillated but gelatinous-looking matrix, and the spindle-cells are plumper and shorter. There was a slight tendency to hæmorrhage from the raw surface, which was controlled by perchloride of iron. The patient seemed to do well for two days, but was attacked with acute and extensive phlebitis in both the lower extremities, and on 13th November she died. A post-mortem examination was not obtained; but when I saw her shortly before her death, I found in the vagina, and springing from the wound surface, a fresh sarcomatous sprout about the size of half the

fist, having the feel, and when exposed by separating the labia, the exact appearance, of a mass of proud flesh.

This, as I have said, appears to me to be a case where, after removal of a large portion of a myome or a fibro-myome, there has sprung up a neoplasm, which became more and more decidedly sarcomatous in its texture.[1] But the greater proportion of cases which have been recorded are sarcomata *ab origine*, and they present themselves under one or other of two forms. Either, 1st, they are circumscribed, and more or less solid bodies projecting polypoidally from some spot on the inner surface of the uterus; or, 2d, they are more diffused and soft, and spread along the uterine mucous membrane. The next two cases are illustrations of the former.

CASE II.—*Intrauterine Sarcoma—Removal and Recovery on two occasions—Death after five years and four months—Autopsy.*

Mrs M., aged 72, married 46 years, and mother of five children, with some intercurrent miscarriages, was placed under my care in the year 1869 by Dr Ritchie of Glasgow, who had instructed her to wear a vaginal ball-pessary, kept in position by a wire fixed to an abdominal band, to give relief from downbearing symptoms, from which she had suffered for many months previously. When I first saw her she was a well-nourished healthy-looking old lady, and I found, on inquiry into her symptoms, that besides having had for a long time a feeling of pressure and discomfort in the pelvis, she had more recently been surprised to notice occasional escapes of blood, menstruation being for many years at an end. On making a vaginal examination, I found the genital canals moist and relaxed, the os round and patulous, the cervix and body enlarged and softened; and when the fundus was pressed down with the left hand above the pubes, the finger of the right passed easily and painlessly into the cavity of the uterus. Within the os internum, I could thus feel very distinctly a soft polypus, which I judged to be of the size of a walnut. Not being prepared to attempt its removal, I prescribed ergot, with the view at once of checking the attack of hæmorrhage, which had been the immediate occasion of my present visit, and of inducing uterine action to favour the further descent of the intrauterine body. Two days afterwards the hæmorrhage had ceased, but, on examination, I found the os firmly closed, and the cervical canal quite impervious to the finger. An examination with the sound shortly afterwards, however, showing me that the uterine cavity was enlarged to three inches in length, and occupied still by the foreign body, I dilated the canal with sponge-tents, and partly with forceps, and partly with

[1] Not unlike what occurred in a case recorded by P. Müller. Archiv für Gynaekologie, vi. 126, 1874.

the finger-nail, broke down and removed the morbid growth which I found springing from high up in the cavity. It was too soft and friable to be removed in any other way, and I applied solid nitrate of silver to the ragged basis. She had no bad symptom after the operation, and for some months was in the enjoyment of good health. About eight months subsequently, however, there was a recurrence of the escape of blood; and she began now to complain more of leucorrhœal discharge, and as the os relaxed occasionally when the bleedings came on, so as to permit the passage of the finger into the uterine cavity, a new mass could be detected pressing into the os internum. In August 1870, exactly a year after the first operation, I again dilated the canal, and removed, with the assistance of Dr Munro, into whose care the patient was about to pass, a portion of the diseased mass the size of an egg; but it was felt to have acquired a more extensive attachment along the back wall of the uterus, and its complete extirpation, because of the bleeding set up in the very friable substance, could not be effected. Again, for nearly a year, she enjoyed comparatively good health, although the thin, pale, watery discharge soon re-appeared, and by-and-by became very profuse; and for the relief of her pressure symptoms, which were sometimes accompanied with frequent micturition, and even retention, she had to wear a Hodge's vaginal pessary. After this time the hæmorrhages recurred, and the profuse watery discharge became offensive. Early in 1872, I saw her along with Dr Munro, when the uterus was found considerably enlarged, the orifice freely open, and occupied with a portion of the neoplasm hanging through in a sloughy condition, and giving rise to a profuse dirty discharge, having such a fæcal odour as to give rise to the suspicion that a fistulous communication had formed between the rectum and vagina. Her general health was now greatly impaired, her pulse weak, and her skin waxy, and it seemed that any attempt to remove more of the tumour might be likely to lead to a fatal collapse. Means were therefore used simply to keep up the patient's strength, and a portion of the tumour having been expelled, she rallied to a remarkable degree. From time to time, however, as Dr Munro has informed me, she suffered from increase of the watery discharge, and under a good deal of sickness and constitutional distress, the os uteri became more expanded, and pieces of the tumour were thrown off, sometimes as large as a pear, and invariably with some degree of hæmorrhage. These attacks came on every six or eight weeks; and on several occasions Dr Munro removed the protruding mass when it was hanging into the vagina. The strength was gradually undermined, and the blood disintegrated; and in the end of 1873, and again in 1874, she had attacks of phlebitis in both legs, but most severe in the left. She sank at last, and died on 29th November 1874, five years and four months from the date of the first detection of the sarcoma.

