

FIBROMYOMA UTERUS

A Study of 325 Cases

by

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Fibromyoma is the most frequent of uterine neoplasms and comprises about 10% of gynaecological cases. The exact incidence is difficult to assess, as most of our patients do not come to the hospital unless and until there is a progressive symptom of some duration and, also, myomas, when small, do not produce any symptom at all. Autopsy studies in western countries prove that 20% of women above 30 years harbour myomas. We have come across 325 cases during the period of five years, from 1956 to 1960, and a detailed study is undertaken to analyse the various features of fibromyoma.

General Features

Incidence. An analysis of the gynaecological specimens received in the Department of Pathology, Andhra Medical College, Visakhapatnam, during a period of five years from

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1956 to 1960, showed that out of 10,252, 4,755 were endometrial scrapings, either by curettage or by biopsy, 3,270 cervical biopsies or amputated cervixes, 816 uteri, 733 ovaries, 351 tubes and 325 specimens of fibroids. (Chart I). So in

COMPARATIVE STUDY OF GYNEC SPECIMENS RECEIVED IN DEPT. OF PATH, A.M.C. 1956-60

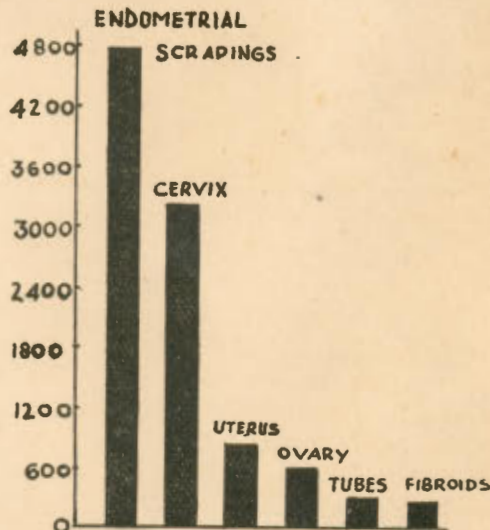
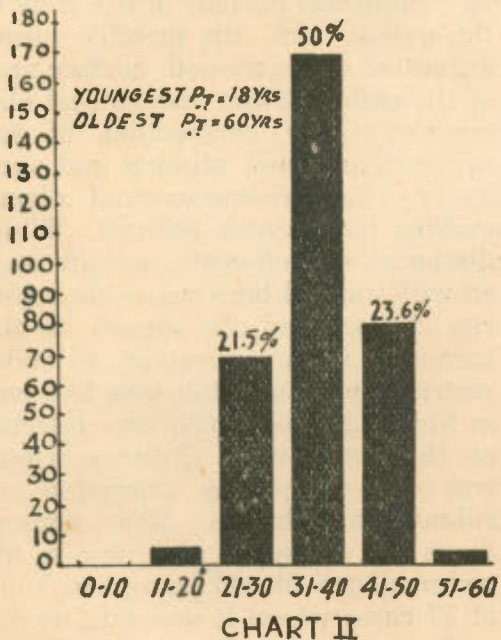


CHART I

our series the oft-quoted percentage of 10% falls to 3.19%. In an analysis of 2,366 cases of inpatients in the gynaecological side, Dr. Poddar found leiomyomas in 3.39%.

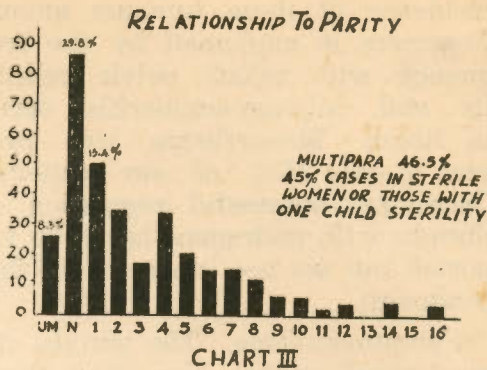
Age. Fibromyoma of the uterus is a disease of the reproductive era. They are very rare before puberty and non-existent after menopause. The older patients who come with fibroids have had them for many years. The age incidence as met with in our series is given in chart II;

AGE INCIDENCE OF FIBROMYOMA



50% of our patients belong to the 4th decade, 21.5% to 3rd decade, and 23.6% to the 5th decade. Our findings are in conformity with those of Mahfouz and Magdi. Our youngest patient was 18 years, married for 4 years with no children. and the oldest 60 years.

