

Fibromyomata of the Uterus : a series of 252 cases treated either by Surgical Operation or Intensive X-ray Therapy.

By L. MARTINDALE, M.D., B.S. (Lond.),
Surgeon, New Sussex Hospital, Brighton.

IN reviewing my cases of fibroid tumours of the uterus, I have been actuated by a desire to examine my work and judge of its worth by the results obtained, not only in the alleviation of symptoms, but also in securing the general well-being of the patients; that is to say, by the *ultimate* result whether it be in a greater capacity for work, or the bearing of children, or in the fuller enjoyment of life.

I have accordingly sent round every few years a *questionnaire*—and in the case of those patients treated by X-ray therapy I have kept in touch with all except 3 per cent. Some of these patients underwent treatment 12 years ago.

A large number of my cases of fibroid uterus caused no symptoms and were left untreated, but in 252 cases the patients were suffering from symptoms which were causing definite ill-health or suggesting a possibly malignant condition, and these I have treated either by X-ray therapy after a diagnostic curettage or by hysterectomy or myomectomy.

Since 1913 I have treated a large percentage of cases of fibromyomata of the uterus, climacteric hæmorrhage, carcinomata of the uterus or ovaries by intensive X-ray therapy. But from the first I have used it only as *one* method of treatment. In some 56 per cent. of the cases of fibromyomata a subtotal or total hysterectomy or abdominal or vaginal myomectomy was performed. Cases of operable carcinoma of the body and neck of the uterus were treated by X-rays after operation. Inoperable cases, without cachexia, were treated by deep X-ray therapy, or radium, or both.

To avoid any financial bias, I charged the same fee for X-ray treatment as I did for hysterectomy.

CHOICE OF TREATMENT FOR FIBROMYOMATA OF THE UTERUS.

This depended on :—

1. The physical signs and symptoms and actual diagnosis of the case.
2. The general condition of the patient.

1. *The physical signs and symptoms.* In cases in which the size of the tumour did not exceed that of a four or five months' pregnancy, in which the fibroid was interstitial, and menorrhagia the prominent symptom, and in which no degeneration of the

tumour was suspected, nor complication, such as disease of any other pelvic organ, X-ray therapy was used.

Those cases in which the fibroid was pedunculated, submucous, or as large or larger than a six months' pregnancy, were treated by operation, also those cases in which there was a possibility of a malignant condition. The reduction in the size of the fibroid caused by X-ray therapy is too slow if the patient has to be relieved quickly.

2. *The general condition of the patient.* If the patient was suffering from a serious form of heart disease (such as cases 6, 11, 62, Series I), or Graves' disease (such as cases 50 and 84), or any disease contra-indicating operation, or if it appeared that the fear of operation in any particular patient was likely to increase the amount of shock (*e.g.* case 85), X-ray therapy was used, even though the size of the tumour exceeded that of a six months' pregnancy.

Social conditions. In a large proportion of the cases the patients were headmistresses, doctors or nurses, who preferred a treatment which did not interfere with their regular work; but in such cases, if the diagnosis was uncertain, operative treatment was carried out.

The 252 cases can be divided into two groups:—

A. CASES TREATED BY INTENSIVE X-RAY THERAPY = 111.

By old method	...	...	= 51.
By new method	...	...	= 60.

B. CASES TREATED BY OPERATION = 141.

By subtotal or total hysterectomy	= 109.
By abdominal myomectomy	... = 22.
By vaginal myomectomy	... = 10.

A. THE CASES TREATED BY INTENSIVE X-RAY THERAPY.

From 1914 to 1921 the *Freiburg technique* of that time was followed, using 20 to 22 ports of entry every three weeks, and giving one or two treatments after the cessation of the menstrual periods. The dosage was measured by Kienboeck strips.

From 1922 onwards a modification of the *Erlangen technique* was used. I now work with an apparatus on the double coil principle, giving a voltage through the tube of 156,000, and, therefore capable of generating an extremely hard, penetrating radiation, which, when filtered, is practically homogeneous. The X-ray room is well lighted, large (26 × 24 ft.) and airy, and I work from an ante-room protected by 5 mm. thick lead screening. By means of a specially-constructed fan ventilator the air of the room is always fresh, and much of the Roentgen sickness complained of by some radiologists and their patients is, therefore, avoided.

The chief characteristic of the new technique is precision of dosage. This involves:—

1. Knowledge of the exact biological unit skin dose of every tube under given standard conditions.

2. Knowledge of the percentage depth dose of every X-ray tube employed under the same standard conditions.

3. Knowledge (and this also is only gained by exact experimentation) of the best filtering for each tube so as to obtain the highest point of homogeneity possible, since it is only with this exact knowledge that one can work with such large doses with any degree of safety.

I work with 5,200 interruptions in my gas break, with an ampèrage of 6 to 7 ampères, and a steady 2 milliampères through the Coolidge or boiling water tube. It is better to check the number of interruptions in the break every two or three weeks; indeed, at least every time the break is cleaned.

1. *The unit skin dose* is that dose which gives on the eighth day a just discernible erythema of the skin, and on the 28th day a slight pigmentation. It is 10 per cent. less than what in England is called an erythema dose. Having ascertained it for a given X-ray tube first by experiment on the human skin (preferably of the abdomen, as the skin on various parts of the body differs), all other tubes can be standardized from this one by means of an ionto-quantimeter.

2. *The percentage depth dose.* To ascertain what this is at a depth of, say, 10 cm. in the human body, a wooden box containing either water, a composition jelly, or mashed placenta, is placed in between the X-ray tube and the ionization chamber. For instance, if the electroscope of the ionto-quantimeter takes 14.6 seconds to discharge on the surface and 45 seconds at a depth of 10 cm., the depth dose is $\frac{14.6 \times 100}{45} \times$ coefficient of dispersion (0.51), or 16.54 per cent. By means of Voltz's tables the depth dose can be estimated for every case, for this varies not only with the focal distance of the tube from the skin, being greater the greater the distance, but also with the size of the field or port of entry.

3. *The highest homogeneity point* is also ascertained by means of mathematical calculation and the use of the ionto-quantimeter. In the Coolidge tubes used for a large proportion of the cases the highest homogeneity point—that is to say, the best filtration to use—is 16 mm. aluminium. Therefore, for convenience 0.5 zinc (= 11 aluminium) + 4 aluminium is used. With one Coolidge tube, however, 0.8 Cu. + 2 aluminium is used, especially for carcinomata, as this gives a better depth dose.

Sensibility tables. Seitz and Wintz maintain that 110 per cent. of the unit skin dose is necessary to destroy carcinoma cells, 80 per

cent. sarcoma, and 50 per cent. tuberculous growths; whereas it requires 135 per cent. to destroy intestines and bladder, 180 per cent. to cause degenerative changes in the muscles, and 35 per cent. to destroy the Graafian follicles of the ovary. (The interstitial cells of the ovary are said to be unaffected by this dose.) All the cases of fibromyomata of the uterus and climacteric hæmorrhage reported were treated with from 30 to 50 per cent. of the unit skin dose at a depth of 10 cm., depending upon the individual case.

In Freiburg and in Würzburg the flexible cable end of an ionto-quantimeter is placed either in the vagina or rectum, so measuring the number of readings until the necessary dose is reached. A still more accurate method is to measure the depth dose in one's X-ray room, and then work under precisely the same conditions; that is, the same amperage, voltage, milliamperage, heating current, number of revolutions of the break, time of dose, and the same focal distance and filtering.

