

ON SOME  
PERIODICAL CHANGES WHICH OCCUR IN  
FIBROID TUMOURS OF THE UTERUS,  
AND THEIR SIGNIFICANCE.

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*(Concluded from page 765.)*

CASE 4.—A. H—, aged forty-two, was admitted to University College Hospital in September, 1878. She has been married twenty-three years, and her husband is still living. Her mother died at the age of forty-eight—just “at the change of life.” Flooding had occurred on more than one occasion, and after she had recovered somewhat it recurred and “took her off in a single day.” The patient began to menstruate in her twelfth year. She was regular every four weeks from the first, the flow lasting four or five days, and accompanied with slight pain. She has had one child at full term. She did not nurse it in consequence of mammary abscess; she has had no miscarriage; she had rheumatic fever when thirteen, and a slighter attack two years afterwards. She had small-pox fifteen years ago, and from that time she has continued to grow stouter. She says that it is now three years since she enjoyed her usual health. She feels tired and is easily fatigued; has a dragging sensation, and a bearing down in the lower part of the abdomen. The periods are irregular, being more frequent and more abundant than previously, and they are accompanied with a gnawing pain. These symptoms have been present for three years. She complains besides of pain in the

<sup>1</sup> Lectures on the Infective Processes of Disease, by Professor Burdon-Sanderson, Brit. Med. Jour., Dec. 29th, 1877.

pelvis—worse on the left than on the right side. It is unlike labour pain, and of a gnawing character. The pain is worse when the bleeding is greatest.

When first seen a large tumour was found rising out of pelvis, and reaching nearly to the umbilicus. She was given a hypodermic injection of sclerotic acid. After this she bled profusely. She continued as an out-patient until she was admitted into the hospital in May, 1879. During this time variations in the size of the tumour were noted; but she was seen at irregular intervals only. Occasional injections of sclerotic acid were given, but she got no better.

She was admitted into the hospital on May 15th, and said that the last menstruation began on May 2nd, and lasted till the 12th; very profuse and clotty; she had no serious pain with it, but she had a "waving" sensation in the stomach, with great backache. She added that the swelling in the abdomen was "monstrously large and hard" before the menstrual flow, much more so than it was at the time of examination (four days after its cessation). She complained of sharp pain in the left ovarian region, going through to the back. On palpation, a smooth pyriform tumour was found in the hypogastrium, extending rather more to the left than the right of the middle line of the body. It was freely movable. In the middle line it reached  $6\frac{1}{2}$  in. above the pubes; two inches above the pubes it measured  $5\frac{1}{2}$  in. from side to side. The cervix of the uterus was hard, large, and longer than usual. Bimanual examination showed the body of the uterus to be large, and harder than normal, and that there was a globular mass in the right border, close to the fundus, causing a large prominence at that point. The uterus with the growth was freely movable. The sound was introduced for nearly five inches, somewhat to the left, so that the prominence which was subsequently found on the left was the fundus uteri, that on the right a fibroid tumour. Hypodermic injections of sclerotic acid were ordered to be given on alternate days.

On the 19th there was a decided increase in the size of the tumour. It reached to the same point in the middle line above the pubes, but it measured  $6\frac{1}{2}$  in. transversely. On the 21st it reached  $6\frac{1}{2}$  in. above the pubes, and measured  $6\frac{3}{8}$  in. across. On the 23rd it measured  $6\frac{3}{8}$  in. transversely, and reached within  $\frac{3}{8}$  in. of umbilicus. There was some yellow discharge at this time. On May 26th the broadest cross measurement obtainable, which was 2 in. below the umbilicus, was  $7\frac{3}{8}$  in.; but 2 in. above the pubes the measurement was  $6\frac{3}{8}$  in. From the top of the pubes to the highest level of the tumour was  $6\frac{5}{8}$  in. The increase was more noticeable on the right side than elsewhere, so that the asymmetry of the tumour could be made out by palpation alone now; and the parts of the tumour on both sides of the middle line reached higher than the part in the middle line itself; so that on the 26th it was found that the tumour had not increased in the middle line, but on the right side it reached  $\frac{3}{8}$  in. above the umbilicus. The patient complained of various uncomfortable feelings at this time, such as cold shivering in the head, fluttering and throbbing in the hypogastrium; but she had no actual pain. On the 29th the tumour reached in the middle line to the umbilicus, and about  $\frac{3}{8}$  in. above that point on each side. At 8 o'clock in the evening the catamenia appeared, the discharge being pale and scanty. On the 30th the upper border of the tumour on the right side was 1 in. below the level of the umbilicus; on the left it was somewhat lower; in the median line  $\frac{3}{8}$  in. On the 31st it measured 6 in. above the pubes in the median line. The widest measurement across was  $5\frac{1}{2}$  in., about the same size as on admission. On June 6th the tumour was within 1 in. of the umbilicus; the broadest measurement was 6 in. The catamenia ceased on June 9th. The loss was much less than usual. After the commencement of menstruation, however, there appeared little or no diminution in the size of the tumour. Since her discharge from the hospital the catamenia have been regular, and not excessive.