Relation to Parity. (Given in chart III). 45% of our patients were nulli- or uniparous, 8.3% unmarried and 46.5% multiparous. The role of parity in the etiology of fibromyoma is still not clear. The "unphysiologi-



cal" life of uterus is thought to stimulate tumour growth but no absolute evidence could be obtained to incriminate any one factor with certainty.

Relationship to Hormones. Role of hormones again is a vague point. Occurrence of these tumours with functioning ovaries, and their functional inactivity, and regression in size, following menopause or surgical and radiational castration, points to an important leading role of oestrogens. Meyer suggested that these changes can very well be due to diminished blood supply to the uterus and thereby to the tumour and is supported by the so-called "parasitic" fibroids because they keep on growing even after the cessation of ovarian function. Evidence of hyper-oestrinism and dysfunctional uterine bleeding do coexist but not to a degree or in a percentage of cases we would expect. In our patients not more than 35% showed hyperplasic endometrium and an equal number of follicular cysts of the ovary. Simple serous cysts, corpus luteum cysts and hydro- or pyosalpinx coexisted in another 30% making salpingo-oophorectomy imperative in the majority of hysterectomies. Higher

incidence of these tumours among Negroes is explained by the frequency with which pelvic cellulitis and salpingo-oophoritis occur in them. Menorrhagia was present in only 16% of our patients. Occasional successful regression of fibroids with androgens has been reported but we are innocent of this treatment.

Symptomatology. The various clinical manifestations for which these patients sought admission is recorded in chart IV in the order of frequency.

SYMPTOMATOLOGY

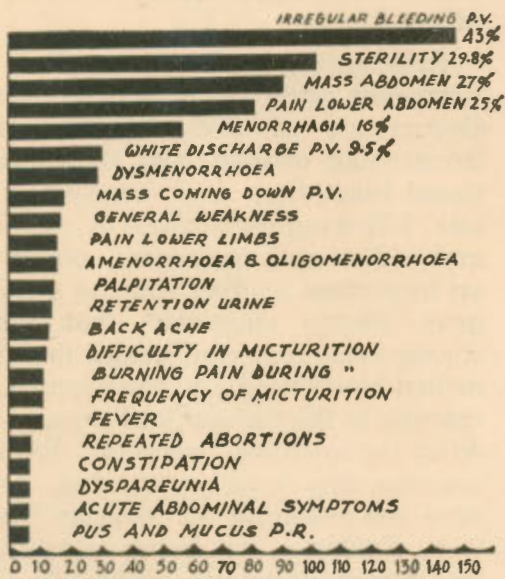
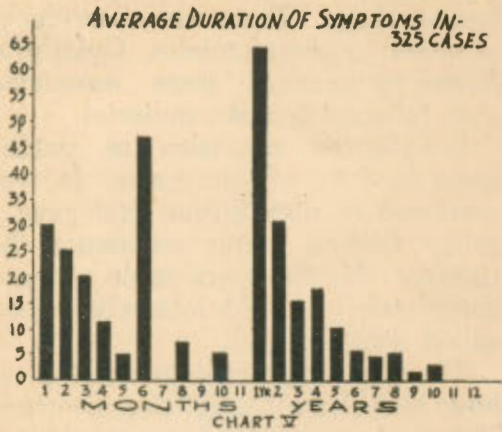


CHART IV

Irregular bleeding was the most frequent complaint, recorded in 43% of cases. Sterility featured as the next common complaint, present in 29.5%, followed by mass in the abdomen, pain in lower abdomen and menorrhagia. Pain in the lower abdomen was of a vague ache or a feeling of heaviness rather than real pain in most instances and was due to the