Dr Munro was allowed to remove the uterus, which he kindly gave me. It is enlarged in size, and presents the general appearance of a uterus at the fourth month of pregnancy, except that the os is expanded to the size of a two-shilling piece, and occupied by the projecting growth. It measures from fundus to os externally 5″ 9‴, from side to side at the level of the Fallopian tubes 5″ 5‴, and from before backwards 3″. The Fallopian tubes are seen to be enlarged to a corresponding degree, each having a thickness of from half an inch to 1″ 1‴, and from their free fimbriated extremities there project rounded masses, having the appearance of the thrombus projecting from a small vein into a larger trunk. That on the right side pouts out to the extent of half an inch from the tube. They are evidently of the same nature as the growth protruding through the os uteri, though somewhat paler in colour. On cutting open the anterior wall of the uterus the morbid mass was found adhering to the whole surface, but not so firmly as to hinder its being easily detached with the handle of the scalpel. In the two lower thirds of the posterior wall, however, the union is much more intimate. The walls of the uterus were everywhere thinned to a remarkable degree. In the middle of the anterior aspect they measure only from 1‴ to 2‴ in thickness. An incision running at right angles to this at the level of the Fallopian tubes cuts through a portion where the wall is thicker, but only because of the development of a few sarcomatous nodules within the layers of the muscular fibres. The mucous membrane is smoothed out, and presents a cribriform appearance from the processes thrown into it from the surface of the tumour, and a scraping of it placed under the microscope shows it to be deprived of its epithelial covering. In the posterior wall the sarcomatous tissue has firmer hold of, and passes deeply into the whole thickness of the walls—so much so, that at three spots nearly at the level of the os internum it has grown right through the muscular wall, and formed slight projections on the peritoneal surface the size of a half-cherry, covered with a thin investment of serous membrane. The walls of the Fallopian tubes are similarly atrophied till there seems to be little more than the serous covering left. On microscopic examination the tumour presents many nucleated cells, both round and spindle shaped; the latter in by far the greater proportion. But they are for the most part filled with fatty granules and molecules, and the fibrillated tissue around them is also dimly granular.

This case is remarkable clinically, because of the frequency and extent of the sloughy masses which were expelled; and pathologically because of the manner in which the growth, while rooting itself specially in one part of the uterine wall, yet laid hold eventually of its entire mucous membrane, not only in the body but also in the cervix. In its invasion of the Fallopian tubes, and finding in them a new seat of development, the case is, I believe, unique.

CASE III.—*Intrauterine Sarcoma—Inversion of the Uterus—Amputation with Ecrascur—Death—Description of Tumour.*