This case is valuable, inasmuch as the transverse measurements were taken, and the increase and diminution in them are not subject to any objection that may be taken to the vertical measurements.

CASE 5.—M. T—, single, aged thirty-six, became an out-patient of University College Hospital in June, 1879. It was noted then that she had a fibroid tumour reaching to within three fingers' breadth of the umbilicus. During the time the hospital was closed she said the uterus had been dilated with tents, with a view to the removal of the tumour, but this was not found possible. She became an in-patient

of University College Hospital on Dec. 2nd. She was born in the country, but had lived in London as a servant for the last eleven years. She had not had any serious illness except "low fever" about fourteen years ago, after which she was very weak, but she soon picked up her strength, and never again complained of weakness until three years ago. She began to menstruate about sixteen, and was until her present illness regular "to the day." The flow was moderate, and used to last three or four days, with some bearing-down pain. Five or six years ago the flow began to increase in quantity, became very profuse, and lasted a week or more. It was also clotty. Lately it has become still more abundant; the last two or three periods have lasted a fortnight, the discharge being more profuse during the first few days. She had but slight bearing-down pain with it, but she complained of pain in the side at the margin of the ribs, of nausea and sickness, especially at the menstrual epochs. She was very anæmic though stout. The heart and lungs were healthy, but the heart's impulse was very feeble, and the pulse small and compressible. In the hypogastric region was felt a smooth, hard tumour rising out of the pelvis, almost median and symmetrical, but, if anything, larger on the right side. It had the shape of the enlarged uterus, it was not tender or lobulated, it was freely movable and dipped down into the pelvis and reached upwards to within  $1\frac{1}{2}$  in. of the umbilicus. On vaginal examination the cervix was found long, softish, and the os patulous. The upper part of the pelvis was filled by a hard, smooth tumour, continuous with the cervix, larger on the right than the left side, movable and not tender. The sound entered  $3\frac{3}{8}$  in., and a little to the left of the middle line; its introduction gave no pain. This was on Dec. 3rd, and the last menstruation ceased Nov. 28th.

On Dec. 5th the distance between upper part of tumour and umbilicus was 1 in. On the 11th it was also 1 in. On the 14th the tumour reached to the umbilicus. On the night of the 14th menstruation set in. The flow was not profuse, and she had less pain in the abdomen. The patient had been complaining of pain in the belly for a week. On the 15th the tumour reached within  $1\frac{1}{2}$  in. of the umbilicus. This was about twelve hours after the flow began. On the 16th the flow was very profuse. A hot-water bag was applied to the lumbar region, and the discharge became very much less. The use of the bag was continued during the period. On the 19th the patient felt faint and the discharge became again profuse. After this the discharge diminished in quantity, and ceased on the 22nd. From the 15th to the 20th the distance from the upper border of the tumour to the umbilicus was  $1\frac{1}{2}$  in. On the 22nd it was  $\frac{1}{2}$  in. The observations of the case during the next fortnight were not carefully made or recorded, but it is noted that the distance was 1 in. on Jan. 1st, and 2 in. on the 12th, and that menstruation began on the 15th, that it was very profuse, and that the patient felt faint and complained of dragging pains in the pelvis. She was ordered hot-water vaginal injections twice a day, but they were only used for a few days, and hypodermic injections of sclerotic acid twice a week. On the 16th the flow was less and the fundus reached the umbilicus. On the 21st the distance was  $2\frac{1}{2}$  in., and the discharge had almost ceased. The loss during this epoch was much less than during the previous one.