TECHNIQUE OF APPLICATION. The usual medical examination having been made (weight measured, urine tested, blood count), and, if necessary, a diagnostic curetting performed, the technique employed is as follows:—The patient is prepared as for abdominal operation, because the contents in the intestines or bladder may cause secondary radiation, which again may cause injury to the intestinal and bladder mucous membrane. As she lies on the couch the circumference of her abdomen and the distance between the anterior superior iliac spines, iliac crests and Baudelocque diameter is measured. If the Baudelocque measurement is less than 20 cm. the ovaries lie at a depth of not more than 10 cm. from the skin. If more than 20 cm. the ovary will be a little more than 10 cm., and consequently an extra field will be necessary. In cases of small fibroids or of climacteric hæmorrhage each ovary is treated with 35 per cent. of a unit skin dose, using an anatomical applicator. Therefore, with a 156,000 voltage, 6—7 amperage and with a 2 milliamperage in the secondary current, and a Coolidge tube at a focal distance of 23 cm., a 32 minute unit skin dose, and a 17.5 per cent. depth dose, 32 minutes anteriorly and posteriorly to each ovary, are given to get a 35 per cent. dose. This means a treatment of about two and a half hours. In women under 30 years, a 40 per cent. dose is required. To get this it will be sufficient to give an extra field at the side of the others, or to give one large field, 20×15 cm., anteriorly and posteriorly, at a longer focal distance. In the latter case Voltz's tables must be used to calculate the time and the percentage depth dose. This large field technique is necessary in all cases of fibroid tumours bigger than a four months' pregnant uterus. In some cases a focal distance of 50 cm. and a correspondingly long application have been taken.

To prevent any skin trouble following radiation the patient should avoid any trauma (such as excessive heat or cold, tight bands or corsets) and should use an emollient cream (*cf.* cera alb. ℥i, cetaceum ℥i, ol. olivæ ℥ix, aq. distill. ℥iiis) for at least a week after the treatment, avoiding baths during that time.

EFFECTS OF TREATMENT.

1. *Immediate effects.* In the majority of patients, beyond the fact that the treatment is rather long and monotonous, there are no unpleasant effects. In a certain small proportion of cases there is some *Roentgen sickness*, but this depends upon the technique employed and the length of the individual treatment.

In those cases treated by the old method 10 per cent. suffered from Roentgen sickness, and these only in the later treatments.

In those cases treated by the new method the sickness came on towards the end of the treatment or, more often, some hours after. By the next morning the patient had quite recovered, and could take food as usual. Good ventilation in the X-ray room and proper preparation beforehand are the best means of prevention, as is also the use of X-ray tubes having the shortest unit skin dose possible. In Erlangen, Frankfurt, Dresden, Würzburg and Berlin, in which cities I have recently seen the most modern installations, I find that with the rapid unit skin dose obtained (in some cases eight or nine minutes) the incidence of Roentgen sickness on the table has been reduced still further.

In a good many of the cases systematic blood counts have been made. There is a marked leucopænia three and a half hours after treatment, gradually lessening, until at the end of 42 hours it is within 2,000 of the normal, and at the end of three days the blood is again normal.

2. *Later results.*

(1) Cessation of menstrual periods in patients over 40, with resulting climacteric symptoms due to an artificially produced menopause.

(2) Reduction in the size of the tumour.

(1) Cessation of menstrual periods:

A. In those cases in which the old technique was used the average number of X-ray treatments given before cessation was four. These were given once in every three weeks, but one or two treatments were given in addition after the menstrual periods had ceased. The duration of the total treatment, therefore, was about three months.

With the newer technique one treatment only is sufficient in the great majority of cases, only 14 per cent. in my experience requiring a second treatment.

- B. With small fields (6×8 cm.), using anatomical applicator, at F.D. 23 and dose 33—36 per cent., average number 1.5.
- C. With large fields (15×20 cm.) at F.D. 40—50 and dose 42—59 per cent., average number 1.05.

As a rule there are either one or two menstrual periods before cessation. If radiation is performed in the first half of the inter-menstruum there is in 95 per cent. of cases no further menstruation or only one menstruation following the treatment; in 5 per cent. of cases two or three menstrual periods. When the radiation is performed in the second half of the inter-menstruum two or three menstrual periods follow before cessation of the periods. This is probably owing to the greater susceptibility of the young ovule to the rays, in which case there is no follicle formation, no corpus luteum, and therefore no menstrual period.*

Temporary amenorrhœa and sterility. In the foreign literature the term "*Temporary castration*" is being used to denote the temporary amenorrhœa and sterility following a given dose of intensive X-rays. Working under definite standard conditions, the dose should be so accurate that amenorrhœa for a certain definite time, or permanently, should be guaranteed. With our present knowledge, and considering also the possible idiosyncracies and the varying ages of patients, this is difficult. I find that by using the small field method at 23 cm., and giving a 32-33 per cent. depth dose, an amenorrhœa of eight months to a year can be attained; using large fields at 40—50 cm. focal distance, an amenorrhœa of two years or more. In the cases treated by the old method many years ago, the amenorrhœa has lasted ever since, except in seven cases (cases 7, 8, 11, 20, 21, 40, 42). In these, no amenorrhœa being produced, hysterectomy was performed in three (cases 8, 11 and 40); a curetting in one (case 20); and in the other three cases the menstrual periods became normal and further treatment was not required (cases 7, 21 and 42). In one other case (case 31), as the pressure symptoms did not subside, hysterectomy was performed.

(2) Reduction of the size of the tumour. In the great majority of cases the tumour diminishes slowly, till at the end of a year it is one-third of its original size, and the pressure symptoms are relieved. In two cases, however (cases 69 and 76), there has been

* See "The Histological Investigations of the Development of the Corpus Luteum," by Robert Meyer and C. Ruge, in *Zentralblatt f. Gyn.*, 1913, No. 2, and of R. Schröder in *Arch. f. Gyn.*, 1914, 101, S 1, and "Ueber die biologische Funktion des Corpus Luteum, seine Chemischen Bestandteile und deren therapeutische Verwendung bei Unregelmässigkeiten der Menstruation," by Seitz, Wintz and Fingerhut, in the *Münchener mediz. Wochenschrift*, 1914, No. 30.

practically no diminution in the size of the tumour, although both have had complete amenorrhœa since treatment. One patient has put on a stone in weight, and feels and looks very well indeed. In the other patient, who would not consent to operation, there was a marked degree of anæmia, and the fibroid was soft. She writes (July 1925) that she is well and not anæmic, and very much better in every way.

FAILURES AND SUCCESSES.*

FAILURES. There are six cases (Nos. 11, 21, 25, 40, 51 and 56) in which the treatment failed to afford any relief. Of these, hysterectomy was performed in two cases. In cases 1 and 51 the patients needed more treatment, but as one lived in another town, and refused to continue owing to the expense of travelling, and the other left the town, they need not necessarily be regarded as failures. Eliminating these two cases, in four cases (4.5 per cent.) the treatment failed. In two of these four cases (Nos. 11 and 40) there was some mental instability. An examination of the specimen in each case removed by hysterectomy disclosed no cause for the failure. In case 11 the ovary showed a recent corpus luteum; in case 40 there had been a history of the patient having undergone two long, unsuccessful radium applications at the Radium Institute.

In case 56, the patient had already had a long series of X-ray treatments at the hands of another radiologist. Possibly, therefore, I used too small a dose, especially as I have noticed that in those cases in which I have had to give a second dose a larger percentage depth dose is necessary. I do not know whether this is due to X-rays causing a species of immunity or not, but I do know that some cases are more radio-resistant than others. This patient has recently given birth to a healthy child, and is herself in good health.

In case 25, the condition being doubtful, operation was advised but refused. I have just received a letter to say that she is well, and much improved since the treatment so many years ago.

Errors in diagnosis. In cases 28 and 31 an artificial menopause was achieved, but the symptoms the patient complained of most were not relieved. This was due, in one case, to error in diagnosis, and in the other to error in judgment as regards the best method of treatment.

SUCCESSSES. On the other hand, in the great majority, viz., 95.5 per cent. cases, X-ray therapy has been successful. The histories of these patients have been followed up, and they relate

* See Table I, giving details of cases treated by X-ray therapy.

how well and young they feel, and how improved their general health is. So that one is much impressed by the beneficial effect of the treatment. An examination of the cases, however, in which operation was definitely chosen, 8.5 per cent. could just as well have been treated with intensive X-ray therapy, but for various reasons I chose operation. If these patients had been treated by X-ray therapy I might have approached the 98 per cent. of successes claimed by Krœnig and Gauss.

