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UTERINE FIBROIDS: NOTES ON THEIR DIAGNOSIS, COMPLICATIONS, AND TREATMENT BASED ON THE OBSERVATION OF 150 CASES.

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FIBROID tumour of the uterus is stated to be the commonest form of new growth in the human subject; it is found in at least 20 per cent of women over 35 years of age. The terms myoma, fibro-myoma, and fibroma are the synonyms of the term fibroid uterus, and may be used according as the muscular or fibrous elements predominate. The usual classification of these growths depends on their relation to the uterine wall, the uterine mucosa, or the peritoneal covering of the uterus, thus giving the five varieties—

1. Interstitial.
2. Submucous.
3. Subperitoneal.
4. Intraligamentous.
5. Retroperitoneal.

It is usual for these tumours to be multiple, one larger than the others. The larger the growth the more likely are the fibrous elements to predominate, and conversely the smaller the growth the greater is the likelihood of the muscular tissue being more manifest.

The body of the uterus is more frequently involved than the cervix; it is estimated that only 8 per cent of fibroids grow in or from the cervix. As a rule the tumours are encapsulated, and they may be sessile or pedunculated.

Little is known of the causation of this neoplasm; various theories, however, have been suggested. As regards their origin, the uterine muscle and the blood-vessel walls are supposed to be the most likely points. Roesger in 1890 stated that certain changes in the walls of the blood-vessels in the uterus caused this myomatous growth; he found that the adventitia of the arterioles in small myomata was absent, and that the growth originated in the longitudinal or cross muscle bundles of the vessel walls.

Gottschalk was of opinion that the tortuous parts of the arteries of the uterine wall were the places of origin. The possibility of parasitic origin is not now entertained. The part that heredity and sexual irritation play in their production has been fully discussed by Veit; it is not quite clear how repeated sexual irritation could produce such new growths. Fibroid tumours may be congenital, and Pick has reported uterine malformations which were due to fibroid tumour tissue in the urogenital tract.

Fibroids are found more frequently in unmarried women of middle age, in women who have borne one or two children in their early married life, followed by a long period of sterility, than in women who have borne a number of children. On this ground it is stated that the muscle of the uterus, not having the repeated hypertrophy of many pregnancies, develops an overgrowth of muscular or fibrous tissue as the result of the repeated irritation of coitus or masturbation; this is the sexual

irritation theory. Why does this pathological process occur in women who have early and repeated pregnancies, and in unmarried women about 30 years of age and upwards, in whom no evidence of sexual irritation can be discovered? This problem is a difficult one and not easily solved.

William Hunter was the first to describe the nature of these growths somewhere at the end of the eighteenth century; he described them under the name of "fleshy tubercle."

Diagnosis.

It is usually a matter of little difficulty to diagnose a fibroid of the uterus; at times, however, the difficulties encountered are considerable. The history of the case is always a matter of first importance. Probably increased menstrual loss and metrorrhagia are complained of, and there may be an accompanying anæmia. The menstrual difficulties depend on the direction of the growth. If the fibroid grows in the direction of the peritoneum, and thus eventually becomes subperitoneal, the menstrual discharge may lessen, and when completely subperitoneal the menorrhagia may cease. When the tumour remains an interstitial one, all fibroids beginning as such, the menstrual bleeding becomes greater with the increase in size of the tumour. As the fibroid encroaches on the uterine cavity and becomes submucous, the bleeding eventually increases and becomes continuous in greater or less degree. These tumours are so frequently multiple that no regular type of menstrual flow can be recognised. A very small submucous fibroid may give rise to alarming hæmorrhage. Bleeding depends more upon the situation than the size of the tumour. As there is generally an increased thickening of the uterine mucosa and at times an increase in the size of the uterine cavity, and consequently a larger endometrial surface, the bleeding is thus intensified. It is remarkable how long a patient bears the increased menstrual loss without appreciable inconvenience. The effect upon the patient is the chief factor in determining whether the loss is too great; if it takes the patient some little time to recover from her menstrual period one may safely conclude that the condition warrants interference either by medical or surgical means.

It is unusual to have a large hæmorrhage which proves fatal, although such cases have been recorded.