J. P., aged 41, unmarried, came from the country into my ward, in the Royal Infirmary, on 2d September 1875. She was a stout, well-built, anæmic-looking woman, and with a somewhat worn expression of countenance. She complained of being very weak, and becoming increasingly weak, from the occurrence of frequent bloody discharges. The first had appeared at a menstrual period, ten months previously, when the amount of flooding alarmed her; and to the recurrence of her courses at shorter intervals than usual and in increased amount she attributed her weakness. During the intermenstrual periods there was a copious leucorrhœal discharge, which had only latterly begun to be offensive. She had no pain till two weeks before her admission, when she began to have distress in the pelvis, more particularly felt in the bladder, micturition becoming difficult, and then impossible, so that for three or four days her only relief was obtained by the use of the catheter. Since then she passed urine of herself but with some difficulty and in rather small amount. She stated that some months before she had swelling of the left leg from the knee downwards, and both legs were occasionally swollen at night. The urine had a deposit containing pus and a few blood-corpuscles, but was free from albumen. Palpation over the hypogastrium elicited some degree of tenderness; otherwise nothing unusual was to be felt through the abdominal parietes. On examination per vaginam, a large tumour was felt distending the vaginal walls, and filling up the pelvis. It was rough and ulcerated at its lower aspect; the sides felt smooth and fleshy, and in the roof of the vagina it narrowed towards a pedicle, which seemed to come through the os uteri. Because of the pain and bleeding excited when exploratory attempts were made with the sound, and by combined internal and external examination, the exact relation of the morbid growth to the uterine cavity could not at first be ascertained. The patient was ordered to be kept at rest, to use ergot and a tonic internally, and to be syringed with an astringent and disinfectant injection. Her general condition not improving, and occasional attacks of vomiting coming on, on 18th September I had her brought under the influence of chloroform in presence of Professor Edmonstone Charles of Calcutta, Dr Halliday Croom, and the resident physician and clerks, with the view of more fully examining, and, if possible, removing the growth. It was now discovered that the fundus uteri could not be touched through the abdominal walls, that the larger globular portion of the body occupying the vagina was of softer texture than the pedicle, which came through the circle of the os uteri indeed, but felt as if it were attached to the cervix within a few lines of the orifice. It was impossible to get through the os with the finger except at one point, but the absence of the fundus at its

usual level leading me to suppose the uterus might be inverted, by means of the sound I ascertained that such was the case. The tumour, rather firm to the feel as it was packed in the vagina, proved to be too friable to be easily seized with forceps or vulsella. With the four fingers of the right hand, I broke off about a half of it, and then the remainder, with the completely inverted uterus, was easily brought down to the vulva. The loop of a chain-écraseur was applied around the base, but as it involved the whole of the fundus the amputation had to be carried through a plane nearly at the level of the orifices of the Fallopian tubes. Notwithstanding that it was slowly cut through, there was some jetting of blood from the wound surfaces, and as the patient was already much reduced by loss of blood, I brought the raw margins together with four metallic stitches, which completely checked all further hæmorrhage. The patient did not seem to be much affected as to her general condition immediately after the operation, and on the following day seemed to give fair promise of recovery. On the third day, however, there was a rise in the temperature, and in the evening she died very suddenly, and with some symptoms, such as breathlessness, that led Dr Croom (I was myself out of town and did not see her) to suspect that she might have had a pulmonary embolism. A post-mortem examination was not permitted.

On examination of the amputated fundus uteri, with the adherent growth, it is easy to see how intimate is the union of the latter with the uterine wall. The union, indeed, is so intimate that one cannot tell where the transition takes place from the tissues of the neoplasm to those of the uterus. The growth is found on microscopic examination to be composed of large spindle-cells, each with a clear nucleus, lying close together in parallel bundles, and close up to the serous coat of the uterus some of the well-marked bundles of spindle-cells can be traced among the strata of muscular fibres and connective tissue of the middle coat.

The most interesting feature in connexion with this case is the Inversion of the uterus. It is now the fourth case of sarcoma uteri with this complication. The first case on record[1] will be found in the Lectures on Pathological Anatomy by Dr Wilks (p. 404), published in 1859,[2] but the clinical history is wanting. The next case was brought under the notice of the Berlin Obstetrical Society, in January 1860, by Langenbeck;[3] the patient died without being operated on, and being already very much reduced, the death seemed to be hastened by the bleeding caused by the examination

[1] Apparently overlooked by Kunert, etc., though it is referred to in a note in Virchow's Onkology.

[2] Under the heading "Recurrent Fibroid Disease." In the recent edition—Lectures on Pathological Anatomy, by Wilks and Moxon, 1875—it is given, p. 561, under the heading "Sarcoma."

[3] Monatsschrift für Geburtskunde, xv. 173.