B. THE CASES TREATED BY OPERATION FALL INTO THREE GROUPS :

1. Hysterectomy :		Number.	Percentage.
Subtotal	... ..	77	54.6
Total	... ..	33	22.7
2. Abdominal myomectomy		22	15.6
3. Vaginal myomectomy		10	7

141

The advantages of surgical operation are :—

1. The possibility of a mistake in diagnosis, *e.g.*, the unsuspected presence of carcinoma or sarcoma of the body of the uterus, of carcinoma of the cervix, ovarian tumours or degeneration of a fibroid tumour.
2. The satisfaction to the surgeon of knowing the exact pathology and histology of the local condition.

The disadvantages are :—

1. A possible mortality due to the frequency of accompanying heart lesions.* (My own mortality is 1.4 per cent.)
2. The inconveniences and expenses of an operation, and the more or less long convalescence and consequent inability to resume work for some weeks or months.
3. The loss to the patient of an important organ of the body, and the occasional development of nervous or even mental symptoms. In my own series of operation cases these reached 1.5 per cent. insanity and 1 per cent. hysterical temporary paraplegia.

When one considers the *end results* of operation in this series of cases one cannot deny that they are good, and especially so when one remembers that the cases dealt with have included the more serious cases of fibromyomata and those in which some degeneration was suspected, or some serious accompanying condition diagnosed.

* With reference to the frequent association of heart disturbance with advanced uterine fibroid, Baldy has shown from the records of the Gynecian Hospital the following statistics :—“ In the series of 3,413 operations, sudden post-operative death due to circulatory disturbance occurred 16 times. Thirteen of these sudden deaths occurred in the 366 fibromyoma cases, while the 3,047 other operative cases furnished only three such deaths.”

In a careful examination of these cases* degeneration of the fibroid tumours was present in the following numbers:—

Degenerations of Fibromyomata.

	Numbers.	Percentage.
1. Œdematous, myxomatous and cystic	4	2.8
2. Necrobiosis	1	0.7
3. Necrosis	1	0.7
Suppuration and sloughing	4	2.8
4. Calcareous degeneration	3	2
5. Sarcomatous degeneration	2	1.4
	15	10.4
Total number of cases ...	141	

I found also that in a certain number of cases there was some definite pathological condition of the neighbouring organs:—

Accompanying Pathological Conditions of Pelvic Organs.

	Numbers.	Percentage.
Cystic ovaries	4	2.8
Ovarian cysts:		
(a) Simple	22	15.6
(b) Multilocular	2	1.4
(c) Dermoid	3	2
Salpingitis	2	1.4
Pyosalpinx	2	1.4
Hydrosalpinx	3	2
	38	26.6
Total number of cases ...	141	

In the 141 cases there was no instance of an adeno-carcinoma of the body nor endocervical or cervical carcinoma of uterus.† This was probably due to the fact that in a series of cases of carcinoma of uterus which I have had under my care (52 in all) the condition was in every case such, that either the preliminary curetting settled the diagnosis, or the case was so obviously malignant that the complete operation was performed or the carcinoma dose of radium or X-rays administered. The fact remains that in this latter series also no fibroid was present.

* I have not given the full table of series of operation cases on account of lack of space.

† In a recent report by Winter of 753 operated cases, malignant disease of the tumour or corpus uteri was found in 39 cases, and total necrosis of the tumour in 17 cases.

One question may, however, be considered here, and that is, how frequently carcinoma follows X-ray treatment, and whether there may be any likelihood of a stimulating dose of X-rays, causing a carcinomatous condition. Halban,¹ Bumm² and Vogt³ have described cases in which from six months to five years after radiation carcinoma of the body of the uterus has been found. The probability is that either the carcinoma was already present at the time of the X-ray treatment and was overlooked, or that it developed later quite independently of the treatment. According to Martius carcinoma does not occur more frequently in irradiated cases than in those that have undergone no treatment. In any case the question cannot be decided until a very much larger number of cases treated by X-ray therapy are reported.

Necrobiosis. In one case (119 of Series II) there was a large fibroid uterus undergoing necrobiotic change. This had caused a high temperature and a leucocytosis of 22,000. The patient was so acutely ill that an immediate operation was performed, although she had been seen five days before her acute illness, and I had agreed to X-ray therapy, on account of her fear of operation. She did excellently, making an uninterrupted recovery.

Sarcomatous degeneration. In two cases (Nos. 18 and 58, Series II) sarcomatous degeneration of the fibroid tumour was found.

Accompanying pregnancy. In two cases of inevitable abortion (cases 21 and 22, Series II) in which the uterus was evacuated a fibroid polypus was found. In another case myomectomy was performed, and the patient went to full term.

Mortality. The mortality rate is 1.4 per cent. The causes of death were as follows:—

One patient (case 134) died 28 hours after operation, from shock. It was an extremely difficult operation, a large impacted cervical fibroid in a very obese woman, with a dilated heart and large umbilical hernia. The latter prolonged the duration of the operation somewhat as there were many dense intestinal adhesions.

One patient (case 2) died 10 days after operation, of peritonitis. The patient had a large intraligamentary fibroid tumour, causing pressure symptoms, and complicated by double pyosalpinx. She also was obese, alcoholic and a bad subject for operation.

In both cases X-ray therapy should have been chosen in preference to operation, because both patients were obviously bad subjects for a difficult and prolonged operation.

With regard to the rest of the series, there is little to report. The patients have done well. I believe, however, that the loss of the uterus is not a light incident in the life of any woman, and that, although a certain percentage of cases, owing to severe

pressure symptoms or doubtful diagnosis, or the probability of the presence of malignant or serious degenerative changes, require surgical interference, a treatment which allays such symptoms as severe hæmorrhage and reduces the size of benign tumours without ageing the patient or causing any other troublesome symptoms, is a treatment that will be welcomed by many women.

GENERAL CONCLUSIONS.

In considering the choice of treatment for any particular patient one must bear in mind that as long as diagnosis may be faulty there is a certain danger in using intensive X-ray therapy for any but those cases in which it is fairly certain that the case is straightforward and uncomplicated, *e.g.*, a fibroid uterus well under the size of a six months' pregnancy, interstitial rather than sub-peritoneal, and in which the chief and only symptom is profuse menorrhagia. In such a case X-ray therapy is the ideal treatment. Also in cases of grave heart disease, in which no surgeon would care to operate, it is essentially justifiable, and the marked improvement in the general health of such patients is remarkable.

In all cases of doubtful diagnosis the possibility of carcinoma of the body of the uterus must be eliminated by dilating the cervix and curetting if necessary.

In other doubtful cases, and especially in young women an exploratory laparotomy, followed by hysterectomy, or myomectomy when necessary is the correct treatment. The X-ray dose sufficient for fibromyoma of the uterus is only approximately one-quarter or one-third of the dose necessary for carcinoma (*viz.*, 35 per cent. or 45 per cent., as against 100—110 per cent. of the unit skin dose), so that an error in diagnosis in such a case may be an extremely dangerous one. Carcinoma of the cervix is less likely to be missed except in those cases in which its origin is in the cervical canal itself; the metrorrhagia should, however, have led to a diagnostic curetting when the pathological nature of the hæmorrhage will be shown.

The treatment by X-rays eliminates nervous shock, the inconveniences of an anæsthetic, long convalescence and nursing home fees, and leaves the patient fit and able to follow her usual life, and feeling better and healthier than before. In my opinion, therefore, it is a more or less ideal treatment.

With the modern installations the treatment can be carried out rapidly in one or two sittings, and necessitates only one or two days off work. X-rays have the further advantage that, unlike a hysterectomy, a permanent amenorrhœa need not necessarily be carried out. A 28 per cent. dose to each ovary in the case of a small fibroid results in an amenorrhœa of 8—24 months' duration, during which time

the patient loses her anæmia and improves in health. Twenty-two cases of pregnancy were recently reported in which the birth of healthy children occurred after two years' amenorrhœa following X-rays. My own case (case 56) had only an eight months' amenorrhœa following X-rays and improvement in health, after which she bore a healthy child.