There may be a varicose condition of the veins in sub-peritoneal fibroids; these may rupture and give rise to internal bleeding. The anæmia resulting from these uterine bleedings depends on the amount of blood lost, and is usually quickly recovered from. At times, however, the anæmia becomes profound and of the pernicious type. There is not the yellowish-brown cachexia of malignant disease, the skin presenting generally a yellowish-white appearance, nor is there the increasing emaciation of malignancy. The patient with a fibroid often increases in weight.

A history of leucorrhœa is often obtained but is of little importance; it depends upon the endometrial hypertrophy.

The patient rarely complains of pain, except it be the result of pressure or an acquired form of dysmenorrhœa. The adnexal mischief which so frequently accompanies fibroids may be the cause of chronic pain. Pressure by the tumour may also give rise to bladder irritability or retention of urine, marked constipation, or œdema of the lower extremities. Any of these symptoms complained of by the patient is important, and is suggestive of the presence of fibroid tumour or tumours.

The diagnosis is generally made, not by regarding, however, the subjective symptoms of uterine hæmorrhage and abdominal swelling, but after a bimanual examination, and by this means determining the *position, size, shape*, and *consistency* of the uterus. The use of the uterine sound is occasionally helpful, but is seldom required by one who has mastered the details of bimanual palpation.

Intra-uterine examination may be required before a complete diagnosis can be made.

Position and size.—A fibroid tumour may be small and limited to the pelvis; it may be of medium size, extending from the pelvis to near the umbilicus, and occasionally of large size, when reaching above the umbilicus it may encroach upon the diaphragm. These large tumours are rare. When the uterine growth distends the abdomen the position it occupies is usually to one or other side of the middle line of the abdomen; the abdominal wall falls suddenly to its usual

level; in ovarian cysts and pregnancy there is a gradual falling to the normal as opposed to this sudden descent of the fibroid.

Shape.—The shape of the uterus depends upon the number and situation of the growths. An interstitial fibroid gives the feeling of uniform enlargement, and often causes difficulty in diagnosis, especially if the question of pregnancy is considered. Time generally solves the difficulty; the possibility of pregnancy occurring in a fibroid uterus must be remembered. The presence of multiple interstitial tumours gives the uterine body quite an asymmetrical bimanual feel; the surface is smooth. *Subperitoneal tumours* are irregular in outline, resulting from the fibroid out-growths; they may be firmly attached to the uterus or pedunculated. *Submucous fibroids* cause the uterus to be somewhat rounded and distended as in pregnancy.

Consistency.—The uterus is generally hard except at or near the menstrual periods, or when altered by one of the various degenerations to which fibroids are subject. The mobility of the tumour is that of the uterus, except when the tumour is intraligamentary—that is to say, growing between the layers of the broad ligament.

Some Points in Differential Diagnosis.

Pregnancy.—At times it is difficult to distinguish a fibroid uterus from a pregnant one; both conditions may co-exist. The following points are helpful in reaching a conclusion:—

In pregnancy there is usually a period of amenorrhœa, although not always so. There is a condition of pregnant uterus recorded by Hirst in which there was a history of long and continued bleeding, "with no history of amenorrhœa; the uterus is the size of a six months' pregnancy; it is impossible without exploration of the uterine cavity to demonstrate the presence of an ovum in it, but in the upper portion of the cavity is a three or four months' ovum, retained

for some time, causing hæmorrhage from the time of impregnation and a continued bleeding after the death of the embryo. The uterus is distended far more by accumulated blood-clots than by the size of the ovum." This condition must be rare. A missed abortion may simulate this condition, save that there is a period of amenorrhœa. In fibroids the condition is usually that of menorrhagia.

Uniform rate of uterine enlargement is suggestive of pregnancy. Fibroids generally grow slowly.

Morning sickness and breast changes are usual in pregnancy, and not present in fibroids.

Hegar's sign, or softening of the lower uterine segment, is never present in fibroids. After the tenth week pregnancy can be recognised by Hegar's sign. This is a helpful sign in distinguishing a pregnant uterus from one enlarged by a submucous fibroid, where the uterus is harder and does not give the semifluctuation in the body of the uterus as in pregnancy.