weight of the tumour pressing down the uterus and the supportive ligaments. Pain was also associated with adnexal inflammation in 2, infection of the tumour in 16, red degeneration in 8, torsion in 1, inversion of the uterus in 2, endometritis in 20, and intraperitoneal haemorrhage by rupture of the capsule of a subperitoneal fibroid in 1. Menorrhagia was caused by submucous fibroids of the body of the uterus and the possible causes suggested are increased surface area of the endometrium, mechanical obstruction to the contraction of the myometrium, and kinking and varicosity of the sub-endometrial plexus making haemostasis difficult. White discharge was offensive and alternated with vaginal bleeding in the majority of cases and was caused by the increased mucus secretion of endometrial glands and this was frequent in fibroid polyps which are infected at the same time. Dysmenorrhoea was often caused by interstitial or submucosal fibroids. Mass coming down per vaginam was due to the pedunculated fibroid, except in 3 out of 17 cases where it was due to the prolapsed uterus. General weakness, palpitation and dysmenorrhoea were quite often caused by severe anaemia encountered in such cases. Backache was seen in interstitial or submucous fibroids when they were big in size. Difficulty, frequency and burning during micturition and retention of urine were the privileges of cervical fibroids when they were big and extended above the pelvis, forcing the bladder to stay up and stretching the urethra. Fever was caused by infection, and repeated abortions was the complaint in 2 cases.

Average Duration of Symptoms:
This, as met with in our 325 cases is shown in chart V. We observed three



peaks. The first peak was observed within one month with complaints representing acute developments in a tumour like bleeding, infection, red degeneration, haemorrhage, pressure effects such as retention of urine, constipation or coexistent lesions as salpingo-oophoritis or appendicitis. The next peak was near about 6 months where the patient is more conscious of irregular menstruation, pain, mass abdomen, palpitation and general weakness. The highest peak was one year period which was brought about by the number of patients with mass in the abdomen, mass coming down per vaginam, white discharge, dysmenorrhoea, sterility and of course irregular bleeding.

Pathology. The classification of fibroids is given in chart VI. Of the 44% of corporeal fibroids 37% were submucous, 35% subperitoneal and 28% interstitial. The only extra-uterine tumour was that situated in the broad ligament. Macroscopical examination of these tumours show-

LOCATION OF FIBROMYOMAS (325 CASES)

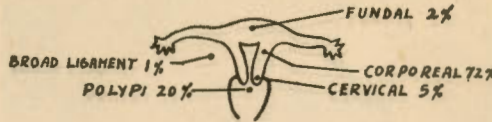


CHART VI

ed well defined margins, pale spherical mass enclosed by the myometrium in the early stage with beginning degenerative changes if any.

The typical whorled pattern could be easily appreciated by the naked eye; areas of hyaline change giving the cross section a homogenous and opaque appearance could be easily spotted out. Microscopically bundles of smooth muscle fibres course in all directions mostly ending up in a whorled pattern. The nuclei are rod-shaped with rounded ends in contrast to the thin curved nuclei of connective tissue. Many of the sections were stained with van Gieson's to confirm the tissue of origin as muscle.

Secondary Changes. The commonest change seen was hyaline degeneration and was found in all cases. The tumour was soft in consistency and cut section showed homogenous appearance with loss of structure (Fig. 1). Associated areas of cystic degeneration were also common. Microscopically the hyaline material may be deposited in the muscle fibres, connective tissue and blood vessels or on all these structures (Fig. 2). Fibrous tissue is the first tissue to be affected. The hyaline areas may be in patches or in interlacing strands and the rhythmic pattern may occasionally simulate the structure of neurilemmoma.



Fig. 1.
Photograph shows the hyaline and cystic change in fibromyoma.

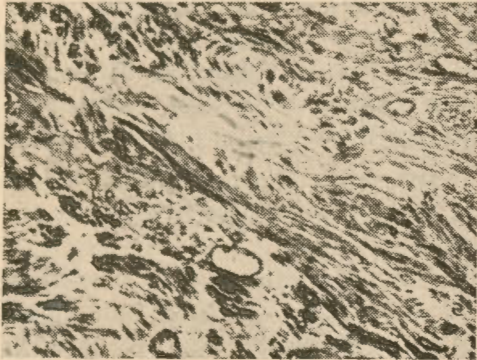


Fig. 2.
Photomicrograph illustrates the hyaline material deposited in-between muscle fibres. (JE x 200).