The climacteric symptoms have been considerably less troublesome in those treated by X-rays than by operation. This is probably due to the more gradual action of X-ray therapy. That there is little change in sexual feeling has been shown in the recent work of Dr. Wolmershäuser⁴ in the Frankfurt Clinic. In a series of 265 cases in the years 1921 and 1922, in the 111 cases here reported the patients said they felt younger and had more energy, and this was probably due to the improvement in the blood condition and the reduction in the size of the tumour, without any disturbance of the interstitial cells of the ovary or change in the uterus itself.

With regard to the danger of X-ray treatment, this, apart from its employment in unsuitable and undiagnosed cases, resolves itself into the possibility of the occurrence of a severe X-ray burn. With a good and careful technique such a burn is impossible, but the treatment should be carried out only by those properly trained and working with accurately calibrated installations. With the newer installations, with which a patient can be treated in from 34—45 minutes, even greater care is needed, for an overdose of from one to two minutes may be sufficient to cause a severe burn.

But if care has to be taken in the treatment of a patient by X-ray therapy no less care is needed in the technique, a sepsis and after treatment of the patient undergoing vaginal or abdominal operation.

Both methods have their uses, and the choice must be left to the gynæcologist, who has not only diagnosed the actual pelvic condition, but has also obtained a knowledge of the physique and power of resistance of his patient.

REFERENCES.

1. Halban. "Zur Klinik der Myome." *Zentralbl. für Gynäkol.*, 1921, 42, 1517.
2. Bumm. "Ueber Röntgen Karzinome bei der Frau." *Zschr. für Geburts.*, 1923, 86, 445.
3. Vogt. "Ueber des atypische Verhalten des Uterus in der Menopause nach Röntgen Kastration." *Zentralbl. für Gynäkol.*, 1922, 22, 914.
4. "Kastration Ausfallserscheinungen." *Monatsschr. für Geburtsh. und Gynäkol.*, Bd. lxx.

CASES TREATED

1. BY OLD

No.	Name.	Age.	Occupation.	Date.	No. of children.	Symptoms.	Size of uterus (in terms of pregnancy).
1	Mrs. A.	47	Nil	1917	3	Profuse menorrhagia	4½
2	Miss A.	54	Government Official	1917	—	Profuse menorrhagia	6
3	Mrs. B.	49	Business	1914	1	Profuse menorrhagia and periodic retention of urine, necessitating catheterisation	4½
4	Miss B.	54	Author	1915	—	Metrorrhagia ...	4
5	Mrs. B.	49	—	1919	2	Profuse menorrhagia, profound anæmia	4
6	Miss D.	44	—	1917	—	Profuse menorrhagia, double mitral disease of heart	6
7	Mrs. D.	39	Business	1916	2	Profuse menorrhagia	4½
8	Miss D.	42	Service	1915	—	Profuse menorrhagia	4½
9	Mrs. D.	50	—	1919	1	Menorrhagia and metrorrhagia	3
10	Mrs. E.	58	Business	1914	—	Tumour (abnormal degree of obesity)	6

A = Radiation carried out through 20—22 ports of entry. 3mm. aluminium filter. Focal distance 18 cm. Time for each field, 7 minutes with Müller rapid tube at 5—6 m. amps., or 3 minutes Coolidge. 12 in. spark coil.

BY X-RAY THERAPY.
TECHNIQUE. (A.)

Kind.	No. of treatments.	After Results.	Other Doctors who had examined the case.	Dosage (Kienboeck).
Sub-peritoneal and interstitial	4*	Amenorrhœa after two treatments. 1920 letter confirms cure	Sir F. Champneys Dr. Paley Dr. Scatliff	1560 x
Sub-peritoneal and interstitial	6	Amenorrhœa after three treatments. Tumour half-size at end of treatment. 1924 confirms cure	Dr. Ford Anderson Dr. Garrett Anderson	2750 x
Interstitial	7	Amenorrhœa after two treatments, fibroid half-size now. Micturition now normal and has been for 11 years. 1925 letter confirms		1723 x
Interstitial	7	Amenorrhœa after five treatments. 1925 letter confirms cure. Doing excellent literary work	Dr. Winifred Patch	2885 x
Interstitial	7	Amenorrhœa after five treatments. Anæmia cured. 1925 visit confirms cure	Dr. Fairbairn Miss Aldrich Blake	4650 x
Interstitial and sub-peritoneal	8	No M.P. after fourth treatment for 10 months, then M.P. and two more treatments. 1920 visit and doctor's letter confirms cure	Dr. Honor Bone Miss Aldrich Blake Dr. Michie	3810 x
Sub-peritoneal and interstitial	9	Amenorrhœa after fifth treatment till seven months after, has had M.P.'s since, occasionally, but normal in amount. 1925 writes excellent health		2630 x
Sub-peritoneal and interstitial	9	Amenorrhœa after seven treatments. Pigmentation showed after seventh. Appendicitis developed. Operation — Appendicectomy on Oct. 15, and although fibroid showed no degeneracy hysterectomy was performed at the same time	<i>Pathological Report</i> (Dr. Galt) :— Sections show a very cellular fibroid. There is no sign of inflammatory change, and degenerative changes are also absent	2216 x
Interstitial. A preliminary curetting showed polypoid endometrium and no malignancy	6	Amenorrhœa after fourth treatment. 1925 confirms cure. No return of symptoms. Now better than for years	Mr. Bowring had removed uterine polyp. in West Street Hospital, Brighton	4445 x
Interstitial and sub-peritoneal	9	Amenorrhœa had started two years before treatment. Very little reduction in size of tumour		1236 x

B = Radiation carried out through 4—5 small ports of entry. 0.5 zn + 4 al. filter. Focal distance 23 cm. Time for each field 26—32 minutes with big Coolidge tube. 156,000 voltage, 7 amps. in 1°. 2 milliamps in 2°.

C = Radiation carried out through two large fields at 40—50 F. D.

*Röntgen jammer.

No.	Name.	Age.	Occupation.	Date.	No. of children.	Symptoms.	Size of uterus (in terms of pregnancy).
11	Sister E.	44	Deaconess	... 1916	—	Menorrhagia. Prolapse of rectum. Mitral regurgitation of heart	4½
12	Miss G.	50	Headmistress	... 1915	—	Menorrhagia	... 4½
13	Mrs. H.	50	—	1917	3	Menorrhagia	... 4
14	Mrs. K.	48	Matron	... 1918	3 misc.	Menorrhagia (D. & C. has been performed)	4½
15	Mrs. K.	49	—	1916	1	Menorrhagia. Frequency of M.P.'s	3½
16	Miss L.	50	Business	... 1914	—	Prolapse of uterus and tumour	4½
17	Mrs. L.	52	—	1914	1	Menorrhagia and metrorrhagia; two years in bed. Profound anæmia	4½
18	Mrs. L.	50	Wife of Schoolmaster	1919	0	Menorrhagia. Dysmenorrhœa. Metrorrhagia for last five weeks; pain on micturition	4½

