THE JOURNAL

OF THE

ASSOCIATION OF MEDICAL WOMEN IN INDIA

VOL. LXX SEPTEMBER-DECEMBER, 1980 No. 3

THE ASSOCIATION OF MEDICAL WOMEN IN INDIA

OFFICE BEARERS:

President	:	Dr. M. Catchatoor
Vice President	:	Dr. S. Gill Dr. K. Virkar
Gen. Secretary & Treasurer	:	Dr. Dina Patel

DIVISIONAL SECRETARIES:

Bengal	:	Dr. S. Swarup-Mitra
Bombay	:	Dr. M. Pardiwala
Delhi	:	Dr. Urmila Sharma Dr. Sabita Sabharwal
Latur	:	Dr. Leela Bajpai
National Corresp. Secretary	:	Dr. Juliet Desa Souza

EDITORIAL BOARD

Editor	:	Dr. Dinoo Dalal
Co-Editor	:	Dr. Mohini Garud Dr. Shobha Ghosh
Sub-Editors Anasthesiology	:	Dr. Tulsi Basu
General Practitioner Preventive & Social Medicine	:	Dr. Meera Roy Dr. Saroj Jha
Pediatrics	:	Dr. Shanti Indra Dr. Meena Desai
Physiology & Allied Subjects including Pathology	:	Dr. Sushiela Swarup Mitra
Obstetries & Allied branches	:	Dr. Arti Roy Dr. Mehru Hansotia
Surgery & Allied Branches	:	Dr. Joya Chaudhury

Printed by Dr. D. Dalal at the Popular Press (Bombay) Pvt. Ltd., 35-C Tardeo Road, Bombay-400 034, and published by her for The Association of Medical Women in India, IMA Building, 16, Haji Ali Park, Keshavrao Khadye Marg, Bombay-400 034.

The Journal of the A. M. W. I.

VOL. LXX SEPTEMBER-DECEMBER, 1980 No. 3

CONTENTS

DR. ANJALI CHATTERJI ORATION

The first Anjali Chatterji Memorial Oration was held on her birthday, the 10th July at the School of Tropical Medicine Hall, Calcutta. It was very well attended. The then Director, Dr. S. Ghosh presided, Dr. Pillai welcomed the guest and read Anjali's Bio-data and Dr. Saroj Gupta, an eminent Radiologist and presently President of the Association of Radiotherapeutists gave the Oration on "Modern trend in the treatment of Cancer". Mr. U. Chatterji gave a donation of Rs. 1000 to the Association of which Rs. 500 was presented to Dr. Gupta by Dr. Catchatoor who also spoke a few words about Anjali. Dr. Gupta presented the gift to the new Cancer Home. This occasion will be celebrated every year.

"Let us not lightly cast aside things that belong to the past, for only with the past can we weave the fabric of the future"—ANATOLE FRANCE.

MODERN TRENDS ON THE TREATMENT OF CANCER

By

Saroj Gupta

Introduction:

Cancer has claimed its many victims in all walks of life at almost every age and from time immemorial. Researchers and clinicians have challenged this dreaded disease and adopted all therapeutic means to achieve success. But still Cancer is a mystery queen and remains unconquered.

Living in a golden era of scientific miracles, can we not hope that this disease like other sinister scourges may ultimately be conquered?

Ancient and Primitive Medicine:

The earliest medical record known to modern man is the "Edwin Smith Surgical Papyrus" written in the Egyptian Pyramid Age in the old kingdom (3000-2500 B.C.). In the translation and commentary of this papyrus published by J. H. Breasted the late director of the oriental Institute of the University of Chicago, one finds a series of eight cases concerned with tumours or ulcers of the breast. Available evidence indicates that treatment by Cauterization with the fire-drill is the oldest known reference to this practice.

In the history of Herodotus, an historian who lived just prior to Hippocrates, we find that Atossa, daughter of Cyrus and wife of Darius, had a tumour of her breast which after a time, ulcerated and spread. So long as it was small, from false modesty she concealed it and told none about it, but when it started to grow and give her trouble, she was

referred to the famous Physician Democedes and he cured her, however no mention of treatment method is made.

The Golden Era of Greek and Roman Culture is associated with the Great Hippocrates who was born in the latter half of the 5th century B.C. known as the "father of medicine". Hippocrates represents all that is exemplary in the Western tradition of Medicine.

It is surprising to note that the trend of thoughts of the present day clinicians have already been there in the volumes of book written by Hippocrates. For example, the "Corpus Hippocraticum" referring to occult (non-ulcerated or deep seated) Cancer makes this prophetic prognosis concerning the contra-indications of Surgery. "It is better to omit treatment altogether, for if treated the patients soon die, whereas if left alone they may last a long time." Aulus Cornelius Celsus, a Roman Scholar of the early first century A.D. emphasized that irritation of cancer by the imprudent intervention of a clinician could result in great danger to the patient.

Galen was a celebrated Greek Physician who lived in the second century A.D. Galen attributed cancer to an excess of black bile melancholia. Cancer was therefore treated by a unique dietary regimen and purgation.

Modern Medicine:

One of the most enlightened surgeons of the 18th century was Henri Francois Le Dran. He completely repudiated Galen's humoral Theory of the disease in favour of the idea that cancer was a local lesion in its earliest stage. He described the pathways of metastasis through lymphatics and dissected enlarged axillary nodes in breast cancer.

Jean Louis Petit (1674-1750) set the precedent for Modern Mastectomy. Dr. William Stewart Halsteid (1852-1922) first published a summary of 13 cases of breast cancer with a description of his initial surgical technique. In 1894 Halsteid presented before the clinical society of Maryland the result of the complete operation for the cure of cancer of the breast performed at the John's Hopkins Hospital.

After the discovery of x-rays by Roentgen in 1895, and Radium by Madam Curie, a new trend came for using these magic rays for treatment of many a disease including cancer. Subsequently with the improved technique and better radiological knowledge, Deep x-rays and Radium application were the main tools of treatment in the first half of this century. With the advent of many radio-isotopes, high energy electrons and x-rays, tremendous development in the manufacture of equipment and the application of the gama rays for telecobalt, and electron and x-rays for linear acceleration, it has now been possible to give a good cancericidal dose at the same time sparing the normal tissue to its maximum.