Cystic changes are the invariable accompaniment of hyaline change and are usually manifested as small irregular multiple cavities. Extensive hyaline change may terminate in widespread cystic change until the whole growth is replaced by a single huge cyst. The contents of the cyst

are usually straw-coloured, albuminous, thin fluid, may be reddish or brownish in colour due to new or old haemorrhage. There was no evidence of mucin or pseudomucin. Cysts produced by necrosis were associated with infected necrotic material.

Calcification was seen in patchy areas in 2.5% of our cases. It was scattered in distribution and gave a gritty feeling while sectioning the tumour. We have not come across a completely calcified leiomyoma (so-called womb-stone).

The other type of degeneration we have come across is *red degeneration*. This was present in 8 cases (2.5%). It is thought to be caused by a gradual necrosis of the tissue — *necrobiosis*. It is often said that it is associated with pregnancy though absence of pregnancy does not exclude red degeneration. None of our cases were associated with pregnancy. Macroscopically the colour may be grey, purple or red with absence of typical pattern (Fig. 3). There was a fishy

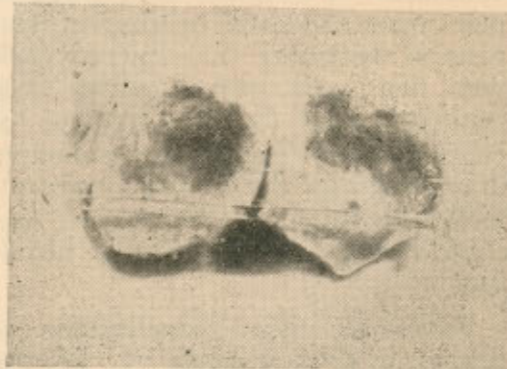


Fig. 3.
Photograph shows red degeneration in the fibromyoma.

unpleasant odour on cutting the specimen. Microscopically the area affected was flooded with both intact

and lysed R.B.Cs with complete loss of pattern (Fig. 4). Fatty and hyaline

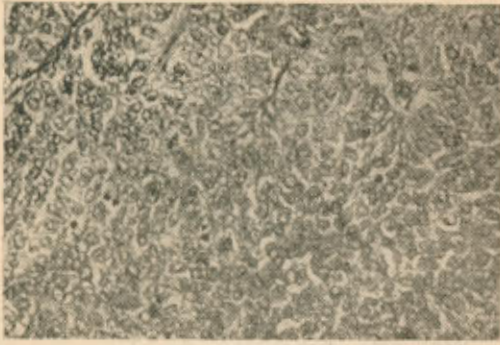


Fig. 4.
Photomicrograph illustrates the fibromyoma completely replaced by lysed and intact R.B.C. in red degeneration. (HE x 100).

changes may coexist and the muscle fibres adjacent to the affected area may contain fat globules.

Infection was not evident on macroscopical examination but was detected microscopically in 5% of cases.

Atrophy was present in 5% of cases and was very clearly shown by van Gieson's stain; all the patients belonged to menopausal age.

Patches of fat cells were discernible in 1% of cases and oedema in 3%.

Malignancy in Fibroids. The common malignant change that a fibroid undergoes is sarcomatous transformation. In our series of 325 cases there were 4 cases showing sarcomatous change. It is commonly found in older people and two of our patients were 50 years old, though the other two were only 30 and 40 years old. This condition must be always suspected when there is a sudden rapid growth, especially after menopause when the tumour should normally regress, cachexia out of proportion to

the growth and findings suggestive of local infiltration or metastases and of course vaginal bleeding, though in the absence of knowledge of a pre-existing fibroid, this complaint must go in favour of a carcinoma. The tumour may show white or yellowish soft pultaceous areas, cystic degeneration and haemorrhages. Histologically the tumour showed a varying pattern with all the evidence of malignancy (Fig. 5).

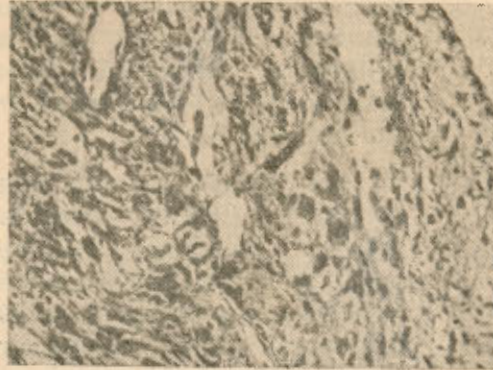


Fig. 5.
Photomicrograph illustrates the high cellular areas showing hyperchromatism and mitotic division with increased vascularity. A few giant cells also can be seen. Typical of sarcomatous change. Van Gieson 210.