Kind.	No. of treatments.	After Results.	Other Doctors who had examined the case.	Dosage (Kienboeck).
Interstitial	7	No amenorrhœa. I therefore performed a hysterectomy two months after. Six months after, patient for a time became almost mental. Now perfectly well	Dr. Bolton <i>Pathological Report</i> (Dr. Galt):— The large fibroid has been cut and shows the usual muscle bundles in a fibrous stroma. There is no obvious increase in the amount of fibrous tissue or other degenerative change. The ovary also shows all the usual structures, including a recent corpus luteum, so that in this case the X-rays have not apparently destroyed the ovarian function. No evidence of any malignant growth	2390 x
Multiple fibroids ...	4	M.P.'s stopped after third treatment. Patient very well for a year after treatment In Nov., 1916, was under Dr. Sainsbury for gastrointestinal trouble, lost 1½ stone in weight, had mucous colitis. I saw patient Nov. 1917. She was thin and emaciated, and had ascites, fibroid was very hard and immovable. Chronic intestinal obstruction Operation Dec. 17, 1917. Total hysterectomy was performed by another surgeon; the fibroid had undergone calcification. The intestine were covered by small white spots. Patient died Dec. 27, 1917 P.M. by Dr. Greaves. Dense matting of all intestines; masses of malignant growth; perihepatitis; malignance of omentum, stomach and mesentery; hard lumps like sago grains. Sections show a malignant growth, probably endotheliomatous in origin and apparently 1° in omentum (Dr. Galt)	Lady Barrett Miss Aldrich Blake	1250 x
Interstitial	5	M.P.'s stopped after third treatment. 1920 letter confirms cure		2910 x
Interstitial	6	Amenorrhœa after fourth treatment. Cured. 1920 letter confirms		2250 x
Interstitial and sub-peritoneal	7	Amenorrhœa after fourth treatment. 1920 letter confirms cure	Mr. Handfield Jones curetted in 1914, and diagnosed fibroid. Mrs. Scharlieb had advised hysterectomy	2245 x
Interstitial and sub-peritoneal	7	Amenorrhœa after two treatments. Uterus half-size at end of treatment. 1925 confirms cure	Dr. Morgan	1632 x
Interstitial	5	Amenorrhœa after third treatment and anæmia cured		1245 x
Sub-peritoneal and anteflexed uterus	9	After fourth treatment only very slight M.P.'s. Good result. 1925 letter confirms. General health excellent	Dr. Scott	6355 x

No.	Name.	Age.	Occupation.	Date.	No. of children.	Symptoms.	Size of uterus (in terms of pregnancy).
19	Mrs. M.	50	Wife of School-master	1919	0	Menorrhagia	... 6
20	Miss M.	48	Headmistress ...	1916	—	Menorrhagia and metrorrhagia	4½
21	Mrs. M.	35	—	1914	4	Menorrhagia and metrorrhagia	2½
22	Miss M.	42	—	1914	—	Menorrhagia ...	... 8
23	Lady N.	46	—	1915	4	Menorrhagia ...	... 3
24	Mrs. P.	49	Matron ...	1916	0	Menorrhagia ...	... 4
25	Miss P.	42	—	1919	—	Menorrhagia, dysmenorrhœa, frequency and pain on micturition	3½
26	Mrs. P.	44	—	1919	2	Menorrhagia ...	... 2½
27	Mrs. P.	40	—	1919	0	Menorrhagia and metrorrhagia	5
28	Mrs. S.	42	—	1919	3	Menorrhagia. Tumour moving with uterus, but soft	6

Kind.	No. of treatments.	After Results.	Other Doctors who had examined the case.	Dosage (Kienboeck).
Interstitial	7	Amenorrhœa after fourth treatment. Cured. 1925 letter confirms cure. Is very well, and teaching. Had one M.P. in 1921		5880 x
Interstitial (tenderness over right ovary)	12	Treatment from Jan.-July, 1916; and in Dec. 1916, and in Dec. 1917; but M.P.'s continued slightly till early 1919. In July 1918 Miss Aldrich Blake saw her, and was in favour of a hysterectomy, on account of metrorrhagia, but patient would not consent. I curetted, and had curettings examined; they were non-malignant. 1925, patient very well indeed, and thankful to have avoided operation; amenorrhœa since	Miss Aldrich Blake	4435 x
Small sub-peritoneal fibroid on post wall	5	M.P.'s normal, but no amenorrhœa	Dr. Macgregor	1095 x
Interstitial and sub-peritoneal	11	Amenorrhœa after fourth treatment. Measurement from top of tumour to sym. pubis eight inches; at end of treatment five inches. Has married since. 1924, very satisfactory	Dr. Scatliff	2257 x
Interstitial	6	Amenorrhœa after third treatment; tumour decreased. 1923 letter confirms cure	Miss Aldrich Blake	2726 x
Interstitial and post sub-peritoneal fibroid also	7	Amenorrhœa after fourth treatment. Reduction in size of tumour. 1925 letter confirms cure. "Very well"	Dr. Shearer. Dr. Russell Andrews examined patient in 1917 and confirmed cure	2830 x
Interstitial and right ovary	9	Menorrhagia continued, anemia, dilated heart, tachycardia, and could not continue treatment. In 1925 writes, "Much better since treatment." Dysmenorrhœa and menorrhagia cured	In 1917, Dr. Handfield Jones did a dilatation and curetting. In 1919, both he and Col. Jowers agreed as to X-ray treatment. Dr. Broadbent also saw case	5665 x
Fibroid interstitial	6	Amenorrhœa after fourth treatment. 1920 letter confirms cure, 1924 started normal M.P. again. Feels very well	Dr. May Thorne	4840 x
Interstitial and sub-serous	5	Amenorrhœa after fourth treatment. 1920 letter confirms cure	Dr. Hershell Harris of Sydney	4000 x
?	6	Amenorrhœa after fourth treatment	Operation by Dr. Trevers in March 1920, owing to rapid growth of tumour. Large multilocular ovarian cyst. Uterus normal. Tumour weighed 16 lbs.	4565 x

No.	Name.	Age.	Occupation.	Date.	No. of child- ren.	Symptoms.	Size of uterus (in terms of preg- nancy).
29	Mrs. T.	37	—	1915	0	Menorrhagia ...	4
30	Miss V.	37	Headmistress ...	1914	—	Menorrhagia ...	6
31	Miss W.	49	Social Worker ...	1915	—	Metrorrhagia. I did D. and C. but there was no malignancy. Incontinence of urine. Eczema	5½
32	Mrs. W.	48	House ...	1914	1	Menorrhagia ...	2½
33	Mrs. W.	53	—	1919	2	Menorrhagia ...	4½
34	Mrs. W.	48	—	1919	2	Menorrhagia and metrorrhagia	2¼
35	Miss L.	50	Headmistress ...	1920	—	Menorrhagia ...	5
36	Miss G.	50	Schoolmistress ...	1920	—	Menorrhagia and metrorrhagia	3½
37	Miss C.	48	Schoolmistress ...	1920	—	Menorrhagia and metrorrhagia	3½
38	Mrs. B. M.	47	Manageress ...	1921	—	Menorrhagia ...	5
39	Mrs. B.	43	—	1921	—	Menorrhagia ...	4½
40	Mrs. B.	47	—	1922	—	Menorrhagia, since puberty. Two five days' application of radium at Radium Institute, without result	4½
41	Miss C.	—	Headmistress ...	1920	—	Menorrhagia ...	3½
42	Mrs. E.	43	..	1922	—	Menorrhagia ...	3½
43	Miss H.	50	Cook	1921	—	Menorrhagia ...	3½