made to clear up the nature of her malady. In the third case, by Spiegelberg,[1] the entire inverted uterus was amputated with the écraseur, and the patient died in thirty hours with acute peritonitis. The frequency of inversion of the uterus as a complication of sarcoma uteri is surely somewhat remarkable. If we add[2] to the thirty-nine cases collected by Kunert[3] the case above referred to by Wilks, the two given by Schroeder in his text-book, one by P. Müller,[4] one by Ahlfeld,[5] and the four which form the groundwork of this communication, we have a total of forty-eight cases of uterine sarcoma, and in four there was complete inversion of the uterus. Besides that Spiegelberg notes a tendency to inversion in two of his other cases, the fact that in one out of every twelve cases of intra-uterine sarcoma, the organ had become completely inverted, is sufficiently striking, for we find no such frequency of inversion in the cases of the common intrauterine myomata. But this complication becomes more remarkable when we consider that all the three patients with inversion, whose history we know, were nulliparous females, or, if one of them (Langenbeck's case) had given birth to a child, it was twenty-three years before the occurrence of the sarcomatous inversion. There are two points, however, in connexion with the development of intrauterine sarcomes in which they differ from the common myomes, and which prepare us to expect the production of inversion. In the *first* place, the sarcoma springing, say, from the fundus uteri, is in intimate union with the walls from which it grows, whereas the myoma is surrounded by a capsule, and so more easily separable from the bed in which it lies. The result of this difference in the relation of the two kinds of tumour to the tissues where they originate is, that when the uterus begins to coutract for the expulsion of the neoplasm, the sarcoma drags down with it its seat, in the wall of which it forms an integral part; whereas the myome gets gradually detached from its loose connexions and becomes pediculated, and perhaps is at last expelled from the cavity of the uterus. Doubtless, also, the condition of the layers of the muscular fibres between the neoplasm and the serous surface differs; in my case certainly there must have been some degree of paralysis at the site of the tumour, whilst a myome in the same situation would probably have been covered with a layer of healthy muscular fibres, which would concur equally with the rest of the uterine muscles in pressing the tumour towards the cavity. But, in the *second* place, there is in these sarcomatous cases an unusual relaxation of the walls of the genital canals, more than is to be accounted for by the

[1] Loc. cit., p. 351.

[2] I leave out of account cases, such as are recorded by Leopold and P. Grenser, of sarcoma springing from the cervix uteri, for in such inversion of the organ was not likely to take place. Perhaps some of Kunert's thirty-nine cases are instances of cervical sarcoma.

[3] Loc. cit., 116. [4] Archiv fur Gynaekologie, vi. 125. [5] Ibid., vii. 301.

moistening with the frequently profuse discharge. I was particularly struck with this in the second of the cases which I have related. There were times when though at the first touch of the finger the os was too small to admit it, yet on continued pressure it yielded and opened up; and, as I have stated, there were times when it opened freely and widely to permit of the escape of sloughy portions of the tumour. It was as if a relaxation and dilatation took place at those times when the uterus was making efforts for the birth of the neoplasm, parallel to the relaxation and dilatation that accompany the contractions of the uterus in ordinary labour. And it is to be remembered that that kind of vital dilatation is not confined to the cervical canal. Though the patient whose case is under discussion was unmarried, and the vulva in a virginal condition, so that the full examination could only be conducted after she was anæsthetized, it was remarkable to what an extent the genital orifice became dilated during the operation, so that first three fingers, and then the whole hand, could be passed into the vagina without lacerating the mucous membrane. This point was the more impressed upon my mind from the circumstance that less than three weeks previously I had seen, with Dr Brotherston of Alloa, a case of a large fibro-myomatous polypus coming down from the interior of the uterus of the size of two fists, and hanging by a somewhat narrow neck into the vagina. The patient in that case also was an unmarried female of about 40 years of age, and after I had succeeded in detaching the tumour from its uterine connexion by torsion, I was almost baffled in my attempts to extract it through the firm and unyielding vulva, and only succeeded at last by cutting the tumour into pieces within the cavity, the patient being kept under the influence of chloroform for upwards of two hours. The singular dilatability of the canals, and the intimate connexion between the sarcoma and the part of the wall to which it is attached—at once giving it a strong purchase upon its seat and impairing the action of the muscular fibres in that portion of the wall—seem to me to afford a fair explanation of the marked proclivity of the sarcomatously affected uterus to become inverted.

In the next case we have an example of the diffuse sarcoma.