Associated Lesions. Complete examination of female genital tract was not undertaken in all cases, especially in polyps removed per vaginam. Endometrial curetting also were not being taken as a routine. Adnexal conditions could be assessed only where salpingo-oophorectomy was done. It is interesting to find that 4 cases of carcinoma of genital tract were associated with leiomyoma. They were, one each, of body of the uterus, cervix, ovary and tube.

Summary

1. A review of 325 cases of fibromyoma is presented. Among the gynaecological specimens received it ranked sixth and formed 3.19%.
2. All the cases were in the reproductive age period. 50% of cases were in the 4th decade and 45% were in the 3rd and 5th decades.
3. 8.3% of the patients were unmarried. 45% were nulli or uniparous. Effect of oestrogens could not be proved by the analysis done.
4. Of the symptoms, the most frequent were irregular vaginal bleeding, sterility, mass abdomen, pain in lower abdomen, menorrhagia, white discharge, and dysmenorrhoea. Few of the complaints were caused by the associated anaemia and few others by pressure.
5. The typical whorled pattern was discernible except in areas of secondary changes which were hyaline change, cystic degeneration, red degeneration, infection, oedema, sarcomatous change, atrophy, calcification and fatty change in the order of frequency.
6. Associated lesions we have come across are salpingo-

oophoritis, hydro or pyosalpinx, cystoglandular hyperplasia, adenomyosis, myohyperplasia, follicular, serous and corpus luteum cysts of the ovary, chronic cervicitis, adenomatous polypi with glandular hyperplasia fimbrial cysts and carcinoma in the order of frequency.

Acknowledgment

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CHEMOTHERAPY IN CHORIO-CARCINOMA

by

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The advent of chemo-therapy seems to have changed the outlook in choriocarcinoma and brightens the future. Seeing that choriocarcinoma is commoner in the Orient than in the West, we particularly welcome any treatment that gives a ray of hope in such a malignant condition. We are presenting this case not because we have met with any success but in order to draw attention to this form of therapy in this country and to know what others have achieved by chemo-therapy in other countries. We also hope to join with them in the battle against this most malignant condition of the uterus.

Case Report

Mrs. A. D. age 26, Po G1, was admitted at C.M.C. Hospital on 2-2-1962 with a history of 6 months' amenorrhoea followed by irregular bleeding for 8 months. Menarche was at 13th year and periods were regular. She had been married for 2 years and this was her first pregnancy. She went to a hospital in Madras for bleeding following amenorrhoea. A molar pregnancy was evacuated. The bleeding continued, so 2 months later a D. & C. was done. The report showed secretory endometrium. The bleeding continued and a 2nd D. & C.

was done in January 1962. The report again showed secretory endometrium with trophoblastic cells. As the bleeding still continued she was brought here. Examination at the time of admission showed that she was a fairly well nourished individual, not anaemic, B.P. 110/55, pulse 120/min., heart and lungs clinically normal. Vaginal examination showed that the uterus was enlarged to 14 weeks' size, mobile, adnexae negative and cervix slightly blue. Vagina normal. A tentative diagnosis of choriocarcinoma was made. X-ray chest showed secondaries on both sides. A total hysterectomy and bilateral salpingo-oophorectomy was done 4 days later. The uterus was filled by polypoidal masses which were haemorrhagic and friable. The cervical part was not involved. Tubes were normal and ovaries were slightly cystic and microscopically showed haemorrhagic follicular cysts. The growth in the uterus proved to be choriocarcinoma. Her post-operative period was uneventful except for pain in the chest occasionally. It was decided to treat her with Methotrexate. First course was given 2 weeks after the operation. Methotrexate was given orally 5 mgs. 6 hourly for 5 days. Prior to giving the drug, renal and hepatic functions and full blood examination including platelet count and reticulocyte count were done. These were normal. Haemoglobin on admission was 10 gm. %. A record of fluid intake and urinary output was kept. Stomatitis and vomiting started on the 3rd day of treatment. She was given continuous I.V. drip. Toxic symptoms like ulceration in the mouth and occasional diarrhoea gradually increased. Frog test after the first course (4 days) was positive undiluted, and negative 1 in 100. X-ray chest after the first course (10 days) showed more secondaries than before. A second course of Methotrexate was started 2 weeks later after the toxic symptoms had