Even two dicades ago the main treatment of Cancer was surgery and radiotherapy. The main object of treatment is to destroy all the malignant cells to achieve cure. But unfortunately it has never been

possible mainly because of our lack of knowledge regarding the cell kinetics and micro metastasis before the primary diagnosis is established.

At present five modalities of treatment are adopted to reduce the number of malignant cells to a minium which even if present in the body will not be capable of further division or will remain inert due to host's possible immunologic defenses. These therapy modalities are surgery, radiotherapy, chemotherapy, endocrinotherapy and immunotherapy.

To know the mode of action of the anticancer drugs, we must have some basic ideas about the cell multiplication in our body. For the normal growth of our body and for repair of any damage of tissue in our body, the cells go on multiplying till the need is met and stop doing so by a process of 'Brake' controlled by feed-back mechanism which is again an unknown controller in our body. In malignant cases there is abnormal proliferation of cells uncontrolled by any mechanism in our body till they reach a critical mass and the uncontrolled growth leads to the death of the host.

Mechanism of the cell division is mitosis, when the cells pass through different phases of Prophase, Metaphase, Anaphase and Telophase.

During these phases, the process of synthesis of protein, DNA and RNA take place.

Another important factor is that the rate of cell division in malignancy is much higher than the normal tissue. DNA synthesis is the most important factor for cell multiplication and the process takes place through different phases.

Pharmacokinetics:

Reason for success or failure of Chemotherapy is related to the pharmacologic disposition of drugs in patients. The response to chemotherapy depends upon the cancericidal concentration of the drugs for a long enough period to kill the cencer cells. In general, the purpose of pharmacology studies is to know how to get the effective concentration (C) of drug to the target site for a long period (T) to achieve the desired effect. So the effectiveness of an anticancer agent is directly related to C x T which is markedly affected by dose and schedule.

Cytotoxic drugs are the agents which destroy the cancer cells sparing the normal cells as much as practicable. Still in clinical practice we observe many adverse side effects which may lead to the death of the patient. So clinicians must be well conversant with these adverse reactions and they should use the drugs with meticulous care.

Hundreds of drugs have been discovered which have the efficacy of controlling the disease by acting in the different phases of cell division. Some drugs are phase specific and some are non-specific.

How they are used:

Some drugs are particularly effective for certain types of Tumours and so the usual practice was to use single-drug therapy.

But with the better concept of the biological effect of many a drug and the varied phase specific and non-specific action of different drugs, 'Multiple drug therapy' has become the latest trend in the management of cancer.

Trials are being carried in different oncological centres in the world, with different treatment regimes. These regimes are called "protocols".

Treatment modalities:

1. Curative e.g. in chorio carcinoma and lymphomas.

2. Palliative e.g. in disseminated cancers.

3. Prophylactic e.g. after surgery or in combination with radiotherapy with or without residual tumours to achieve better results.

The drugs may be used as a single and sole method of treatment for particular type of cancer or it may be used as an 'Adjuvant' to other modalities of treatment such as surgery, Radiotherapy and endocrinotherapy.

Anticancer Drugs:

Classification	Drug
Alkylating agents	Mechlorethamine
	Busulfan
	Chlorambucil
	Cyclophosphamide
	Melphalan
	Thiotepa
Antimetabolites	Methotrexate
	6-Mercaptopurine
	Thioguanine
	5-Fluorouracil
	Ftorafur
	Cytosine arabinoside
	5-Azacytidine
Plant alkaloids	Vinblastine
	Vincristine
	VM 26
	VP 16
Antibiotics	Actinomycin D
	Adriamycin
	Bleomycin
	Daunorubicin
	Mithramycin
	Mitomycin C

Classification	Drug
Nitrosoureas	Carmustine
	Lomustine
	Semustine
	Streptozotocin
Enzymes	L-asparaginase
Random Synthetics	*Cis* platinum diammine dichloride
	Dicarbazine
	Dibromomannitol
	Hexamethylmelamine
	Hydroxyurea
	Mitotane
	Procarbazine
	Razoxane
Adrenocorticosteroids	Prednisone
	Prednisolone
	Dexamethasone
Androgens	Calusterone
	Dromostanolone propionate
	Fluoxymesterone
	Nandrolone phenylpropionate
	Testolactone
	Testosterone propionate
Estrogens	Diethylstilbestrol
	Ethinyl estradiol
	Fosfestrol
Anti-estrogens	Nafoxidine
	Tamoxifen
Progestogens	Hydroxyprogesterone caproate
	Medroxyprogesterone acetate
	Megestrol acetate
Miscellaneous	Norethindrone acetate
	Estramustine phosphate

Common protocols:

(1) Cyclophosphamids (Endoxan), ONCOVIN (Vincristine), Prednisolone, Procarbazine (Natulan), Mustine hydrochloride, used in Hodgkins lymphoma and non-Hodgkins lymphomas.

(2) Cyclophosphasmide (Endoxan), Methotrexate, Fluracil (5—Fluorouracil), used in Breast Cancer.

(3) Adriamycin or Oncovin in Breast Cancers.

(4) Cyclophosphamide, Vincristine, Adriamycin, Dactinomycin (Actinomycin), in Bone Sarcomas.

(5) Fluracil and Mitomycin. In Cancers of Gastro intestinal tract.

(6) Leukeran, Endoxan and Thiotepa in ovarian cancers.

(7) CCNU BCNU. In tumours of Brain.

(8) Mitomycin and Bleomycin. In oesophageal cancers.

(9) Methotrexate and Bleomycin (Bleocin) in cancer of mouth and oral cavities.

(10) Alkeran (Melphalan) in Myeloma.

(11) Oncovin, Purinethol, 6-Mercarptopurin and Steroid in Leukaemias.

(12) Hormones in Prostatic cancers. Stilbaesterol Ethyl oestinradiol, Honvan Breast cancers. Stilbaesteral group in post menopausal. Testosterone propionate in pre-menopausal group. Thyroid cancer-Eltroxin.

Progesterone in cancer body of Uterus and hypernephroma.

Anabolic hormones are used mainly in combination with Chemotherapy.