Softening of the cervix does not occur in fibroid uteri. Discolouration of the vagina is common in pregnancy and very rare in fibroids.

As pregnancy advances, the fœtal heart sounds, fœtal parts and movements, can be recognised.

Ballottement is usually quite characteristic in pregnancy from eighteenth to thirty-third week. A pedunculated subperitoneal tumour associated with ascites may give the impression of ballottement; this happened in one of the cases in my practice. There were, however, no other evidences of pregnancy. The possibility of mistaking small uterine fibroids for fœtal parts may be avoided by remembering that the fœtal parts can be moved about and disappear on uterine contraction, whereas fibroids become more distinct with uterine contractions and are fixed on the uterine wall or move on it.

Ovarian tumours.—It is usually easy to distinguish a fibroid from an ovarian cyst if marked fluctuation and thrill can be felt in the cyst. A solid ovarian tumour may cause some difficulty, but cystic tumours of the ovary are more usual than solid ovarian tumours (9-1). Examination *per rectum* may reveal the ovarian pedicle; the sound may help to map out the

uterus from the ovarian swelling, and by fixing the cervix with volsella and pulling it downwards this may cause movement of the uterus alone. A uterine growth would quickly follow the downward pull.

Pyosalpinx.—A large pyosalpinx may reach to the level of the umbilicus and be of a stony hardness, with all the consistency of a fibroid, and its attachment to the uterus may lead one to consider the tumour to be a fibroid. Two such cases are included in the list. The history was, however, helpful; in each case there had been a puerperal infection with tumour formation of rapid growth, which was apparently uterine and not ovarian. This condition had been in existence for several months, and had been diagnosed as a fibroid uterus. Laparotomy revealed the true state of matters, and a panhysterectomy was performed in each case with satisfactory results.

Pelvic exudates.—Inflammatory swellings do not generally give one the impression of a uterine swelling. Difficulty, however, does arise at times, and a differential diagnosis is not possible.

Complications due to fibroid and changes occurring in the fibroid.—Charles P. Noble, in *Fibroid Tumours of the Uterus: A Study of the Degenerations and Complications of 2,274 Consecutive Cases*, states that degenerations and complications were present in 1,533 cases—that is, 68 per cent were complicated and only 32 per cent were uncomplicated. In my series of cases—110 of which were treated by subtotal hysterectomy, 5 by panhysterectomy, and 15 by myomectomy—the percentage of changes was 35.

Adnexal complications.—The changes in the adnexa in my series of cases were such as are usually recorded, viz., cysts of ovaries, small cystic degeneration of ovaries, hydrosalpinx, pyosalpinx, tuberculous disease of the Fallopian tubes, and chronic salpingitis. Thirty per cent of the cases showed one or other of these conditions. Tait, Daniels, and others give

the proportion of adnexal involvement as over 50 per cent. Tracey, in a series of 3,561 cases, states that 20 per cent showed changes in the ovaries and 14·5 in the Fallopian tubes. These findings seem to indicate a distinct relation as to cause in the presence of fibroid uteri, and have a marked bearing upon the management and treatment of patients with these uterine growths.

The changes which occur in the tumour or tumours are largely due to the poor blood-supply. The following may be noted:—

Degenerations.—(*a*) Cystic degeneration; (*b*) hyaline degeneration; (*c*) fatty degeneration; (*d*) calcareous degeneration; (*e*) necrobiotic changes; (*f*) atrophy.

These tumours may become œdematous; infected, leading to suppuration; there may be torsion of the uterus or of a pedunculated subserous fibroid; and malignant new growths may arise in the tumour, viz., sarcoma, perithelioma, endothelioma; or carcinomatous growths may invade the fibroid.

Sarcoma is said to be present in 2 per cent of fibroids; in my series, 3 cases were sarcomatous. Carcinoma of the body involved 2 of the series; there were no cases of cervical involvement. Carcinomatous infiltration is stated to be present in a little over 2 per cent of all cases of fibroids.

Changes produced in the uterus and other organs.—The following changes occur in the uterus due to the presence of fibroids, viz.:—

1. Enlargement of the body, which may be regular or asymmetrical.

2. There may be great distorsion and lengthening of the uterine canal. This may render the use of the uterine sound or curette of no value, and even constitutes a danger in their use.