Case IV.—*Intrauterine Sarcoma—Patient still under Observation.*

Mrs C., aged 45, admitted to Ward XIV., 4th October 1875, has been married twenty-five years, and is mother of ten children, the eldest born twenty-three, the youngest nine years ago. She had always menstruated regularly and enjoyed good health till eighteen months ago, when she began to suffer from floodings. Within the last four months the pains, which remind her of labour pains, have begun from time to time to distress her. Four weeks ago one of her floodings set in, and continued for seven weeks, large clots sometimes escaping. For a fortnight the bleeding ceased, but she

had then a profuse watery fœtid discharge, and a week before her admission the bleeding returned. She was greatly reduced in her general health, with a weak, quick pulse, and a cachectic expression of countenance. There was nothing to be felt on abdominal palpation. On vaginal examination the uterus felt heavy; the os was soft and patulous, and easily admitted the tip of the finger as far as the os internum, at which a substance with the feel of a soft clot could be touched. The cervical canal having been further dilated with a tent, the cavity of the uterus was felt greatly expanded; the front and back walls were covered with soft, ragged, irregular patches of tissue, a larger and more prominent portion of which grew downwards from the fundus. But when I attempted to make a combined external and internal examination, the walls of the uterus gave me so much the impression that they were ready to tear, and there began to flow from the already enfeebled patient such a stream of blood, that I was fain to desist, and to arrest the hæmorrhage by a free application of perchloride of iron into the uterine cavity and the introduction of a vaginal plug. She soon recovered from the effects of that bleeding, and went home, as further operative interference gave no hope of any good result.

She has had less pain since the uterus was dilated, and but little hæmorrhage; but the watery discharge is more profuse and very offensive. A small fragment of the excrescence removed with the finger-nail shows the characteristic appearance of the spindle-celled sarcoma. Some large epithelial cells with double nucleus which appear in the field of the microscope may have been derived from the vaginal canal during the abstraction of the minute fragments of tissue. At least there were no similar groups of cells collected in interstices of connective tissue, such as we see in cases of carcinoma.

The narration of the cases, with the epicritical remarks, has extended to a greater length than I had anticipated. What further general observations I have to add must therefore be brief.

Etiology.—My cases do not confirm the impression made by statistics already published, that nulliparity favours the development of sarcoma uteri. In one of them, as I have said, the patient was unmarried; but the other three patients were married women, who had each been mothers. As for age, they were all approaching, or had passed, the menopause. The youngest was 41, the oldest 72 years of age at death. Their social circumstances were comfortable, even the hospital cases not being drawn from the poorest class of society; and so far as could be ascertained, their family history was good. On looking the ward statistics for the last four years, with the view of comparing the proportion of sarcomata to the more common uterine neoplasms, I find 20 cases of myoma or fibro-myoma, and 32 cases of carcinoma, 2 of which were intra-uterine, whilst there were only the two cases above recorded that could be regarded as sarcomatous.

Symptoms and Diagnosis.—In most cases these growths give rise to a marked degree of *hæmorrhage.* The usual monthly discharge becomes exaggerated, or bleedings come on in the intermenstrual interval, or they are set up in women who had passed the menopause. These hæmorrhages are easily intelligible when we bear in mind that the tumours are always vascular, sometimes channelled with large and thin-walled bloodvessels; and that from the softness of their texture they are easily broken down. But, in certain cases, the tendency to hæmorrhage is not pronounced. There is usually, however, a marked degree of *leucorrhœal discharge.* The succulent and sometimes suppurating surface of the tumour itself, and the thickened and expanded mucous membrane lining the cavity in which it lies, furnish a free secretion of a pale, rice-watery, or more yellow fluid, which, in any case, may for a time disappear, though it is almost never absent (only in Leopold's case, where the tumour developed in the cervix) throughout the entire history of any case. This discharge will, for a long time, be odourless, but it acquires something approaching to the disagreeable odour of the cancerous discharges in the more advanced stages of the disease, when fragments of the tumour are squeezed into the vagina, and lie within the canals till they decompose. We have seen that the mischief may develop in women who have borne children; but after it has appeared, the *reproductive function* of the organ is at an end. For I know of no case of the concurrence of pregnancy and sarcoma uteri, such as we sometimes meet with in myoma or carcinoma: probably from the circumstance that the sarcomatous growths almost always affect the interior of the uterine cavity. There has been some diversity of opinion as to whether this affection is attended with *pain* or not. My own impression is, that pain is not a usual symptom of it, any more than we can speak of pain being a usual symptom of a fibrous polypus. In both cases we may have suffering from the enlargement, or from intercurrent inflammation in the uterus or around it, or, what is still more common, we may have pain from the muscular contractions set up from time to time in the walls of the uterus for the expulsion of the neoplasm. But all this is different from the uncertain, unprovoked, sharp stinging pain to which a cancerous patient is subject. More particularly I have been struck with the difference between the pain complained of by these patients who are the subjects of intrauterine sarcoma, and the intense, paroxysmal attacks of suffering, coming on sometimes[1] with a marked degree of periodicity, which Sir James Simpson used to point out as characteristic of intrauterine cancer. It was the absence of this symptom, which I had seen in several instances, that first led me to think that, in the case No. IV., we should find, as we did, not the hard, rough surface of an epithelial, but the soft, velvety, friable surface