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subsided. A frog test after the 2nd course was positive 1 in 50. X-ray of the chest showed no difference. The patient lost 4 lbs. Two weeks later a 3rd course of Methotrexate was given. Clinically, definite improvement was noted. Frog test was positive undiluted and negative 1 in 25. A 4th course was started 10 days later. At the end of this course, the frog test was positive in undiluted urine, but negative 1 in 25 dilution. X-ray of the chest after the fourth course showed that some of the secondaries had disappeared and the remaining ones had become smaller. There was great improvement in her general condition. She gained 5 lbs. We were very pleased and encouraged with the progress she had made so far. Two weeks later a 5th course was given. The Frog test which was negative 1 in 25 previously, was positive now. X-ray of the chest showed more secondaries. A 6th course was given 2 weeks later. The Frog test continued to be positive. X-ray of the chest showed that the secondaries had greatly increased. Total dose of Methotrexate given was 600 mg. Blood transfusion was given as and when necessary. It was evident that she had become drug resistant. Hertz Roy gives V.L.B. in such cases. This drug is not available in India.

As the patient had spent more than 4 months in the hospital she was anxious to go home. We discharged her as we had nothing else to offer. When we realised that the patient had become resistant to Methotrexate, we wrote to Dr. Hertz Roy asking him if he could dispatch some V.L.B. He very kindly sent us Actinomycin D, saying that they have found this drug better than V.L.B. The patient was readmitted within a month. Her general condition now had deteriorated very much. She was orthopaedic and anaemic. She had lost much weight. She gave a history of haemoptysis. She had pleural effusion. Restorative measures included blood transfusion and continuous I.V. drip. After doing renal and hepatic functions and full blood examination, one dose of Actinomycin D, 0.4 mg. was given I.V. As a low platelet count is a contra-indication to this therapy and as it did not rise even after blood transfusion, the treatment was sus-

pending. Patient was discharged at her request within a week of admission and died 5 days later.

Discussion

Folic acid is essential for the growth of the female genital tract and for the development of the embryo. Experimentally it has been proved that when there is a deficiency of folic acid in rats or monkeys, the uterus is incapable of growth in response to oestrogens. Nelson and Evans have shown the high foetal requirement for folic acid. Accordingly, Hertz et al postulated that choriocarcinoma and other tumours arising from foetal chorion and involving the uterus might respond to folic acid antagonists. The mode of action of folic acid antagonists is as an antimetabolite to folic acid. It probably inhibits the conversion of folic acid to folinic acid.

These tumours provide a unique qualitative biological indicator of their extent and progression in terms of patients' urinary excretion of chorionic gonadotrophic hormone. The normal value is taken as 200 mouse uterine units in 24 hours in oophorectomized women.

Methotrexate

Dosage: 10-30 mg. per day in divided doses. This can be given either I.M., I.V. or orally. If given intravenously the solution must be prepared fresh and injected into the tubing of a rapidly running infusion of normal saline to minimize local pain, thrombo-phlebitis, and local nerve damage.

Toxic Symptoms. These drugs are very toxic. The toxic symptoms are stomatitis, nausea, vomiting, ano-

rexia, diarrhoea, rash and marrow depression. These symptoms vary from patient to patient and from course to course in the same patient. As Methotrexate is excreted mostly through the kidneys, adequate fluids should be given and a fluid intake and output chart should be kept. Kidney and liver dysfunctions are contraindications to this therapy. Bone marrow depression either due to the drug or as a result of radiation is a contraindication for further therapy. Maximum toxic symptoms are noticed 4-7 days after cessation of the drug, hence these symptoms cannot be controlled by withdrawing the drug. Subsequent courses were not given until all signs of toxicity had subsided. The interval between subsequent courses needs to be longer as the number of courses increases. Skin lesions take a long time to heal. Complete disappearance of stomatitis and renewed ability to swallow mark the point to start the next course.