3. The position of the cervix may be difficult to determine.

4. The endometrium is increased in thickness with interstitial fibroids, and especially so with the submucous variety.

5. The Fallopian tubes are often greatly lengthened, and there is at times marked distorsion of the adnexa.

6. The round ligament is much enlarged, and may contain large vessels.

7. The menopause may be delayed many years longer than is normal. This means that it is useless to await the onset of the menopause for relief of symptoms; in some cases the growth takes on increased activity at or near the menopause.

Pressure on the bladder and rectum has already been mentioned.

Intraligamentary and cervical fibroids may cause compression or displacement of the uterus, and also interfere with the growth of the uterus during pregnancy.

The relation of fibroid tumours to cardiac disorders is an unsettled question. It is not easy to understand any causal relationship between fibroid uteri and heart disease except as a result of the anæmia which results from repeated and severe uterine bleeding.

Fibroids of the uterus are a source of danger to the patient when any of the following emergencies arise:—

1. Rupture of the uterus when labour is obstructed.
2. Post-partum hæmorrhage due to the fibroid interfering with proper uterine retraction.
3. Infection of the tumour during the puerperium.
4. Pulmonary embolism resulting from cardio-vascular changes.

Treatment.

It may be at once stated that operation is the chief means of cure; medicinal and other therapeutic measures are palliative and have a distinct place in the treatment of certain cases.

Albers-Schonberg in 1903 employed *x*-rays in the treatment of fibroids, and it is established beyond dispute that certain types of fibroid may be so cured. I have employed this method in ten cases with gratifying results as regards the cessation of hæmorrhage and diminution in the growth; in some cases almost complete disappearance of the tumour has taken place.

An artificial menopause is produced as the result of ovarian atrophy. The menopausal symptoms are those of the normal menopause. Small and medium sized tumours are suitable for this form of treatment provided they are not of the submucous type, and also it is essential that there is freedom from inflammatory or degenerative changes. This form of treatment

is simple and safe, but is prolonged, requiring several applications extending over a few months. In women who are not near the menopause operative interference by subtotal hysterectomy and retention of one ovary, to avert the menopausal symptoms, is a preferable form of treatment.

Dr. S. Sloan, in his recent work on *Electro-Therapy in Gynæcology*, states that "the only proper field for the electrotherapeutic treatment of uterine fibroids is in the treatment of the accompanying hæmorrhage and pain."

All uterine fibroids do not require treatment, but all require careful watching, and the patient should be examined periodically to ascertain the condition of the parts affected. When the symptoms are marked the question arises as to the value of palliative or operative treatment. Generally speaking, the following symptoms would suggest relief by operation:—

1. Increase in growth of the tumour.
2. Pain which is constant and increasing.
3. Severe and increasing hæmorrhages.
4. Where medicinal or electrical treatment has not relieved the bleeding and pain, and where there is increasing anæmia.
5. All large abdominal tumours should be removed.

Noble is of opinion that all fibroid tumours should be removed for the same reason that ovarian tumours are removed. He says that ovarian tumours are removed to protect the patient against the risks incident to these tumours, and, he adds, "the same rule should be applied to fibroid tumours." He further states that "a fibroid tumour is more dangerous to life" than a parovarian cyst, hydrosalpinx, or salpingitis. The general rule in surgery is to remove all tumours. Why not fibroids of the uterus?

Maurice Richardson says—"Whenever we postpone operation on fibroid tumours, no matter how benign these tumours may seem, we are running a risk beside which the dangers of an operation are but trivial."

This is the extreme surgical view, and has a great deal to be said in its favour. If the patient consents to be under regular medical observation for a prolonged period then she may be safe; neglect of this will in many cases place the patient in danger of her life.

Contra-indications to operation.—Old persons and delicate persons with fibroid tumours which are causing little or no inconvenience should not be operated upon. Young women who have fibroids and are desirous of bearing children may be watched and operation postponed. One must remember that fibroids are often a cause of sterility.

The ordinary contra-indications to any severe operation hold good in the case of uterine fibroids. Severe bleeding from a submucous fibroid may demand interference despite the critical condition of the patient.