Methods of use:

Per oral, intravenous, intraarterial, Intramuscular, intrathecal and intra cavitory e.g. pleural effusion, ascites and in bladder tumour, local application.

Reactions::

Hematological—Bone marrow or Myeloid suppression like Lucopenia, Thrombocytopenia. Causing immuno suppression like infection and haemorrhage e.g. Malena, haematuria, haemoptysis, haematemesis, epistaxis.

Gastrointestinal—Anorexia, nausea, vomiting, diarrhea, stomatitis.

Alopecia—Fall of hair.

Neurological—neuritis, paresis, neuralgia.

These reactions may be so severe that they may be fatal. So these drugs are to be used only by Oncologists.

Diagnostic Tools:

During the last two decades there is a revolutionary changes in the management of Cancer. mainly because of discovery of various diagnostic tools and the advent of hundreds of anti-cancer drugs.

It is needless to mention here, that even with the advent of different treatment modalities, salvage of human lives from the dread scourge will not be possible unless it is detected in its earliest stages or in asymptomatic condition.

Mass Education and Screening are of paramount importance. Self Examination of Breast and cytology for early diagnosis of carcinoma of Cervix can yield 90% cure rate in Carcinoma of Breast and Cervix.

Diagnostic tools which are of immense help in detecting cancer are Radiology e.g. straight X-ray, Double contrast study for Gastro-intestinal tract, Angiography, Mamography, Lymphangiography, Venography, Tomography, computarised Tomography, Xero radiography, Thermography and Ultrasounds, Endoscopies.

Scanning with different radio active Isotopes can demonstrate any occult metastasis and thus help in the management of Cancer.

The following is a brief outline of the modern trend in the management of some types of cancer.

Carcinoma Breast:

Radical mastectomy followed by radiotherapy for Stage I and II was the standard treatment even two decades ago. Now the Oncologists feel conservative surgery such as Lumpectomy, Tumerectomies or Petys operation with radiotherapy yields almost same or even better result in Stage I than radical mastectomy, with the preservation of breast which spares a lady from the great psychological trauma.

The tumours in the outer quadrant of breast and in Stage II are treated by Radical Mastectomy or simple mastectomy with axillary clearance. The patients undergo radiotherapy with positive nodes only and hormone therapy if more than 4 nodes are involved. For Stage III, Radiotherapy, Hormone therapy and Chemotherapy is preferred with CMF regime and gives a good quality of life.

Estrogen receptor study by treating an excised tumour tissue in frozen condition with Initiated oestradiol is of value in detecting hormone dependance.

Carcinoma ovary:

FIGO's classification is widely accepted and followed.

For Stage I, II and in selected Stage III:

Total hysterectomy salpingo-oophorectomy and Omentectomy are the standard surgery. Radiotherapy is reserved only for this variety. Chemotherapy has tremendous role in controlling the disease with a good quality of life. Of course the overall survival rate is not influenced so strikingly. Single drug therapy with alkylating agents such as Cyclophosphomide Leukeran, or Thiotepa are of choice, but the modern trend is to employ multiple drug therapy because of phase specific and

non-specific action of different drugs in different phases of DNA, RNA and Protein synthesis.

Carcinoma Cervix:

There is not much difference in the management of Stage I and II with megavoltage radiotherapy. Surgery in good hand yields good and identical result as that with radiotherapy. But with the better knowledge of lymphatic spread in stage I and II cases, and extended field encompassing the para aortic nodes, encouraging results are being achieved. Initial trial with Mitomycin, Bleomycin, in advanced cancer, are being carried out but the results are not so encouraging. Progession in high dosage has been found effective in carcinoma of body of the uterus.

Role of Methotraxate in Chorio Carcinoma is well established as a curative measure.

Bleomycin and Methotraxate are used extensively in Head and neck cancer with positive and good result with radiotherapy.

Bleomycin and Mitomycin in oesophageal Carcinoma ensures same result as with radiotherapy and when combined gives a gratifying result and can obviate a patient from feeding gastrostomy.

Endoxan Fluracil and Vincristin with or without radiotherapy in operable lung cancer, have been found to be effective in majority of the cases.

In testicular tumours, orchiectomy with high ligation of Cord, Radiotherapy to Para aortic nodes along with multiple drug therapy, yield encouraging results. The drugs which are used in combination are Endoxan, Fluracil, Metholrend, Actinomycin D, Vincristin, or Bleomycin, Actinomycin, Adriamycin, Endoxan with cisplatinum.

Hodgkins Lymphoma:

Lymphagiography, Laparotomy, Splenectomy and para aortic nodes excision and biopy for staging and management has become the practice in many schools. However, Radiotherapy in the form of Total nodal irradiation by megavoltage with proper shielding of the important structures of the body, is still the best form of treatment.

Chemotherapy by group (1) drugs is usually resorted to for Stage III and IV Cases and some selected case of Stage II with stystemetic disease.

For the non Hodgkin lymphoma single drug like Endoxan or Leukeran.

There is significant improvement in the management of Acute Lymphatic Lukeamia. Chemotherapy, CNS Radiation and intrathecal MTX has significantly improved the results.

Sarcoma and Osteosarcoma—Amputation followed by Adriamycin has definitely improved the results.

Ewings Sarcoma—Radical radiotherapy with CYVADACT or CYVADIC is really effective in enhancing the survival rate.

Immunology:

Though control of cancer by immunological process has not been achieved but proof of existence of host resistance to cancer is established e.g.

1. Spontaneous regression of proved cancer.
2. Circulating cancer cells fail to form new growth.
3. Metastasis disappear or regress after removal of the primary.
4. Tumours fail to recur even after inadequate surgery.
5. Temporary regression of Tumour associated with infection.
6. Incidence of tumours increases with intensive immunosuppression therapy.

The immune reaction to neoplastic cells has usually been considered to involve recognition of the tumour cells as abnormal by the host's lymphocytes or humoral antibodies or both.

It has been observed that the incidence of malignancy is more common in those children who have genetic disorders of production of T cells (Thymus), dependent lymphocytes or in the synthesis of immunoglobulin by Bceells (bone marrow derived cells).