Once the treatment is started, renal and hepatic functions, white cell and differential count, and erythrocyte, platelet and reticulocyte counts, should be done very frequently. Urinary gonadotrophic estimation should be done once a week. For this a 24 hour specimen of urine should be collected and processed.

No. of Courses. In the paper published by Hertz et al in 1958 the courses varied from 1-22, average being 6 and the average dose of the drug being 620 mg. The same authors in 1961 presented their studies on 63 cases. These patients were initially treated by Methotrexate and in addition 13 of them were treated by Vincalukoblastine

(VLB). The number of courses of Methotrexate in their second series varied from 1-11. Complete remissions were obtained in a majority of cases with 3-4 courses.

Munford and Haskins report a case of choriocarcinoma treated by Methotrexate. The dose was 5 mg. twice a day for 16 days. This regime was tried partly to reduce the toxicity of the drug and partly to give the drug without interruption. The drug in small doses was given until a clinical remission was obtained or early signs of drug toxicity were manifested. Their patient is alive and well after one year.

Response to Therapy. This is assessed as follows:

Hormone assays

X-ray chest

Secondaries in the vagina

Bleeding from the uterus

Enlargement of the uterus or adnexal masses

Obstruction in the urinary tract

Neurological symptoms both clinical and EEG for brain metastases.

Results of Therapy. In 1958 Hertz et al reported their results on 27 cases as follows:

- a. There was complete remission with no evidence of recurrence either clinical, hormonal or radiological, and were well from 8-29 months, in five.
- b. Partial remission was seen in seven.
- c. Transient remission was seen in ten.
- d. Initial response and death occurred in six.
- e. No remission occurred in five.

Hertz et al in their second big series published in 1961 report their

results of therapy on 63 patients as follows:

- a. Complete remission in 30 with remission varying from 1-6 years. Of these 30, 28 had Methotrexate alone and 2 had Methotrexate and VLB. They are of the opinion that once a complete remission has been obtained, it persists without further therapy, although they have noted relapses in 3 other cases who were apparently in complete remission from 1-3 years.

Of 29 patients who showed only partial remission, 22 showed total resistance to further Methotrexate and V.L.B. and subsequently died. The remaining 7 were alive and undergoing therapy. They also came to the following conclusions:

Age. There is no correlation between the age of the patient and response to therapy.

Histopathology. There does not seem to be any correlation between the histology of a well-established case of choriocarcinoma and the ultimate prognosis.

Surgery. They make an amazing statement that the presence or absence of uterus plays no significant role in obtaining a complete remission. On the other hand, oophorectomy gives a better prognosis. It is a reminder to us about the necessity, advisability and, I am tempted to say, the obligation to remove the ovaries when hysterectomy is done.

Interval between Duration of Disease and Treatment. In their series when the interval was less than 4 months, 18 out of 25 showed complete remission, whereas when the interval was more than 6 months,

only 7 out of 27 showed complete remission.

As in all malignant conditions, early diagnosis and early treatment give a better prognosis.

F.T.N.D. Abortion or Mole. Some people are of the opinion that choriocarcinoma following a F.T.N.D. has a worse prognosis than those following a mole or an abortion. A study of their cases did not lend any support to this view. If the above statement is true, it could be that choriocarcinoma following a mole would be early diagnosed or over-diagnosed.

Relation between the Extent of Disease and Ultimate Prognosis. It seems reasonable to assume that those patients with limited extent of the disease, as judged by clinical and radiological examination and gonadotrophic titre, will have a better prognosis than those with extensive lesions and a high titre of hormones. Their studies showed that there was no correlation between the height of initial titres and response to therapy.

Metastases. Patients with pulmonary metastases fared as well as other patients but patients with brain metastases showed no response and those with pelvic metastases showed poor response.

Nursing Care. Intensive medical and nursing care is needed.

Blood Group Factors in Choriocarcinoma. Hertz et al have shown that comparison of blood groups in 28 patients, with choriocarcinoma, with those of their husbands revealed no evidence of maternal immunization by the foetal tumour tissue.

Host-Parasite Relationship. There seems to be an inherent power in the maternal tissue to resist this highly

invasive and malignant growth of foetal origin. Some people think that this may be due to a genetically determined incompatibility between the maternal host and foetal tumour. If it is so, chemotherapy may simply augment the maternal defensive mechanism.