Nature of operation to be performed.—Enucleation of the tumour or tumours and removal of the uterus and tumours are the operations which are undertaken for fibroids.

In my series of cases, 110 supravaginal amputations of the uterus were performed with excellent results. The mortality was 3 per cent. In uncomplicated fibroids the mortality should be *nil;* it, however, varies from 1 to 2 per cent. When there is any suppurative or degenerative change the mortality increases. All the deaths in this series occurred in fibroids with pyosalpinx or some form of infection. Panhysterectomy was performed in five cases on account of malignant new growth invading the tumour; all the cases made a good recovery. Myomectomy or enucleation was undertaken in fifteen cases with good results, pregnancy following at various periods in several, and no difficulty being met with during labour. It is a general rule not to perform enucleation on tumours which markedly involve the endometrium. The following principles should be followed in deciding between myomectomy and supravaginal amputation or total hysterectomy:—

1. Where there is malignant new growth a panhysterectomy according to the radical method should be performed.

2. Multiple fibroids are, as a rule, most effectively dealt with by supravaginal amputation of the uterus.

3. Pedunculated tumours should be treated by myomectomy.

4. Infected submucous fibroids are most safely removed by vaginal myomectomy.

I prefer the abdominal route to the vaginal; the latter

method I only use in small fibroids and in cases with very fat abdominal walls, and here the fibroid should not be large; uterine curettage is of doubtful value. Palliative treatment, which has frequently to be employed, although the results are as a rule unsatisfactory, consists of rest during the period, the use of hot vaginal douching, vaginal packing to control severe bleeding, which if properly done controls the hæmorrhage effectively for the time, the use of ergot and pituitary extract hypodermically.

The following cases have been selected as being of special interest:—

CASE I.—*Calcified submucous fibroid with sepsis.*

Mrs. A., aged 50, menopause not yet established, had been bleeding continuously for six weeks, with considerable abdominal pain. At the age of 40 her periods became more profuse; instead of losing for five days the time increased to nine or ten days, and the quantity lost was greatly increased. Till 38 years of age her periods were almost painless; from that date there was a gradually increasing dysmenorrhœa. When seen for the first time the patient was very ill, her pulse-rate 126 per minute, and her temperature 103·8° F. There was marked abdominal pain and tenderness, and a very profuse offensive vaginal discharge. Examination *per vaginam* revealed a dilated cervix with a stony hard protruding mass. On removal this tumour proved to be a calcified fibroid. After a severe illness from pelvic peritonitis and general infection, the patient eventually recovered. The uterus contained many fibroid growths, and was eventually removed, some months later, by supravaginal amputation. A good recovery ensued.

CASE II.—*Sloughing submucous fibroid diagnosed as carcinoma of cervix.*

Mrs. B., aged 35, multipara, was seen by me, and a history of severe uterine bleeding and watery offensive discharge of many weeks' duration was obtained. A diagnosis of carcinoma of the cervix had been given. For many years she had suffered from menorrhagia and dysmenorrhœa. On examination *per vaginam* a soft, friable, painless tumour was found filling the vagina,

and on following the swelling to its upper limit it was discovered to be a pedunculated submucous fibroid which was necrosing. The growth was easily removed, and after a period of prolonged convalescence due to the anæmia resulting from the hæmorrhages and toxic absorption, she eventually made a good recovery. It is not uncommon to mistake these growths, when necrosing, for malignant disease, and a serious prognosis is accordingly given.

CASE III.—*Multiple subserous and interstitial fibroids with double hydrosalpinx.*

Mrs. C., 33 years of age, nullipara, was seen on account of severe uterine bleedings and abdominal pain. A uterine curettage had been performed on two occasions with marked benefit as regards the bleeding, but in the course of a few months the menorrhagia and metrorrhagia were as severe as before, and on one occasion the hæmorrhage required vaginal packing to control it. There was no abdominal swelling. The patient was very anæmic. There were loud blowing murmurs over the mitral and aortic areas, and the condition of the patient was serious from the resulting anæmia. Examination *per vaginam* found the pelvis filled with a hard, nodular, movable tumour. The tumour had been recently increasing in size, and at the menstrual periods the increase in size was marked. As the patient's condition was sufficiently grave to warrant interference, palliative treatment by rest in bed, hypodermic injections of iron, and general care to improve her condition formed at first the line of treatment adopted. After two months of such treatment a supravaginal amputation of the uterus was performed; a double hydrosalpinx was discovered and likewise removed. One ovary was left, and was sufficient to prevent any menopausal symptoms. The patient made a good recovery. It is wise to leave some healthy ovarian tissue in such a young patient, as the menopausal storm is often severe in such cases.