Recently many reports of Tumour specific antigens (TSA) in human neoplasm have been published. In 1965 Gold and his colleagues carried out a series of studies involving the detection and characterization of an apparently specific antigen associated with adeno carcinoma of the human colon. Several authors have described embryonic antigens identical to those found in neoplastic tissues. Gold's carcino-embryonic antigen (CEA) is defenitely not tumour—specific, but it may aid in diagnosis. Radio-immune assay study gives us a lot of information in different cancers. CFA test is related to Golds test which is positive in majority of Gastro-intestinal, lung, bladder and cervix cancers.

Extensive research is being carried out with experimental studies of Tumour antigens and antibodies and experimental immunotherapy.

Active immunotherapy may be non specific or specific. The most spectacular example of non specific immunotherapy has been the use of BCG in the treatment of youngsters with Leukemia. To induce hypersensitivity to one or more agents like BCG, Mumps vaccine and dinitroclorobenzen (DNCB) have met with some success.

Specific active immunotherapy involves the use of killed tumour cells, tumour cells previously irradiated and cells combined with antigenic materials.

Summary:

There is good clinical and experimental evidence of host resistance to the malignant disease, and a majority of these defenses are immunologic in nature. Lymphocytes are the primary mechanism for cell destruction, but the process of sensitization of lymphocytes against tumour cells need to be clarified. However to effect tumour cell destruction, the lymphocytes—tumour cell apposition is very important.

Lastly if clinical immunotherapy is to be effective, it will have to be applied when a minimal number of tumour cells are present in the body and the host immuno mechanism both humoral and cellular are still intact.

For the future, immunotherapy will be used as an adjuvant to other forms of therapy such as surgery, Radiotherapy and Chemotherapy and a minimal tumour tissue must be there to achieve host's natural resistaance to malignancy.

We hope that in near future we will get the fruits of research works which will make a positive landmark in the history of mankind and thus save the millions of cancer victims.

ACUTE APPENDICITIS IN PREGNANCY

By

Urmila Khanna,* M.S. (Cal.), F.R.C.S. (Edin.), F.R.C.S. (Eng.)
B. Chaudhuri,** M.S. (Cal.), F.R.C.S. (Edin.)
S. Choudhury,*** M.B.B.S. (Cal.), M.S. (Anatomy) (Cal.)
Kalyani Banerjee,† M.S. (Delhi)
Tapas Ghosh,†† M.B.B.S. (Cal.)

One of the common and emergency complications of pregnancy is acute appendicitis, but it is infrequently encountered by an individual surgeon.

Diagnosis of the case is often difficult in the pregnant woman as the symptoms may be attributed to the pregnancy. Physical findings may be obscured or altered by the cephaloid displacement of the appendix as pregnancy progresses. Difficulty in diagnosis and delay in treatment are the root causes of complications or death for the foetus or the mother or both. The present study is a retrospective review and analysis of 9 years experience (January 1970 to December 1978) at Calcutta National Medical College and Private patients having acute appendicitis during pregnancy. The diagnosis and confirmations were done by operations and histological examinations in 54 patients. There was one mortality of mother and 3 foetal loss. The diagnostic problem, management and complications are presented with the review of literature in short.

Methods and Materials:

54 patients of acute appendicitis during pregnancy who were diagnosed and treated in Calcutta National Medical Collge and outside from January 1970 to December 1978 were analysed. For each patient the duration of the gestation was divided into different trimesters. There was no case report, in our series, of appendicitis during labour or in the peuperium.

Out of the 54 cases of pregnancy with acute appendicitis, 16 cases were in the 1st trimester, 24 cases were in the 2nd and the rest 14 cases were in the last trimester.

TABLE I

Number of cases in different trimesters in 54 cases

Trimester	No. of cases	Percentage
1st	16	29.6
2nd	24	44.5
3rd	14	25.9

*Associate Professor of Surgery.
**Associate Professor of Surgery.
***Associate Professor of Anatomy.
†Clinical Tutor in Surgery.
††House Surgeon, Dept. of Surgery.
From Calcutta National Medical College.

The age and parity:

Acute appendicitis was more common in 20 to 30 years of age group, but age range extends from 16 years to 48 years in our series.

TABLE II

Age of patients

Age in years	No. of cases	Percenage
16-20	12	22.2
21-30	28	51.8
31-40	10	18.5
41-50	4	7.4

Symptoms and Sings:

About 80% of the above mentioned cases had symptoms of less than 24 hours and the duration of symptoms ranged from 6 hours to 5 days. Out of 54 cases in our study, 8 patients had the symptoms of more than 24 hours duration and 4 had the pain about 4 days back and had developed appendicular lump.

TABLE III

Duration of symptoms

Duration	No. of cases	Percentage
1. Within 6 hours	42	77.7
2. 24-96 hours	8	14.8
3. 4-5 days	4	7.4

Symptoms presested by the 54 patients:

All the 54 patients had pain in the lower abdomen shifting to right side depending upon the site of appendix and anatomical change of positions of appendix. Out of 54 cases, 45 had nausea and anorexia, 32 had nausea with vomiting, 18 patients suffered from constipation and two had diarrhoea. Four patients had lump in the right side of the abdomen. The pain and tenderness in the right lower quadrant of abdomen were more frequently observed during the 1st and 2nd trimester of pregnancy and were the most common finding in our series of study. The patients had diffuse abdominal pain and tenderness in the 3rd trimester of pregnancy and a definite diagnosis could not be reached. The patients developed peritonitis due to displacement of the appendix and we had to open them up due to onset of peritonitis.

The Blood count—Leucocytosis more than 15,000/cmm was found only in 20 cases out of 54 of our series. Rest had insignificant leucocytosis.

TABLE IV

Symptoms presented by the 54 patients

Symptoms	No. of cases	Percentage
1. Anorexia	45	83.3
2. Pain	54	100
3. Nausea with vomiting	32	59.2
4. Constipation	18	33.3
5. Diarrhoea	2	3.7
6. Bleeeding p/v with onset of labour	3	5.5
7. Lump in the R.I.F.	4	7.4
8. Temperature	18	33.3

Operative management:

Of 54 cases of acute appendicitis, 30 patients were operated within 24 hours of the onset of the symptoms, 19 cases were operated within 24-48 hours while 4 had conservative treatment due to formation of appendicular lump. One had generalised peritonitis which was opened up on the 5th day of the symptoms as the patient was brought at a very late stage. Out of the 54 cases, 3 patients had spontaneous abortion, one in the 1st trimester and 2 in the 2nd trimester.