Kind.	No. of treatments.	After Results.	Other Doctors who had examined the case.	Dosage (Kienboeck).
Interstitial	8	M.P.'s lessened in amount. No amenorrhœa. 1920, patient very well. See Case 79. I have since treated her by Erlangen technique		2075 x
Interstitial and sub-peritoneal	6	Amenorrhœa after third treatment. Uterus smaller	Dr. Flora Murray	1237 x
Interstitial	7	Amenorrhœa after fifth treatment, but still pressure symptoms. I therefore did subtotal hysterectomy, left ovariectomy and salpingectomy. Growth: weight, 5½ lbs. The large tumour showed degeneration. Sections: simple fibroid growths; no malignancy	Dr. Blogg	2045 x
Interstitial and sub-peritoneal in post fornix	8*	Amenorrhœa after second treatment	Dr. Boyle	1780 x
Interstitial	6	Amenorrhœa after fourth treatment. 1925 letter confirms cure. Never any return of symptoms	Dr. Sortain, D. and C. by Mr. Jowers, in 1917, and polyp. removed, but hæmorrhage worse after	4880 x
Interstitial	7	Amenorrhœa after fifth treatment. 1925 letter confirms cure. No return of symptoms	Dr. Scatliff	5110 x
Interstitial	4*	Amenorrhœa after second treatment. Cured. Visit 1925 confirms		3200 x
Interstitial	5*	Menorrhagia cured		4000 x
Interstitial and sub-peritoneal		Amenorrhœa after second treatment. 1925 confirms cure	Dr. Bolton Dr. Cuthbert Lockyer	3700 x
Interstitial	6	Amenorrhœa after fourth treatment. 1923 confirms cure	Dr. Edmonds	1022 x
Interstitial and sub-peritoneal	7	Amenorrhœa after fourth treatment. 1925 confirms cure		1277 x
Sub-peritoneal	4	No amenorrhœa. I therefore did hysterectomy. Patient almost mental	Dr. Campbell Dr. Lynham	
Sub-peritoneal	10	Amenorrhœa after eight treatments, but lasting only four months. Two more treatments had to be given before cure. 1923 letter confirms	Dr. Cornford	6240 x
Interstitial. Left ovarian tenderness	7	Amenorrhœa attained. 1925, writes general health not good		846 x
Interstitial	6	Amenorrhœa after fourth treatment		2051 x

*Röntgen jammer.

No.	Name.	Age.	Occupation.	Date.	No. of children.	Symptoms.	Size of uterus (in terms of pregnancy).
44	Mrs. H.	51	—	1921	—	Menorrhagia ...	5
45	Miss J.	49	—	1920	—	Menorrhagia ...	5
46	Mrs. L.	55	—	1920	—	Menorrhagia ...	3
47	Mrs. M.	42	—	1920	—	Menorrhagia ...	3
48	Miss S.	50	—	1920	—	Menorrhagia ...	3
49	Mrs. S.	43	—	1920	—	Menorrhagia ...	3
50	Miss W.	48	—	1920	—	Menorrhagia. Graves' Disease	—
51	Miss Y.	48	Nurse	1922	—	Menorrhagia. Patient very nervous and anæmic, and refused operation	6

Kind.	No. of treatments.	After Results.	Other Doctors who had examined the case.	Dosage (Kienboeck).
Interstitial	6	Amenorrhœa after fourth treatment. 1925. writes no return of hæmorrhage		4356 x
Interstitial and sub-peritoneal	6	Amenorrhœa after fifth treatment, 1924. Patient well and cured. Tumour about size of 3½ months. 1925, writes no symptoms	Dr. Garrett Anderson	2556 x
Interstitial	5	Amenorrhœa after three treatments		4000 x
---	6	Amenorrhœa after four treatments. 1925 letter confirms cure. No return of symptoms. Very grateful, etc.	Jessop Hospital	3620 x
Interstitial	5	Amenorrhœa after fourth treatment. 1925, writes: "Perfectly well"	Miss Bolton Dr. Cuthbert Lockyer	2400 x
Interstitial	10	Amenorrhœa after eighth treatment		4724 x
Fibrotic	6	Amenorrhœa after fourth treatment	Dr. Russell Andrews Dr. Scott	2073 x
Interstitial and sub-peritoneal	4	Patient stopped treatment	Dr. Edmonds	698 x

II. BY NEW

No.	Name.	Age.	Occupation.	No. of children.	Symptoms.	Physical Signs.	Size of uterus (in terms of pregnancy).
52	Miss A.	38	Private	—	Two years severe menorrhagia. Anæmia	Those of fibroid uterus with large interstitial fibroid and right-sided sub-peritoneal fibroid	4
53	Miss A.	39	Nurse Hospital	—	Five years severe menorrhagia. Dysmenorrhœa. Anæmia	Those of fibroid uterus interstitial	3
54	Mrs. A.	55½	Private	3	Severe menorrhagia completely incapacitating patient for several days. Anæmia	Uterus hard and slightly enlarged	2
55	Miss B.	36	Teacher	—	Membranous-dysmenorrhœa and menorrhagia. Has to go to bed for two days each month	Uterus a little enlarged and dextroflexed	2
56	Mrs. C.	27	Private Wife of Doctor	3	Menorrhagia since first baby's birth. Very severe and with much dysmenorrhœa	Ant. wall of uterus apparently thickened	0
57	Mrs. D.	38	Hospital Nurse	1 misc.	Menorrhagia for two months	Fibrosis of the uterus. Os closed	3
58	Miss F.	42	Teacher	—	Profuse menorrhagia for two years	Interstitial fibroid	4
59	Mrs. G.	50	Private	1	Menorrhagia and dysmenorrhœa every two or three weeks. Anæmia	Fibrosis uterus. Old cervical tear	1
60	Miss G.	50	Private	—	Menorrhagia for ten years	Interstitial fibroid posteriorly	4
61	Miss H.	37	—	—	Menorrhagia every 14 days for last four months. Anæmia	Enlarged fibroid uterus. Sub-peritoneal fibroid in Douglas	2½
62	Mrs. H.	45	Private	1 still-born	Menorrhagia for six months every 21 days. Last M.P. dangerous hæmorrhage. Very anæmic	Uterus soft and flabby. Diagnostic curetting showed endometrium showing many tortuous glands almost nævoid condition	0

TECHNIQUE.

Technique of Treatment and Date.	% depth dose to each ovary.	After Results. Immediate.	After Results. Remote.	Other Doctors who had examined the case.
C 17/1/24	47.02	Felt sick and poorly for 2-3 days after treatment. No erythema of skin	Two M.P.'s after, none since, but blood-stained discharge occasionally since. In May 1924 uterus two-thirds original size	Mr. Dakin
B 4/12/22	33	On April 6, 1924, wrote: "Am feeling very well, have gained 5 lbs. weight since treatment. No erythema. No sickness"	No M.P.'s since 17/6/23. Feeling very well and working hard. 1925, writes: "Very well; still hot flushes"	Diagnostic curetting was performed before radiation by Prof. McIlroy, Royal Free Hospital
B 16/5/23	33.2			
C 23/5/24	42.2	No sickness	No M.P.'s since treatment. Hot flushes, etc. 1925, very well	Mr. Haig Fergusson curetting patient in June, removing small polyp. Curetting normal. Also saw Dr. Rushworth and Dr. Russell Andrews
C 3/1/24	45.18	Felt sick. Giddy. Marked erythema a week after and diarrhoea (slight) cause uncertain	Last M.P. Feb. 17, 1924. No cast. No pain. Hot flushes. Amenorrhoea since	Dr. L. Hamilton Miss Bolton Dr. Johnston
B 14/12/22	33	Sick after both treatments. No erythema	Amenorrhoea from second treatment till May 25, then slight M.P. Since third treatment there have been regular almost normal M.P.'s with practically no pain. Has had normal confinement since, baby healthy	Dr. Mecredy Sir Archibald Reid
B 26/2/23	33.08			Two curettings performed. One after abortion. One diagnostic. After both patient nearly died of hemorrhage. X-ray treatment had been given by another radiologist for three months, with no result
B 4/6/23	33.2			Diagnostic curetting performed by Dr. Jeffries
B 10/1/23	36.72	No sickness or erythema	Amenorrhoea since treatment. Hot flushes. Feb. 20, 1925, very well	Dr. Macdonald
C 2/1/24	56	No sickness. No erythema	Amenorrhoea since Feb. 22. Two M.P.'s after treatment. 1925, very well	Dr. Shields
C 18/10/23	56	No sickness. No erythema	Amenorrhoea after Nov. 5. One M.P. after treatment. Has put on weight	Her doctor reports: "Excellent health, has put on weight. No menopause symptoms"
B 26/2/23	33.08	Nausea. Dizziness	Two M.P.'s followed first treatment. None after second treatment. Hot flushes complained of since. 1925, writes: "Complete cure"	Mr. Victor Bonney Dr. Arthur Latham Dr. Herbert Williamson
B 10/4/23	33			The latter did diagnostic curetting before treatment
B 20/7/23	36.38			Miss Chadburn
-- 7/9/23	36			Dr. MacGill
C 31/1/24	56			
B 17/1/23	36	No sickness or erythema	No M.P.'s since, feeling stronger. 1925, writes no return of M.P.'s	Dr. Herbert Williamson