CASE IV.—*Multiple uterine fibroids with large ovarian cyst.*

Miss D., aged 41, was sent to me with a large abdominal

swelling reaching three fingers' breadth above the umbilicus. There was a history of prolonged "neurasthenia," aggravated by uterine hæmorrhage of two years' duration. The abdominal swelling had only been noticed about two months prior to my seeing her. Examination of the abdomen revealed a tense, cystic swelling with all the characteristics of an ovarian cyst. Examination *per vaginam* gave the following finding:—The uterus is enlarged to the size of a three months' pregnancy, hard, nodular, and is evidently free from the abdominal swelling; there is a small adnexal mass on the right side which is fixed and painful. Laparotomy was performed and a large unilocular cyst was removed; it arose from the left side. The uterus was a fibroid one, with multiple subserous and interstitial fibroids. It was removed by supravaginal amputation. The mass on the right side proved to be vermiform appendix and the right appendages matted together. The appendix was removed and also the Fallopian tube. The ovary was not removed, and on complete recovery of the patient all the symptoms of ill-health disappeared. There were no menopausal symptoms.

CASE V.—*Large uterine fibroid with cystic changes.*

Mrs. E., aged 46, consulted her medical adviser on account of constant pain radiating from the left inguinal region down the left thigh, and also of increasing abdominal swelling. One child, born twenty-two years previously, was the only pregnancy. On abdominal inspection a tumour was found occupying the middle line from the symphysis pubis to three fingers' breadth above the umbilicus. On palpation the tumour seemed cystic at parts, and in other places of a hard consistency. Pregnancy was excluded, but the possibility of an ovarian cyst had been entertained. Menstruation was regular and normal. On examination *per vaginam* the tumour was evidently uterine or closely adherent to the uterus. Owing to the rapidly increasing size of the tumour laparotomy was performed, and a large fibro-cystic uterine tumour weighing 7 lb. was removed. Considerable difficulty was experienced in dealing with densely adherent intestine to the right side of the growth. The patient made an uninterrupted recovery.

CASE VI.—*Cervical fibroid with retention of urine at the menstrual periods.*

Miss F., aged 42, had a history of menorrhagia of one year's duration, and there was an accompanying anæmia of a marked character. She suffered from chronic bronchitis, with profuse offensive expectoration; there were also marked cardio-vascular changes. Retention of urine was of frequent occurrence at the time of menstruation; it did not, however, trouble her with every period. When seen a cystic swelling midway between symphysis and umbilicus was recognised, and on passing the catheter a large quantity of urine was withdrawn and the cystic swelling disappeared. Examination *per vaginam* made it quite evident that a uterine fibroid occupied the pelvis, and that at times the premenstrual congestion was sufficient to cause enlargement of such a degree as to produce the retention of urine. Owing to the cardiac and pulmonary conditions operation seemed to be contra-indicated, and accordingly palliative treatment was adopted. Rest in bed for a few days before the period, the internal administration of liq. extract. ergotæ., and hot vaginal douching. This method of treatment was of great benefit, and the attacks of retention greatly diminished in frequency.

The occurrence of retention of urine coming on suddenly in a patient over thirty years of age raises the question of either a uterine fibroid or the likelihood of pregnancy with retroflected gravid uterus. The history and pelvic examination make matters quite clear.

CASE VII.—*Multiple fibroids—Pedunculated subserous fibroid with torsion of pedicle.*

Mrs. G., aged 35, was seen on account of severe and suddenly occurring abdominal pain, with vomiting and intestinal distension. She had always been healthy until this illness. Her menstrual periods had always been regular and very profuse; her period lasted four days, but she soaked three napkins of large size daily; large clots were regularly passed at this time. There had been two pregnancies, the youngest child being 9 years of age. On examining the abdomen it was seen to be markedly distended, painful on palpation, and to contain a

large growth of some kind. Examination *per vaginam* revealed a fibroid uterus, with a swelling the size of a small football filling up the right side of the abdomen from the symphysis to the umbilicus. As her condition was urgent the abdomen was opened, and a subperitoneal fibroid, with torsion of its pedicle, was discovered. This tumour was removed, and as the uterus contained numerous other small fibroids a supravaginal amputation of the uterus was performed with satisfactory results.