[1] See an illustrative case in a Clinical Lecture by Thomas, in the American Journal of Obstetrics, v. 703, 1873.

of a sarcomatous growth. In addition, there is *disturbance* in the functions of *neighbouring organs* differing in degree in different cases according to the size and situation of the neoplasm and its bed. Sooner or later the repeated losses of blood or the continued drain of watery discharge begin to tell on the patient's general health; and when the disease has advanced towards its final stages, it usually develops in the sufferer a condition of *general cachexia.*

The physical examination of a patient with such a train of symptoms would discover some degree of uterine enlargement, varying according to the size of the morbid mass occupying its interior. It is rarely so large as to form an abdominal tumour, except where we have to do with a myo-sarcoma, or a fibroid tumour undergoing sarcomatous degeneration, when we may find a supra-pubic mass of considerable dimensions, with the vascular bruit and other characteristics of such growths. Where the growth springs from the cervix, or the uterus has become inverted, a polypoidal body will be felt occupying the vagina. The uterus, though enlarged, remains freely movable, unless the tumour be so great as to cause some impaction in the pelvis, or inflammatory adhesions have formed among the pelvic organs—conditions which are both comparatively rare in the true sarcoma. The sound will pass without difficulty into the interior of the uterus, and detect the extent of increase of the cavity and the presence of a foreign body in which bleeding is easily excited. But it is only when the canal is dilated with a tent—and, as I have shown, the textures are so soft and expansible that a single good-sized sponge-tent may suffice for the dilatation—that the size, consistence, and attachments of the new growth can be discovered, and that a fragment of it can be obtained for microscopical investigation. It is in this way alone that an exact diagnosis can be made out.

Prognosis.—The comparative degree of malignancy to be attributed to this neoplasm may be gathered from the significant circumstance, that West treats of it in the same lecture with fibrous polypi, whilst Barnes gives it a place among the cancers. Although the disease shows a distinct tendency to remain localized in the uterus—these cases being but few where secondary sarcomata were found in other organs—there seems to be only one recorded case (Winckel's first) where removal of the growth was followed by a radical cure; and it is to be noted in regard to it, that it was a polypoidal myo-sarcoma, and not a pure sarcoma, and that the patient's history does not extend beyond two years from the date of operation. According to Kunert, "in 14 out of 30 cases death ensued within a year after the first appearance, in 1 after 2 years, in 3 after 4–6 years; in 3 cases the patient was still suffering after 2 years; in regard to the remaining cases, partly observation is awanting, and partly the patients enjoyed tolerable health under continuous medical treatment." One case is recorded[1] where an

[1] Rabl-Rückhard in Beiträge zur Geburtshülfe, i. 76, 1872.

intrauterine sarcoma was the seat of carcinomatous degeneration, and proved rapidly fatal. My own cases confirm the general verdict that we have here to do with a form of disease which, though it is not the cause of such intense suffering, nor of such rapid constitutional deterioration, nor of such speedy death as cancer, yet has a vicious tendency to recur after apparent complete removal, and to lead sooner or later to a fatal issue.

Treatment.—Clearly, however, patients who are the subjects of it are not to be abandoned to a hopeless do-nothingism. Where the mischief is in an early stage, and in any case where we have it in a polypoidal form, it should always be removed, to give immediate relief from suffering, and with the justifiable expectation that, for a time—it may be for years—the progress of the malady will be arrested, and the patient restored to comparative health. It may even be of service to her to repeat the operation more than once. In the pediculated forms the growth may be removed with the écraseur or galvano-caustic wire; but sometimes, as we have seen, it is too brittle, and requires to be broken down, and removed piecemeal. In such cases, and in cases of the diffuse sarcoma where the extirpation can be attempted, it may be carried out with the curette, fenestrated like Recamier's, or cup-shaped like Simon's. In any case, it is desirable to lessen the immediate hæmorrhage by free application of perchloride of iron and hypodermic injection of ergotine. The profuse and sometimes fœtid discharge can be controlled by astringent and disinfectant injections; and the patient's general health will be kept up by a generous diet, and the administration of tonic remedies.

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