No.	Name.	Age.	Occupation.	No. of children.	Symptoms.	Physical Signs.	Size of uterus (in terms of pregnancy).
63	Miss H.	40	Housekeeper	—	Menorrhagia and dysmenorrhœa	Fibrotic uterus normal cervix	3
64	Mrs. H.	49	Private	1	Menorrhagia, and nervous exhaustion	Retroverted uterus enlarged, interstitial fibroid	4
65	Miss J.	48	Nurse Hospital	—	Menorrhagia. Dysmenorrhœa with vomiting. Metrorrhagia for last seven weeks	Fibroid uterus on left side. Sub-peritoneal tumour size of orange and tenderness at M.P.'s	4
66	Mrs. S. J.	41	Private Wife of Surgeon	2	Menorrhagia. Very profuse	Fibroid uterus, old cervical tear, diagnostic curetting—Polypoid endometrium. <i>Path. Report</i> —satisfactory	1½
67	Miss L.	40	Private	—	Menorrhagia. Worse lately	Fibrosis of uterus	0
68	Miss L.	46	Doctor of Medicine	—	Menorrhagia for last two years. Metrorrhagia for last five weeks. Dysmenorrhœa	Fibrosis uterus. Multiple fibroids	3½
69	Mrs. M.	37	Wife of Doctor	1	Menorrhagia for four years. Shortness of breath. Pressure symptoms	Large fibroid tumour. Interstitial. In 1919, operation for ruptured ovarian cyst, uterus then found to be enlarged. Growing lately, but patient refuses operation	6
70	Mrs. P.	40	Wife of Schoolmaster	3	Menorrhagia for one year. Anæmia. Has been in bed last 11 weeks	I dilated and curetted under anæsthesia. Some polypoid endometrium. Uterus flabby and slightly retroflexed	0
71	Mrs. R.	44	Private	3	Menorrhagia for last five years. Worse lately	Uterus enlarged. Interstitial fibroid	4
72	Mrs. R.	45	Private	1	Menorrhagia for six months. Metrorrhagia for last three weeks	Small interstitial fibroid in ant. wall	3
73	Miss S.	51	Headmistress	—	Very profuse menorrhagia last two years, lasting 14 days	Uterus interstitial fibroid, and sub-peritoneal	4

Fibromyomata of the Uterus

715

Technique of Treatment and Date.	% depth dose to each ovary.	After Results. Immediate.	After Results. Remote.	Other Doctors who ha examined the case.
B 15/2/23	33.08	Slight sickness but good appetite and sleep	One M.P. after treatment, none since. Patient writes, "I feel very well, I am really thankful," etc. 1925, patient writes: "Better than I have ever been"	Dr. Scatliff
C 24/1/24	56	Headache. No sickness	One M.P. after treatment. None since. Patient very well March 21, 1925	Dr. Buckley
C 26/3/23	46	No sickness	One week after, started thrombosis in left leg. One prolonged M.P. None since. Now, very well. Patient writes: "It is such a joy to feel so well." Patient very well July 1925. Has done full work ever since	Dr. Edmonds Mr. Ionides
C 28/1/24	47.33	Slight sickness	Two M.P.'s after treatment, none since. July 1925: "Result absolutely marvellous," etc. Still hot flushes	Dr. Furneaux Jordan Dr. Pemberton Fooks
B 20/10/22	9	No sickness	One M.P. after treatment. Very well three years after. In July 1925 writes: "I can walk seven or eight miles; have had no return of M.P., and always think of you gratefully"	Mrs. Vaughan Sawyer Miss Aldrich Blake
B 13/12/22	33			Had already had X-r. treatment from oth radiologists
B 24/6/23	35.38	Very slight sickness. Good pigmentation	One M.P. after treatment. None since. Health excellent	Miss Bolton
C 1/10/23	61.8	Felt sick and faint	Bad M.P. in November, not since. Patient well and fat. Tumour now size of 5½ months' pregnancy (March 14, 1924). Flushings bad. Tumour was smaller one month ago. Needs watching	
B 6/11/22	35	Eight weeks' slight hæmorrhage followed. No M.P. after until one year after	Very well	Dr. Sylvia Payne
B 28/10/24	35.7	No M.P. after	Patient writes: "Feeling very well and strong"	
B 28/2/23	35	Two M.P.'s after. None since	Uterus now size of two months. Patient is in excellent health, 1925	Dr. Barker Prof. McIlroy
B 18/1/23	36	Splenic radiation. ½ H.E.D. given, 15/1/23. No sickness. Slight pigmentation	Hæmorrhage lasted one month after radiation, not since, till now. May 2, ordinary M.P. July 1925, Patient very well; no return of M.P.	Dr. Braidwood
B 12/3/23	32.5			
B 3/11/22	34	Slight discharge for three weeks after	No return of M.P. Patient writes: "In excellent health." July 1925: "Is working hard"	Dr. Carew Hunt

No.	Name.	Age.	Occupation.	No. of child- ren.	Symptoms.	Physical Signs.	Size of uterus (in terms of preg- nancy).
74	Mrs. S.	45	Private	...	1 Profuse menorrhagia for last two years	Uterus enlarged, interstitial fibroid	3½
75	Miss S.	43	Domestic	...	— Menorrhagia last year. Metrorrhagia for six weeks	Uterus fibrotic, Patient has mitral regurgitation. Anæmia	2½
*76	Miss S.	47	Private	...	— Serious floodings for last eight years. Very anæmic, dyspnœa tachycardia. Heart dilated, leucorrhœa	Enlarged uterus. Interstitial fibroid and sub-peritoneal fibroid on ant. wall	5
77	Miss S.	39	Private	...	— Dysmenorrhœa last 14 years. Nervous breakdown	Uterus anteflexed	0
78	Mrs. T.	45	Private Wife of Doctor	...	1 Menorrhagia, dysmenorrhœa, thrombosis, one year ago. Dr. Dröse diagnosed	Multiple fibroids of uterus. Several large sub-peritoneal fibroids	5
79	Mrs. T.	46	Private	...	0 Menorrhagia, 1915. X-ray treatment, but never quite stopped M.P.'s	Interstitial fibroids	4½
80	Miss T.	45	Almoner	...	— Profuse menorrhagia, dysmenorrhœa. Diagnostic curetting 18 months ago. Asthma	Interstitial fibroids	3
81	Miss W.	52	Secretary	...	— Metrorrhagia from July to September. Examined under anæsthetic	Fibrosis of uterus. Anæmia	0
82	Dr. W.	51	Doctor of Medicine	...	— Menorrhagia, dysmenorrhœa	Multiple fibroids of uterus	3½
83	Miss W.	35	Business	...	— Menorrhagia for one year. I examined under anæsthetic	Fibrosis of uterus	3
84	Mrs. W.	46	Domestic	...	0 Menorrhagia for one year, and metrorrhagia	Interstitial fibroids	5
85	Mrs. W.	30	Doctor's Wife	...	1 Menorrhagia. Pernicious vomiting last two pregnancies	Interstitial fibroid and sub-peritoneal (I advised myomec-tomy)	3
86	Mrs. N.	45	—	...	1 Fibroid tumour	Interstitial	4
87	Mrs. O.	47	Surgeon's Wife	...	0 Menorrhagia and metrorrhagia	Fibrosis	3½
88	Miss A.	50	—	...	— Menorrhagia	Interstitial fibroid	5½
89	Miss B.	37	—	...	— Menorrhagia and dysmenorrhœa	Fibrosis	6 wks

*Blood Examination.—28/11/22.

Reds	= 4,272,000	Lymphocytes	= 21.25%
Hgb.	= 38%	Hyaline Cells	= 2%
Colour Index	= 0.5	Eosinophils	= 1.0%
Whites	= 12,200	Basophils	= 1.75
Polymorphes	= 74%		

400 cells counted. The red cells show marked variation in Hgl. content. No nucleated red cells or abnormal white cells seen.