CASE VIII.—*Large single interstitial fibroid, with acute abdominal pain due to torsion of the uterus.*

Mrs. H., aged 37, complained of recurring attacks of abdominal pain of such severity that she was compelled to send for medical assistance to relieve the pain. The patient has had six children—the youngest 3 years of age. Menstruation began at 18 years of age, was of the 28-day type, and lasted four days. For the past two years the menstrual loss has been markedly on the increase. Examination *per vaginam* made evident an enlarged uniform swelling arising from the uterus, and appearing above the pelvic brim to the extent of three fingers' breadth. The tumour was hard and painful to touch; the mobility of the uterus was distinctly impaired. As the pain was increasing in severity a laparotomy was performed, and a uterine fibroid, with marked twisting round a long supravaginal portion of cervix, was discovered. The body of the uterus was very dark in colour. The torsion was barely a half turn, and was easily overcome. A supravaginal amputation was performed, and on opening the uterine cavity a fibroid, the size of a cocoa-nut, occupied the myometrium. Both ovaries were cystic, and were removed with the uterus. The convalescence was uninterrupted till the twentieth day, when thrombosis of the left femoral vein ensued with all the usual disabilities, and prolonged her illness for many weeks.

CASE IX.—*Uterine fibroids with rectal symptoms.*

Miss I., aged 41, has been invalided for the past two years with right-sided pain, which has steadily increased in severity, and is of a constant, dragging character. The pain is worse at

the menstrual period. For some months there has been great and increasing constipation, with great difficulty of emptying the bowel. Unless large doses of purgative medicine were taken no action of the bowels was obtained, and of late the dose of the medicine has been greatly increased before any evacuation resulted. Under an anæsthetic the pelvis was found to be filled with a dense, hard, fixed nodular uterine tumour. Laparotomy was performed, and a uterine tumour extending into the left broad ligament was removed after considerable difficulty. The rectum was found to be densely adherent to the posterior surface of the uterus; it was separated, after long and patient working, without injury to the bowel. The right-sided pain was due to adherent omentum and right adnexa firmly matted together. The patient made a slow but eventually good recovery.

Two years later she died from carcinoma of the rectum. Examination of the uterus and tumour at time of removal showed no evidence of malignant new growth.

CASE X.—*Post-abortive sepsis in a fibroid uterus, with necrosis of the fibroid.*

Mrs. J., aged 27, was suddenly seized with acute abdominal pain, sickness, and vomiting five days after an abortion occurring about the end of the fourth month of pregnancy. When seen she was acutely ill, and had a temperature of 102·8° F. and pulse of 120. The abdomen was slightly distended, painful on pressure, and there was rigidity of both recti. A diagnosis of pelvic peritonitis had been made, and the appropriate treatment for this condition adopted. The patient's condition became steadily worse, and caused considerable anxiety. The pelvic examination was made under an anæsthetic, and a large retroflected uterus was discovered, with a semi-cystic swelling occupying the right side of the pelvis. As considerable doubt existed regarding the true nature of her illness, and especially as it was thought probable that an ovarian cyst was undergoing torsion, laparotomy was performed. A right-sided ovarian cyst, the size of a large orange, was removed, and also the uterus, which was the seat of a necrosing interstitial fibroid. The patient recovered with difficulty, but eventually became quite well.