TABLE V

Time of operation

Time	No. of cases	Percentage
1. Within 24 hours	30	55.5
2. 24-48 hours	19	35.1
3. 5th day	1	1.8
4. Not operated due to lump formation	4	7.4

Each patient had general anaesthesia and the operation was done by a General Surgeon. 33 patients had appendicectomy by McBurney's incision, 13 cases had lower paramedian, while, right upper paramedian incision was used in 4 cases where the diagnosis was mistaken for upper abdominal mischief because of the upper displacement of appendix in advanced pregnancy. Rest of the 4 cases were not opened due to formation of lump.

Operative findings: (Table VI)

Uncomplicated acute appendicitis was found in 31 cases, appendicitis with gangrene in 9 patients and 4 patients had acute appendicitis with perforation and one with general peritonitis. Rest 5 patients had local abscess formation.

Complications were minimal. Only one death occurred of the mother due to general peritonitis. Others had uneventful recovery, with

TABLE VI

Operative findings

Nature of appendix	No. of cases	Percentage
1. Uncomplicated appendix	31	57.4
2. Gangrenous	9	16.6
3. Perforative	4	7.4
4. Appendicular abscess	5	9.2
5. General peritonitis	1	1.8

spontaneous abortion in 3 cases only. They had abortions on 3rd, 4th and 5th day of the operation and needed a curettage.

Duration of Hospitalisation: (Table VII)

The average hospital stay was 8-10 days with range extending upto 15-25 days. Out of 54 cases of our series, 50 had undergone appendicectomy for acute appendicitis. Of these, 5 had abscess, 1 had gangrene and one had general peritonitis. The complicated cases had to stay more than the usual time.

TABLE VII

Duration of hospitalization in post-operative period

Duration	No. of cases	Percentage
8-10 days	35	64.8
15-25 days	15	27.7

Discussion:

The diagnosis of acute appendicitis is frequently difficult in the very young, very old, obese and in the pregnant patient. We are concerned here with the latter group. Acute appendicitis is one of the serious abdominal conditions and when it occurs during pregnancy, it presents a problem of greater magnitude. The mother and the foetus both are exposed to surgical operative hazards starting from wound infection to death.

The diagnosis of appendicitis is difficult in advanced pregnancy because of the displacement of the appendix anatomically from its normal position due to enlarged uterus; the presenting symptoms are also changed.

In 1905, Fueth investigated the displacement of the caecum and appendix during pregnancy. In 1932, Baer and his associate reported their observation in the displacement of appendix in 28 pregnant cases but none of them had complications. They concluded that during normal pregnancy there is a gradual shifting of appendix and caecum from lower to higher level somewhat above the iliac crest near the full term (Fig. 1). In addition the long axis of the appendix changes from the normal

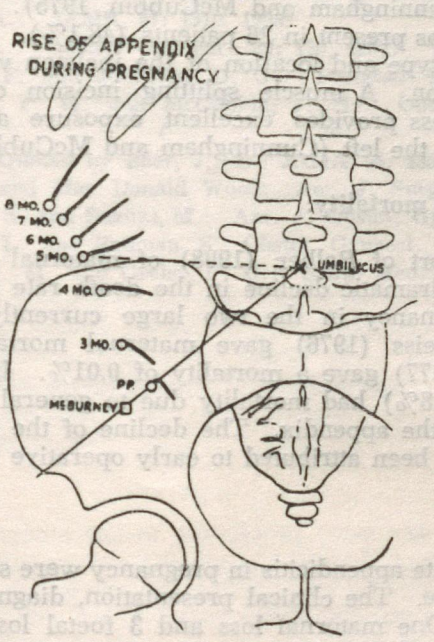

Fig. 1
Changes in position and direction of appendix during pregnancy.

downward and inward direction, first to vertical and then curving round the uterine fundus. The gradual outward and upward displacement by the growing uterus places the appendix well above the iliac crest level, so there is a change in the McBurney's point (pathologically) and there is difficulty in diagnosis of appendicitis, particularly in 2nd and 3rd trimester. Thus this case can be mistaken for upper abdominal disease; so accordingly the incision may also be given as upper or lower right paramedian instead of simple McBurney's. This was the case in our series where we had to explore 9 cases out of 50 operated cases, by paramedian incisions. Basically it is the same disease as in non-pregnant women, but the diagnosis may be more difficult in the pregnant patient with the shifting of the site of appendix.

The diagnostic accuracy in 462 cases clinically suspected was 72% (Babaknia *et al*, 1977). Exploration was negative in 86 cases (17.5%). Burgos and Johnston (1968) recorded similar statement in non-pregnant women. In our series of 54 cases diganosis was perfect in 35 cases (64.8%) and rest of the 19 were presented for the following: cholecystitis in 2 (3.7%), acute pyelonephritis in 5 (9.8%), peritonitis in 6 patients and appendicular lump was noted in 4 patients only (7.4%). Clinically, abdominal tenderness was noted in majority of the cases and as pregnancy advances, the pain and tenderness are situated at higher level and more laterally in the abdomen. Anorexia was usually present in almost all patients. The rebound tenderness and muscle guarding are valuable findings in the diagnosis of appendicitis but because of the laxity of the abdominal muscles, these signs are found less prominent in

gravid patients (Cunningham and McCubbin, 1975). In our series the muscle guarding was present in 26 patients (48.1%).

Incision—The type and location of the incision varies according to the stage of gestation. A muscle splitting incision centered over the maximum tenderness provides excellent exposure and tilting of the patient 30° towards the left (Cunningham and McCubbin, 1975).

Maternal and foetal mortality:

Since the report of Balber (1908) of maternal mortality of 24%, there has been a dramatic decline in the death rate from acute appendicitis during pregnancy in the two large currently reported series. Townsend and Greiss (1976) gave maternal mortality of 0.4% and Babaknia *et al* (1977) gave a mortality of 0.01%. In our series of 54 cases, only one (1.8%) had mortality due to general peritonitis following perforation of the appendix. The decline of the maternal mortality and foetal loss has been attributed to early operative intervention.