On Jan. 25th, the distance between the upper border of the tumour and the umbilicus was  $2\frac{1}{2}$  in. On the 26th, the distance was  $1\frac{3}{4}$  in. On the 27th, the distance was 1 in. On the 29th, the distance was 1 to  $1\frac{1}{2}$  in. On Feb. 2nd, the distance was  $\frac{1}{2}$  in. On the 4th, the distance was nearly 1 in. On the 5th, the distance was  $\frac{3}{4}$  in. On the 6th, the distance was  $1\frac{1}{2}$  in.; tumour much harder than usual. On the 7th, the distance was  $1\frac{1}{2}$  in. On the 8th, the distance was  $\frac{3}{4}$  in. On the 9th, 9 A.M., the distance was about  $\frac{3}{4}$  in.; at 9 P.M. the distance was  $2\frac{1}{2}$  in. An injection of sclerotic acid was given after making the last measurement. The patient says that she thinks the tumour is always smaller in the morning about 7 A.M. On the 10th, at 10.30 A.M., the distance was 1 in. On the 11th, at 11.30 A.M., the distance was 1 in.; at 10 P.M.  $\frac{3}{4}$  in. The nurse and patient state that the tumour was smaller this morning after a copious stool than it was last night. On the 12th, the distance was, at 10 A.M., 1 in.; at 9 P.M.,  $1\frac{1}{8}$  in. On the 13th, at 10 A.M., the distance was 1 in. I thought on the 12th that the tumour enlarged and diminished during examination. There was no question of this on the 13th; for while the hand was on the tumour it decreased and became harder until the upper border was rather more than 2 inches from the umbilicus, and it relaxed

and increased until the upper border was about 1 inch from the umbilicus. On the 13th, at 8.30 P.M., the distance from umbilicus was  $\frac{3}{4}$  in. On the 14th, at 10 A.M.,  $1\frac{1}{8}$  in.; at 4 P.M.,  $1\frac{1}{4}$  in.; at 9.30 P.M., 2 inches. Patient began to menstruate at 8 this morning, but the flow was extremely slight until 8 P.M. On the 15th, at noon, the distance from umbilicus was 1 in. The tumour was markedly tender; patient has had colicky pains all the morning; the flow was rather free. At 11 P.M. the distance from umbilicus was 2 in.; the tumour was harder than usual. On the 16th, at 10 A.M., the distance from umbilicus was  $1\frac{3}{8}$  in.; the flow was profuse. On the 17th, at 4 P.M., the distance was  $1\frac{3}{8}$  in.; at 9 P.M. 2 inches. On the 18th, at 2 P.M., the distance was 2 inches. I am able to give these figures through the assistance given me by the resident obstetric assistant at the hospital, Mr. Dawson Williams, M.B., who watched the case carefully, and took most of the measurements. No hypodermic injection was given after the 9th until the 17th, but owing to the profuse flow one was then administered.

The variations in the size of the tumour in this case are somewhat curious, and are, perhaps, partly dependent on the use of sclerotic acid, but yet many of them appear to be independent of that. The tumour appeared to increase somewhat in size during the nineteen days following the cessation of the flow until Feb. 9th, five days before the appearance of the next flow, when a sudden decrease of  $1\frac{1}{2}$  in. took place in it; then the tumour again increased in size and reached to a distance from the umbilicus varying between  $\frac{3}{4}$  in. and  $1\frac{1}{8}$  in. until the day on which the catamenia appeared, when the tumour diminished and the distance increased to 2 in. The contractions of the organ were also observed and measured just before menstruation; they were well marked.

The number of cases recorded in this paper are few, and only sufficient to point out that some very interesting and important changes do occur periodically in some fibroid tumours of the uterus. The number is not sufficiently large, and the cases have not been observed with sufficient detail, nor for a sufficiently long period, to throw light upon a number of questions that one would like to have answered. There are, however, some remarks I wish to make upon these cases.

The tumours were all of such magnitude as to have ascended out of the pelvis, and to have occupied the abdominal cavity in part. Observations could not be made with such care and accuracy in such growths when small and occupying the pelvis as when large and projecting above the pelvic brim; indeed, such observations may be impossible in the former conditions. I endeavoured to discover by weekly examinations if any changes occurred in one case in which the tumour was small, and in the pelvis, but I was unable to arrive at any conclusion.