VLB. Vincalokoblastine sulphate is an oncolytic alkaloid derived from the plant *Vinca rosea*.

Apart from other toxic effects this is also a neurotoxic agent and a marrow depressant. It produces a great reduction in polymorphs thus predisposing to infection. Hence antibiotics should be given.

Actinomycin D. Recently Roy Hertz et al have been trying Actinomycin D in Methotrexate-resistant cases. Their preliminary results show that this drug is better than *V.L.B.* in Methotrexate-resistant cases.

Hepatic and renal functions should be assessed. A full blood examination should be done specially W.B.C., including differential count and platelet count. All evidence of toxicity to Methotrexate should have disappeared before starting this treatment.

The dose consists of 10 micrograms per kilogram of body weight per day. The injections are given I.V daily for 5 days, followed by a rest period of 5 days. If at the end of the 5 days' rest period there are no signs of toxicity the dose may be increased at the rate of 1 microgram per kilogram of body weight per day for the 2nd course and similarly in successive courses until definite signs of toxicity appear. Courses should be repeated as long as evidence of continued response is obtained.

During the entire period including the rest period, daily W.B.C. differential count and platelet count should be done.

The following constitute absolute indications for the cessation of treatment at any time.

1. Oral ulceration
2. W.B.C. of 300 or below
3. Platelet count of less than 120,000
4. Any abnormality of hepatic function.

Results of treatment should be monitored by at least once weekly determination of 24 hours urinary gonadotropin excretion, and at least once weekly chest X-rays. Any other tests which appear to be indicated by the clinical status of the patient, should be obtained as often as necessary.

Nitrogen Mustard. Gilbert Webb reports two cases of choriocarcinoma who were treated by surgery followed by nitrogen mustard. These patients have survived for 5 years and are alive and doing well. The dose is 0.4 mg. per kilogram of weight given I.V. Two or three courses of nitrogen mustard therapy are given. The choice of nitrogen mustard was made due to the following reasons:—

1. Nitrogen mustard is described as being radio-mimetic and choriocarcinoma is said to be radio sensitive.
2. As choriocarcinoma spreads by the blood stream an agent working on the vascular system will be more beneficial.
3. Its side effects are less severe than with other drugs.

Note: Nitrogen mustard seems to be in-effective in the presence of lung metastases.

Pregnancy following Choriocarcinoma. About 10 years ago if somebody had mentioned such a thing, we would have ridiculed him and considered such a statement as absurd. But now we live in a different age. New discoveries are made. New drugs are introduced. Nothing seems impossible these days. Pregnancy following choriocarcinoma is extremely rare. Henry Freedman et al report a case of choriocarcinoma treated by Methotrexate, who subsequently conceived twice and gave birth to normal babies.

Comments

Evidence at present shows that antifolic acid drugs inflict fatal damage to either normal or abnormal human trophoblastic tissue. As a result of this therapy complete remission has been obtained in some and partial remission in a few. It is even conceivable that, in some exceptional patients who are young, it may even do away with hysterectomy. But it has certain hazards. To use the words of Hertz et al, "The treatment involved a substantial hazard, for side-effects were often severe and not always reversible. In view of the striking nature of the results in some cases the morbidity and mortality must be accepted as hazards of the treatment in its present form".

Whether or not a tumour can be damaged beyond its power to recover by these drugs only time will tell us. There are also other factors in evaluating a cure such as sensitivity of the tumour to the drug and host resistance.

Conclusion

It is difficult to conclude the value

of any chemo-therapy in a disease like choriocarcinoma which is noted for its many vagaries, such as its highly variable clinical course and its tendency to spontaneous regression however rare it may be. Nevertheless the studies of Hertz and others undoubtedly establish the value of chemotherapy in these cases and open up a wide field of research for more potent and less toxic drugs. Perhaps the time is not far off when the treatment of these cases will be taken away completely from the hands of the gynaecologists and managed by the physicians.

Summary

1. A case of choriocarcinoma treated by surgery and Methotrexate is reported.
2. This case showed partial remission, but later on developed drug resistance and died.
3. The place of chemotherapy in choriocarcinoma and other trophoblastic tumours is briefly discussed.

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