Summary:

54 cases of acute appendicitis in pregnancy were studied with a short review of literature. The clinical presentation, diagnosis and treatment were discussed. One maternal loss and 3 foetal loss occurred in our series of 54 cases. Surgical intervention is a must in pregnancy with appendicitis to prevent complications.

Conclusion:

1. The diagnosis of the acute appendicitis occurring during the 1st 6 months of pregnancy can be made with little difficulty. The clinical and laboratory findings are same as those of non-pregnant cases.
2. Delay in the operation is the main cause of foetal and maternal death.
3. Difficulty in diagnosis is more in advanced pregnancy i.e. in 3rd trimester.
4. If appendicitis is suspected in a pregnant woman, immediate operation is indicated.

Acknowledgement:

We are grateful to the Superintendent, Calcutta National Medical College Hospital and the staffs of Nursing Home for allowing us to have the records to publish this paper. We are indebted to the staffs of Biochemistry, Pathology and Radiology for their co-operation. Our thanks are due to our House Surgeons and Nursing staff for their full support and help in treating these patients.

REFERENCES

1. Babaknia, A., Parsa, H. and Woodruff, J. D.: Obstet. Gynecol., 50: 40, 1977.

2. Baer, J. L., Reis, R. A. and Arens, R. A.: JAMA, 98: 1359, 1932.
3. Balber, E. A.: JAMA, 51: 1310, 1908:
4. Brant, H. A.: Obstet. Gynecol., 29: 130, 1967.
5. Burgos, W. F. and Johnston, D. G.: Postgrad. Med., 110: 1968.
6. Cunningham, F. G. and McCubbin, J. H.: Obstet. Gynecol., 45: 415, 1975.
7. Fueth, H.: Quoted by Baer, J,. L.: JAMA, 98: 1359, 1905, 1932.
8. Gomez, A. and Mac Donald Wood: Am. J. Surg., 137: 180, 1979.
9. Hoffman, E. S. and Suzuki, M.: Am. J. Obstet. Gynecol., 67: 1338, 1954.
10. Sarason, E. L. and Bauman, S.: Obstet. Gynecol., 22: 382, 1963.
11. Townsend, J. M. and Greiss, F. C.: South Med. J., 69: 1161, 1976.

THE EFFECT OF ANTENATAL ELECTRONIC FOETAL HEART RATE MONITORING ON PERINATAL MORTALITY—A PRELIMINARY STUDY

By

S. R. Shah,* M.B.B.S.
A. E. Dastur,*** M.D., F.C.P.S., D.G.O., D.F.P.
A. Hussain,** M.D., D.G.O., D.F.P.
F. D. Nazerath,** M.D., D.G.O., D.F.P.
R. Malapur,* M.B.B.S., D.G.O.
P. Wagle,* M.B.B.S.
J. K. Dhurandhar,*** M.D., D.G.O., D.F.P.
V. N. Purandare,**** M.D., F.R.C.S.

Introduction

Few questions are more perplexing in the antepartum management of high risk pregnancy than that of when to intervene for foetal reasons, or whether to intervene at all. During the antepartum period, investigations utilizing, the response of the foetal heart rate to uterine contractions occurring either spontaneously or with oxytocin stimulation have given some indication of utero placental respiratory reserve.

Uterine contractions interfere with and decrease the intervillous space blood flow, and therefore diminish O_2 transfer from the mother to the foetus. The contraction stress test (CST) is now a proven useful test, for the antepartum evaluation of uteroplacental respiratory function. An intravenous oxytocin infusion is begun at a rate of 0.5 mu/min, then doubled every 15-20 minutes until an adequate uterine contraction frequency of 3 to 10 minutes is established. However, the CST is time-consuming, a single test may well last for 3-4 hours, an attractive alternate approach of antepartum foetal heart rate testing is the non-stress test (NST) which seeks foetal cardiac acceleration with foetal movements. Foetal cardiac acceleration of 20 beats per minute, lasting for over 20 seconds with foetal movements reveal a reactive pattern and suggest foetal well-being. Absence of foetal cardiac acceleration as described above reveals a non-reactive pattern suggesting a foetal compromise. This demands a CST for further evaluation.

Material and Methods

Clinical experience employing antepartum foetal heart rate monitoring at the Nowrosjee Wadia Maternity Hospital, Parel began in June 1979. A Corometrics foetal monitor 112 was used at a paper speed of 1 cm/min. Foetal heart rate was recorded externally by an ultrasound

*House Surgeon.
**Registrar.
***Honorary Assistant Obstetrician and Gynaecologist.
Nowrosjee Wadia Maternity Hospital, Parel, Bombay 400 012.

array transducer and uterine/foetal activity by the external tocotransducer.

Patients were referred for testing from the outpatient clinic and the inpatient antepartum ward. Diagnosis included toxaemias of pregnancy, prolonged pregnancy, intra-uterine growth retardation, previous stillbirths and severe anaemia. Testing was generally started at a gestational age of 34 weeks. Non-stress test was tried as the primary approach, the CST being resorted to only when indicated.

A total of 118 patients underwent antenatal foetal heart rate testing. On these 118 patients, non-stress tests were performed. The test proccedure involved observation of the foetal heart rate baseline and its acceleration with foetal movements. The test time ranged from 10-30 minutes, the average being 20 minutes. Only 16 of the 118 patients eventually required a CST.

Results

Table I shows the breakdown of the indications in relation to the results.

TABLE I

	Toxaemia	Post-datism	IUGR	Previous stillbirth	Anaemia
Reactive pattern	38	19	24	12	3
Non-reactive pattern	3	6	10	2	1
—ve CST	2	4	4	1	-
+ve CST	1	1	3	-	-
Unmonitored High Risk patients	186	22	19	7	56

Table II shows the type of delivery performed. It is noted that though the incidence of abdominal delivery was definitely higher in those with the non-reactive pattern and +ve CST the foetal outcome was good. It is in this group that antepartum foetal heart rate monitoring proves to be a real saviour as otherwise many of these would have ended as unexplained foetal deaths.

Table III shows the ultimate result in the form of Apgar score. Inspite of doing caesarean sections liberally for those with non-reacting pattern and +ve CST, Apgar score below 8 was not uncommon.