The tumour was in each case lodged in the wall of the uterus; it was in no case pedunculated, though in two of the cases it formed a distinct prominence under the peritoneum on the outer surface of the uterus. In the other three the whole of the posterior wall of the body of the uterus seemed to have been involved in the growth, so that the organ appeared to be symmetrically enlarged when examined bimanually. I do not know whether subperitoneal fibroids undergo monthly changes or not, but they do alter during gestation. In one case in which a fibroid about the size of a small walnut was found on the right side, attached to the uterus by a pedicle so short that it might almost be characterised as sessile, I found that it increased in size as gestation advanced, and about the seventh month it could be felt to the right of the umbilicus spread out like a softish cake about the size of the palm of the hand. Some weeks after her confinement the patient came to see me again, and I found the tumour, but it was smaller than when I examined her first, about the third month of pregnancy, and in the course of a few weeks I could find no trace of it.

The next point common to all the cases is that there was in all of them profuse hæmorrhage. In three there was menorrhagia, and in two metrorrhagia. Whether the changes occur in cases in which there is no hæmorrhage, or where menstruation remains unchanged or is absent, or after the menopause, I cannot say. I have had opportunity of examining one case only in which menstruation had remained throughout unaltered. It was in private practice, so that I could not see her as often as is necessary to observe the case fully. She was thirty-six years of age, and had always been regular in time and amount. She had a

large irregular-shaped fibroid reaching to the umbilicus. I saw her every week for a month, but could find no change in the size of the tumour.

The amount of the change seems to vary somewhat in different cases. In one case the variation was not accurately measured. In one case it was 1 in. in the vertical measurement; in two,  $1\frac{1}{2}$  to  $1\frac{3}{8}$  in.

The transverse measurements were made in one case only, and in that the variation was nearly 2 in. The probable explanation of this variation appears to be the difference in the density and seat of the tumours. The densest and hardest changed least. In the case in which the transverse increase was so marked, the tumour was lodged in the right border of the uterus, a position favourable to such a mode of enlargement. Two of these cases (3 and 4) show more than the enlargement of the fibroid; they show also the enlargement of the uterus, for the tumour projecting beyond the surface of the uterus formed a prominence separated by a depression from the fundus of the organ. It was found in these cases that the body of the uterus enlarged and diminished again with the increase and diminution of the tumour. In one of these cases the variation in the length of the uterine canal was found to be one inch.

It is generally believed, and indeed there is no doubt, that the uterus enlarges and diminishes in some way in connexion with menstruation. The belief has been that the enlargement takes place in consequence of congestion occurring at or about the menstrual epoch, and that it disappears after the flow has ceased, and in consequence of depletion. There can, I think, be little doubt that the alternations in size which occur in the uterus subject of fibroid tumour is only an exaggeration of the alternation taking place in the healthy organ; and if this be admitted, it appears pretty certain that the view of menstruation which has hitherto been accepted is not correct. The supposed period of rest—the intermenstrual interval—is no period of rest at all; but, on the contrary, one of active growth, for the enlargement does not take place during the flow, but during the interval. The increase can be noted in favourable cases as early as a week after the cessation of the flow, and then every third or fourth day until it ceases. It is difficult to determine when the decrease takes place, whether before, with, or after the appearance of the flow.

In all the cases it had taken place before twenty-four hours, in some before twelve had elapsed after the appearance of menstruation. In one it had occurred nine hours before, and in one uterine contractions were noted three days before the flow appeared. It is not to be inferred that in any of the cases the decrease began after the appearance of the flow, but simply that the cases were not watched with sufficient assiduity to determine the exact time it happened. In the two cases in which the decrease was observed before menstruation began, some decrease took place during the process also.

The question naturally arises, What part does this decrease play in the menstrual process? I believe it is in part the cause of the hæmorrhage, because in all the cases it took place at the beginning, and not at the end of the flow, and it remained practically unaffected by the quantity lost. It matters not whether the flow was scanty or profuse, the diminution in size took place just the same. It seems to me that the decrease depends upon contractions of the uterus and tumour, and the course of events to be the following:—Contractions of the uterus and fibroid, expulsion of the blood from their vessels into the plexuses of the pelvis, the vessels of the broad ligament and the decidua, giving rise to the appearance of congestion, which has been described as present during, and the cause of, menstruation. The rush of blood into the vessels of the decidua causes them to burst and menstruation follows.

The clinical value of the changes described cannot now be estimated; the data are insufficient. The careful observation of pelvic and abdominal tumours, as well as of a large number of cases of fibroids of various kinds, is necessary before any trustworthy conclusions can be arrived at.