Fibromyomata of the Uterus

717

Technique of Treatment and Date.	% depth dose to each ovary.	After Results. Immediate.	After Results. Remote.	Other Doctors who have examined the case.
B 2/2/23	37		No M.P. since. Patient very well. Had one slight M.P. after influenza in January	Dr. Braidwood
B 10/9/23	27.6			
B 28/2/23	33.08	No sickness	No M.P. since last treatment. Patient very well Jan. 1924	Miss Chadburn
B 18/5/23	33.2			
B 26/11/22	33.0		Amenorrhœa complete since Oct. 1923. Reported very well Jan. 30, 1925	Dr. Cyriax
C 26/9/23	43.6			Dr. Flemming
C 26/2/24	50	Sickness	Two M.P.'s since, none after. Patient very well	Dr. Shearer
C 28/6/23	48.3	Sickness	Two M.P.'s, then amenorrhœa for eight months. Very well now. Amenorrhœa since second treatment	Dr. Going
C 8/2/24	64			
C 5/12/23	56	One bad M.P. pigmentation	Marked No further M.P.'s. Very well. In Jan. 1925 patient had an M.P. following influenza, not since	Dr. Jeffries
B 13/1/23	36.9	Marked pigmentation, more obvious during German measles. No amenorrhœa	No M.P. after second treatment. 1925, writes: "Very well; very grateful"	Dr. Mcreedy Sir Archibald Reid had also X-rayed her
B 10/3/23	18			
B 3/11/23	33	Slight hæmorrhage for a few days	Complete amenorrhœa	Dr. Edmonds
C 24/10/23	56	No sickness	Amenorrhœa since Nov. 1. Very satisfactory, 1925	Dr. MacDonald Mr. Rowlands Dr. Wilberforce Dr. Powell
C 24/3/24	59	No sickness		
B 2/3/23	33	No sickness	No amenorrhœa	Miss Chadburn
B 6/6/23	33.2	Slight sickness	M.P.'s lasted three weeks.	Dr. MacGill
C 15/2/24	58		Amenorrhœa ever since, 1925	
B 30/11/23	40	Felt sick Pigmentation Felt tired	Amenorrhœa for one year. Now no fibroid felt. Has started normal M.P.'s.	Miss Bolton Dr. Johnston Sir Thomas Horder
C 7/3/24	56			
C 6/5/24	66		Amenorrhœa since	Dr. Guthrie Dr. Bannister
C 6/5/24	66	No sickness	Only one M.P. since. Patient wonderfully well	Dr. Herbert Williamson
C 12/2/25	—	No sickness Headache	Amenorrhœa since	Sir James Cantlie
-- 24/4/24	—	Sickness bad	Two months' amenorrhœa and flushes. Treatment therefore repeated. Amenorrhœa since	Dr. Carew Hunt
-- 3/3/25	—			

No.	Name.	Age.	Occupation.	No. of children.	Symptoms.	Physical Signs.	Size of uterus (in terms of pregnancy).
90	Mrs. C.	47	Physician's Wife ...	2	Menorrhagia	Interstitial fibroid	4
91	Mrs. C.	45	Midwife	2	Menorrhagia	Multiple fibroids of uterus	4½
92	Miss C.	40	—	—	Menorrhagia	Cervical fibroid and interstitial	3½
93	Mrs. C.	42	—	0	Menorrhagia	Interstitial	5½
94	Miss E.	40	—	—	Menorrhagia. 10 years ago Double salpingectomy for tuberculosis	Interstitial and cervical ? Adenomyoma	6
95	Mrs. G.	38	—	0	Menorrhagia	Interstitial fibroid	5
96	Dr. H.	49	—	—	Dysmenorrhœa and disability	Uterus enlarged. Fibroid on right side	4
97	Miss L.	45	—	—	Menorrhagia, floodings	Interstitial and sub-peritoneal	3½
98	Mrs. N.	45	—	1	Growth of tumour	Interstitial	5½
99	Mrs. P.	42	—	4	Menorrhagia, for which I did diagnostic curetting and Gilliam's op. in 1922	Fibrosis	3½
100	Mrs. B.	50	—	0	Menorrhagia, frequency of micturition and occasional retention	Fibroid uterus, interstitial and sub-peritoneal	4½
101	Sister T.	43	—	—	Menorrhagia, frequency of micturition	Fibroid, interstitial	3½
102	Mrs. W.	50	—	3	Menorrhagia	Interstitial fibroid	3½
103	Miss W.	43	Teacher	—	Menorrhagia, dysmenorrhœa	Multiple fibroids	3
104	Mrs. J.	42	—	0	Menorrhagia	Multiple fibroids	5
105	Miss L.	39	—	—	Menorrhagia		
106	Mrs. P.	39	—	2	Menorrhagia and pain	Interstitial fibroid	3½
107	Miss J.	46	Secretary	—	Menorrhagia and albuminuria	Interstitial	5
108	Miss H.	46	Teacher	—	Menorrhagia and metrorrhagia	Interstitial fibroid	3½
109	Mrs. G.	48	—	7	Menorrhagia, severe	Fibrosis uteri	—
110	Miss M.	44	Sister in a London Hospital	—	Menorrhagia	Interstitial fibroid	5½
111	Mrs. B.	46	—	—	Menorrhagia and metrorrhagia	Fibrosis uteri	

Technique of Treatment and Date.	% depth dose to each ovary.	After Results. Immediate.	After Results. Remote.	Other Doctors who have examined the case.
C 21/11/24	—	No sickness	One M.P. since. 1925, very satisfactory	Dr. Sam Cameron Dr. Anderson
C 1/1/25	—	Sickness	Amenorrhœa since. Doing full work.	Dr. Morgan
C 19/12/24	—		Very well. One M.P. Amenorrhœa since	
C 16/10/24	—		Two M.P.'s. Amenorrhœa since. Feels very well	Dr. Herbert Williamson
C 28/8/24	—	Giddy	Amenorrhœa since	Dr. Herbert Williamson
C 14/10/24	—	One M.P. since	Amenorrhœa	Dr. Wilberforce
15/8/24	—	No M.P. since	Amenorrhœa. Patient feeling very fit (July 1925)	Miss Aldrich Blake
C 21/8/24	—	No M.P. since	Amenorrhœa since. "Very fit." July 1925	Dr. Payne
C 6/5/24	—	One M.P. since	Amenorrhœa. Patient feels well. Decrease in size of tumour	Dr. Guthrie Dr. Bannister
C 5/9/24	—		No M.P. since. Very well	
C 5/2/25	—	No vomiting	Two M.P.'s since. July 1925. Amenorrhœa since. Micturition normal. Feels very well	Dr. Fenwick Dr. Braidwood Curetting by Dr. Horrock
C 8/8/24	—	Felt sick	Amenorrhœa ever since. feels very well. July 1925 writes: "Very well"	Dr. Macdonald
C 2/7/24	—		Amenorrhœa since	Sir George Blacker
C 23/10/24	—			
C 3/7/24	—	Felt sick	Amenorrhœa since. July 1925. Patient writes: "Very well"	Dr. Macdonald
C 11/12/24	—	No sickness	M.P. Jan. 18. Slight loss till June; none since Aug. 1925 writes: "Quite well"	Dr. Macdonald
C 16/2/25	—			
C 30/3/25	—	Vomited	Two M.P.'s. None since	Dr. Meta Jackson
C 31/12/25	—	Tired	Very poorly. Later excellent health	Dr. Macdonald.
C 3/4/25	—	Vomiting	One M.P. after	Miss Bolton
C 1/5/25	—	No sickness	Amenorrhœa since. Hot flushes	Dr. Going
C 21/5/25	—	Giddy and sickness	Amenorrhœa since	Miss Bolton
C 22/5/25	—	No sickness	Amenorrhœa	Dr. Morris