TABLE II

	Normal vaginal delivery	Forceps	LSCS
Reactive pattern	82	6	8
Non-reactive pattern	11	3	8
—ve CST	6	2	3
+ve CST	1	1	3
Unmonitored High Risk pregnancies	246	28	26

TABLE III

	Apgar score	
	More than 8	Less than 8
Reactive pattern	88	8
Non-reactive pattern	12	10
+ve CST	1	4
—ve CST	8	3
Unmonitored high risk patients	249	51

In the same time period a total of 300 high risk patients were managed, without the benefit of antepartum foetal heart rate monitoring with a perinatal loss of 15 giving the perinatal mortality as 50/1000, whereas in the group with antepartum foetal heart rate monitoring perinatal loss was 1 in 70 patients or 13/1000. The one patient that delivered a stillbirth was a second gravida with history of previous abortion. She presented to us at 30 weeks with a blood pressure of 200/110 mm of Hg and urine loaded with albumin. A non-stress test was performed at 30 weeks, it showed a non-reactive pattern. Postural changes, and complete bed rest, with sedation and antihypertensives were given. There was marked intrauterine growth retardation. At 34 weeks, patient went into spontaneous labour and delivered a stillbirth. This stillbirth was unavoidable due to the toxaemia.

Conclusion

The introduction of the cardiotocometer into an obstetrician's armamentarium has helped to pick up certain unrecognised pregnancy abnormalities, and has enabled to reduce the perinatal mortality considerably. Both the non-stress tests and the contraction stress tests have immense value in the timely prediction of the nature and gravity of foetal jeopardy, and will result in infants of better intellectual potential. This will eventnally help us to a better generation.

Acknowledgement

We thank the Dean, N. W. Maternity Hospital, Bombay, for permitting us to report the hospital data.

ROLL OF ECV IN PREVENTION OF BREECH PRESENTATION AT TERM IN PRIMIGRAVIDA

By

Nirmala H. Ganla, M.B.B.S., D.G.O.
Sudha Nair, M.B.B.S.
Dinoo Dalal, M.D., F.I.C.S.

Introduction

Opinions differ widely on the management of breech presentation in the antenatal period and labour. Potter advocated aggressive obstetrics. He did routine internal podalic version in all cases of vertex presentations and delivered them as breech. Over the years however, breech delivery and its associated higher perinatal mortality and maternal morbidity has been accepted as an undoubted entity. Greig, Moore and Steptoe have proved the role of conservatism in its management. The trend is towards the abandonment of the practice of external cephalic version (Eastman, Potter and White). This decision however is to be determined by the results in terms of infant mortality obtained in a particular institution. Where this is very low e.g. Hay 1.2%, Greig 1.6% and White 1.6% this can be justified, remembering however that in their series all the breech deliveries were conducted by consultants. In less fortunate circumstances, as in the case with average Indian facilities for maternity care, the infant mortality rate varies from 12.5% (Kohiyar Masani) to 15% (Mehta). To reduce this mortality, more and more workers favour a liberal resort to caesarean section. This is not justifiable in our social set up. Majority of the patients attending the general hospitals are illiterate. The poverty, ignorance and lack of awareness of the gravity of a scarred uterus in subsequent pregnancy can land such a patient in dire trouble when she stays behind in her village the next time. The attending obstetrician has to bear in mind that not only is the outcome of the present pregnancy important but that it should not jeopardise her future obstetric carrier.

A regular antenatal check up with conversion of all known cases of breech to vertex with the aim of a subsequent vertex vaginal delivery will go a long way in reducing infant mortality and maternal morbidity. Naturally all complicated cases like prematurity, multiple pregnancy and congenital abnormalities will take their toll, but that is unavoidable.

Material and Methods:

The present study has been done at the Kamar Khanum Municipal Maternity Home, Bombay, and covers a period of two years from January '78 to December '79. All the patients delivering in the hospital were registered cases. External Cephalic Version was done as a rule after 30 weeks of gestation after ruling out any contraindication to the procedure. Patients were observed for spontaneous version. Any complications

K. K. Municipal Hospital, Bombay.

following the procedure were noted. The labour records of the breech presentation were analysed for the outcome of pregnancy.

The number of breech deliveries were 1/3 the number of breech presentations in the antenatal period. Details of the breech deliveries were noted for type of breech, type of delivery, occurrence of complications and perinatal mortality.

Results:

The total number of deliveries were 4107 (Table I). Of these 885 were primigravidas. The overall incidence of breech deliveries was 1.95% and among the primis it was 3.28%. The corrected overall incidence of breech deliveries in this series was 1.1% (Table II).

TABLE I

Incidence of Breech deliveries 1978-1979

	Total	Breech	%
Deliveries	4107	80	1.95
Multiparas	3222	51	1.58
Primiparas	885	29	3.28

TABLE II

Comparison of corrected incidence of breech

(A) After Routine ECV	
Present Series 1980	1.0%
Mehta & Mehta 1961	1.5%
Kohiyar & Masani 1964	2.02%
(B) No ECV	
Kapur & Kaur 1968	3.7%
Rajani & Pathak 1963	3.4%
Moore & Steptoe	2.8%

Mehta and Mehta 1961 and Kohiyar and Masani 1964, in their series after ECV found an incidence of 1.5% and 2.02%. In studies where ECV was not done, the incidence has been found to be 2.8% (Moore and Steptoe 1943) to 3.7% (Kapur and Kaur 1968). Thus ECV reduces the incidence of breech deliveries.

A follow up of the record of 82 breech presentations showed a 35.4% spontaneous version rate. ECV was done in 43.9% cases but 1/3 of these showed reversion and delivered as breech. ECV was not done in 17% cases due to the presence of some contraindication like toxaemia and multiple pregnancy. It failed in 3.7% cases due to extended legs and short stature.