CASE XI.—*Suppuration of an interstitial fibroid during the puerperium—Hysterectomy, with a fatal result.*

Mrs. K., aged 33, had been pregnant three years previous to the present confinement. This first pregnancy had terminated some time during the sixth month. The pregnancy associated with the present illness had terminated at the twenty-sixth week. When seen five days after her labour she was acutely ill, with repeated rigors, high temperatures, and pulse varying from 120 to 140 per minute. The abdomen was distended, the uterus large, soft, and semi-fluctuant. The impression conveyed to the examining hand was exactly that of a cyst. Careful enquiry brought out the fact that for some days prior to labour there had been right-sided abdominal pain, with marked tenderness and rigidity of the abdominal wall. This condition had persisted up till the onset of labour, and then the abdominal condition had become rapidly worse. A provisional diagnosis of an acute appendicitis was made, and an operation was decided upon. The abdomen was opened in the middle line and the parts carefully inspected. A right-sided adnexal mass was discovered, and found to be full of pus; the uterus was manifestly infected, and was removed along with both adnexa. On section of the uterus the soft cystic swelling in the uterine wall was found to be an abscess cavity in an interstitial fibroid. There was no appendicitis. The patient died the following day from acute sepsis.

CASE XII.—*Multiple uterine fibroids complicating pregnancy —Cæsarean section and removal of uterus.*

Mrs. L., aged 35, was seen during her first labour on account of obstruction by a tumour in the pelvis. Patient was supposed to be about the end of her sixth month of pregnancy, but the uterine enlargement suggested full term. Labour had set in somewhat suddenly and unexpectedly. When making a pelvic examination to find the degree of dilatation of the cervix, it was found that a large, round, hard mass filled the pelvis, and was mistaken for the fœtal head distending the lower uterine segment. No os externum could be made out, and then the true nature of matters was realised. As labour pains were steadily increasing it was decided to perform laparotomy, and remove the pelvic tumour if possible. This

was not possible, as the growth was low down in the cervix, and could only be reached with difficulty. Cæsarean section was performed and a living child delivered; afterwards a hysterectomy was undertaken, and eventually a good recovery ensued.

The following points are of interest in considering the question of uterine fibroids and labour. The growth may permit of natural birth of the child, but may be so injured as to undergo infective changes during the puerperium, or, as in the present case, a true obstruction may result from the pelvic cavity being encroached upon. If it is possible to push the tumour out of the pelvis, the child may be delivered by version or forceps. There is considerable danger in this procedure, but it may be the only method when skilled assistance is not available. When skilled assistance can be obtained, the treatment of obstructed labour by a fibroid of the uterus is abdominal section, followed by removal of the tumour if possible, or Cæsarean section, followed by myomectomy or hysterectomy.

During the puerperium, when fibroids are present in the uterus, some form of infection may occur. Necrobiosis is the commonest form of degeneration in the puerperium. A submucous tumour may be expelled from the uterus during the puerperium, and regard must be had as to the differential diagnosis of submucous tumour and inversion of the uterus.

It may be stated, as a result of surveying these hundred and fifty cases in this series with care, that—

1. Fibroid tumours of the uterus are rare under thirty years of age and frequent over that age. The earliest recorded case is that of a girl of 13 years of age, reported by Cavaillon.

2. All fibroid tumours require to be carefully watched, as they may become a source of danger to the patient.

3. The menopause does not necessarily bring about a cure; as the patient grows older these growths constitute an increasing danger.

4. The risk of malignant new growth arising in a fibroid before forty years of age is not great; after that time the danger increases with each year.

5. When these tumours produce symptoms sufficient to cause the patient to consult her medical attendant surgical

treatment is indicated, or deep-seated therapy by *x*-rays. Palliative treatment has a distinct place, but is very generally unsatisfactory. Many of the cases operated on by me had previously been subjected to long periods of medical treatment and invalidism, and were finally forced to have relief by surgical procedure.

6. In properly selected cases treatment by *x*-rays gives good results.

7. Cases of small uncomplicated fibroids do not require treatment, but should be medically supervised regularly.

8. Uterine fibroids predispose to sterility, but do not prevent conception. If a patient is known to have had uterine fibroids prior to her pregnancy careful examination should be made of the pelvis at least one month before labour is expected; after delivery the third stage of labour must be carefully watched for a severe post-partum hæmorrhage; the puerperium must be supervised with care, as possible infection or degeneration of the tumour may occur. Many pregnant women with uterine fibroids have a perfectly normal labour.

9. Atrophy of the fibroid occasionally occurs after the pregnancy and puerperium are completed; it is, however, of rare occurrence.