A spontaneous version was seen mainly around 29-30 wks. There was no case after 32 wks. ECV could be done upto 38 wks. The

TABLE III

Co-relation of 82 breech presentations in antenatal period with ECV and type of delivery in primiparas

	Type of Delivery	No. of Cases	%
Spontaneous Version	Vertex	29	35.4
ECV done	Vertex	24	29.3
ECV done	Breech	12	14.6
ECV not done	Breech	14	17.0
ECV failed	Breech	3	3.7
Total		82	

TABLE IV

Co-relation of ECV and spontaneous version with resultant vertex deliveries

Detection of breech weeks	No. of Pts.		Birth		
	ECV done	Spontaneous Version	Live	SB	NND
29-30	7	25	31	1	1
31-32	7	4	11	0	0
33-34	7	0	7	0	0
35-36	2	0	2	0	0
37-38	1	0	1	0	0
Toal t	24	29	52	1	1

Perinatal Mortality 37.7/1000

perinatal mortality in this group of patients who presented as breech in the antenatal period but delivered as vertex was 37.7/1000. There was 1 mascerated still-birth and 1 premature delivery followed by neonatal death, both occurring 5 wks after ECV. We cannot say definitely whether the version caused intrauterine death. There were no other complications.

Table V shows the outcome of pregnancy in the patients who reverted after ECV and were allowed to go into labour as breech per se. There were 2 still births. One was due to cord prolapse and the other due to difficult breech extraction. The corrected PNM was 167/1000. As seen in the previous table, among the 51 cases who had a version and delivered as vertex, the PNM was only 37.7/1000.

(Table VI) 15 were uncomplicated and 14 had one or more complication like multiple pregnancy, prematurity, toxaemia, prolapse of the cord and congenital abnormality. The PNM in these two subroups differed markedly. While in the uncomplicated group it was 133.3/1000, half the babies were lost among the complicated group mainly due to prematurity and multiple pregnancy.

The importance of weight of the baby in breech presentation is welll known. Table VII shows that PNM in relation to the birth weight as calculated among the total hospital deliveries and the primi breech cases.

TABLE V

Co-relation of ECV with breech delivery

Detection of breech	No. of Pts.	Birth		
		Live	SB	NND
29-30	4	4	0	0
31-32	3	3	0	0
33-34	2	1	1	0
35-36	2	1	1	0
37-38	1	1	0	0
Total	12	10	2	0

Perinatal Mortality 167/1000.

TABLE VI

Incidence of uncomplicated/complicated breech deliveries in primiparas and perinatal mortality

		No. of cases	%	Live Birth	SB	NND	PNM
Uncomplicated		15	1.7	13	2	0	133.3
Complicated		14	3.3	12	2	5	500.0
Multiple pregnancy	8						
Prematurity	7						
Toxaemia	2						
Prolapse of cord	2						
Total		29		25	4	5	6

TABLE VII

Co-relation of birth weight with perinatal mortality (Total deliveries)

Birth weight	Total Cases			Breech		
	NO	PND	PNM	NO	PND	PNM
1000	44	44	1000	1	1	1000
1001-1500	78	29	371.8	3	3	1000
1501-2000	325	23	70.8	5	1	200
2001-2500	1285	23	17.9	11	3	272
2501-3000	1780	15	8.4	6	1	166
3001-3500	505	3	1.1	3	0	0
350	90	1	33.6	0	0	0
Total	4107	138	33.6	29	9	310
Corrected PNM			9.5			103

Excluding the prematures and congenitally abnormal babies, the overall PNM was 9.5/1000, whereas it was 103/1000 in the case of primi breech. The overall prematurity rate of the hospital was 11% while the prematurity rate with breech delivery was 24%. This bears out the statement by Mehta and Mehta that breech presentation per se is a cause of prematurity and thereby increasing PNM. Total loss was high in the weight group below 1,500 grams and rose again after 3000 grams. Of the 3 breech deliveries in the 3000-3500 group there was no loss.

An analysis of the type of delivery showed that most of them were assisted. Caesarean section was done in 3 cases. The incidence of caesarean section for primi breech was 10.34% as against 1.12% for the hospital. Ian Donald (1975) has an incidence of 50%. Other authors too show this high incidence.

TABLE VIII

Type of delivery in primi breech

	Uncomplicated	Complicated
Spontaneous	3	1
Assisted	5	7
Extraction	5	5
Caesarian Section	2	1

Summary:

(1) 4107 delieveries over a two years period have been analysed.

(2) The incidence of primi breech presentations in the antentatal period was 9.3%. Routine ECV reduced the number of breech deliveries to 1/3 the number (3.28%).

(3) The corrected PNM for primi breech delivery was 103/1000 as against 9.5/1000 for the hospital.

(4) The caesarean section rate was only 10.34%.

Conclusion:

The study shows that External Cephalic Vesion has a definite role to play in reducing the number of breech presentations at term, thereby reducing the perinatal mortality.

REFERENCES

1. Donald Ian: Practical Obst. Problems pg. 393, 1978.
2. Eastman, N. J.: Obst. & Gyn. Survey, 13: 646, 1598.
3. Hay, D. J.: Obst. & Gyn. Brit. Empire, 76: 529, 1959.
4. Kapur, B. L. and Kaur: Obst. & Gyn. India, 19: 52, 1969.
5. Kohiyar Masani: J. Obst. & Gyn. India, 19: 52, 1969.
5. Kohiyar Masani: J. Obst. & Gyn. India, 14: 19, 1964.
6. Mehta, A. L. and Mehta, C. L.: J. Obst. Gyn. India, 12: 95, 1961.
7. Moore, W. T. and Steptoe, P. P. Sth. Med. J. 36: 295, 1943.
8. Potter, M. G., Hearton, E., Douglas, G. W.: Obst. Gyn. 15: 2, 158, 1960.
9. Rajani, C. K. and Pathak, L. V.: 63. J. Obst. & Gyn. India, 14: 53, 1964.
10. White, A. J.: J. Obst. & Gyn. Brit. Eng. 63: 706, 1956.

18TH MWIA CONGRESS—MANILLA 1982

Topic: Humane Management in Medicine

18th MWIA Congress will be held at Manilla from 21-11-82 to 27-11-82. Those members who wish to present papers should contact our National Corresponding Secretary for the registration forms and submit the abstract of the paper (not exceeding 150 words) by 31st March 1981.

Dr. Mrs. Juliet M. DeSa Souza, M.D., F.R.C.S.
National Corresponding Secretary,
DeSa's Hospital,
Chowpatty,
BOMBAY-400 007.