

CURRICULUM AND SYLLABUS
FOR
TWO YEARS FELLOWSHIP PROGRAMME IN GYNAECOLOGIC ONCOLOGY

Offered by

DR. B. BOROOAH CANCER INSTITUTE
GUWAHATI

&

DUTCH SCHOOL OF GYNAECOLOGIC ONCOLOGY & PELVIC SURGERY
NETHERLANDS

Affiliated to

SRIMANTA SANKARDEVA UNIVERSITY OF HEALTH SCIENCES
ASSAM

Name of the specialty : **TWO YEARS FELLOWSHIP PROGRAMME
IN GYNECOLOGIC ONCOLOGY**

Duration : Two Years (24 months)

Number of seats : 2 (two) per batch

Requisite Qualification : MD / DNB in Obstetrics & Gynaecology

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1. Goal

To train an obstetrician & gynaecologist to become a Gynecologic Oncologist.

A *Gynaecologic Oncologist* is a specialist in obstetrics and gynaecology, who has completed a formal two year of fellowship / training programme in gynaecologic oncology and has been assessed as being competent in the comprehensive management of patients with gynaecological cancers i.e. prevention, early detection, diagnosis and therapeutic procedures, research and all effective forms of cancer therapy – curative, palliative, pain relief, and the total care of the patient's gynecological cancer or complications resulting there from.

NEED FOR THE TRAINING PROGRAMME

- a) To improve the knowledge, practice and skills of those specialists treating women with genital malignancy
- b) To promote research into the management of these diseases
- c) To improve the teaching and training about these diseases
- d) To improve the outcome for women with gynaecologic cancer
- e) To ensure that women with gynaecologic cancer receive the highest standards of care
- f) To ensure that women with gynaecologic cancer have access to subspecialist care in the management of their disease
- g) To promote close understanding and a working relationship with other relevant disciplines whose input will contribute to improved survival of the patient with gynaecologic cancer
- h) To promote the concept of review and audit which contribute to good medical practice
- i) To promote and strengthen preventive health care through screening and early detection of genital cancers.

2. Objectives

At the end of the training programme the candidate should:

- i) be able to function as an independent consultant clinician in gynaecologic oncology.
- ii) have an understanding of the aetiology, epidemiology, screening, detection and prevention of gynaecological malignancy.
- iii) acquire the necessary knowledge and skill to perform radical operations on reproductive organs, dissection of inguinal, pelvic, periaortic lymphnodes and the principles of surgery of reconstructive techniques for the restoration of function and of the intestine, urinary and vascular systems, as required in the management of gynaecological cancer and its complications.
- iv) develop skill in the diagnosis and principles of management of disorders of the breast.
- v) Must acquire in the principles of a wide range of investigative procedures – including cystoscopy, sigmoidoscopy, thoracocentesis, abdominal paracentesis and the placement and care of central intravenous lines. A detailed knowledge of relevant ultrasound, CT scan, MRI, PET and other organ imaging techniques including lymphangiography must be developed.
- vi) have a sound knowledge of parenteral nutrition and intensive care management of the perioperative patient.
- vii) develop skills in the management of pain relief and the care of the terminally ill patient.
- viii) be well informed in the methods and techniques of radiation treatment, including brachytherapy, external and radioisotope therapy. The candidate must be capable of participating in the planning of radiation treatment and must acquire an understanding of the principles of radiobiology and radiation physics. The candidate must develop skill in the management of the side effects and complications of radiotherapy.
- ix) acquire an advanced knowledge in the clinical pharmacology of cancer chemotherapy and related treatment modalities. He /she should develop skills in the selection of patients for chemotherapy and the detailed practical use of the different drugs used in the management of Gynaecological malignancies. The candidate should develop skills in the management of toxic side effects and acquire a wide knowledge of the use of these agents, sufficient to administer them in an independent capacity.
- x) develop a high level of skill in the assessment of the effects of treatment and the care of complications. This includes skill in the assessment of the patient after treatment as well as skill in planning long-term management.

- xi) acquire a high level of skill in cancer screening, colposcopy and LLETZ in the management of pre-invasive and micro-invasive lesions of the female genital tract.
- xii) develop a sound knowledge of gross and microscopic pathology and cytology relevant to gynaecological oncology. This knowledge must be sufficient for the candidate to interpret the details of reports concerning the histopathology of gynaecological malignant disease and to use pathological findings, effectively in making decisions regarding treatment and prognosis.
- xiii) Develop skills in the planning, conduct and reporting of research in gynaecological oncology. The candidate in addition, must develop a high level of skill in the interpretation and evaluation of research reports and understand the principles of ethics in research and good clinical practices.
- xiv) Be capable of discipline and remain acquainted with the current literature on relevant aspects of basic, investigative and clinical Gynaecologic Oncology.
- xv) Have an understanding of the psycho-socio-economic-cultural-sexual aspects of Gynaecologic Oncology especially in the Indian context.

3. Posting schedule:

- a) participation in the work of a gynaecologic oncology department for at least 12 months.
During this period, the Institute will explore the possibilities for 4 weeks placement at a reputed cancer centre in the country.
- b) participation in the work of a general surgery / surgical oncology department particularly in the areas of gastrointestinal surgery for at least twelve weeks in three blocks of one month each;
- c) participation in the work of a urology department for at least four weeks;
- d) participation in the work (both outpatient and in-patient) of medical oncology department for at least six weeks;
- e) participation as a member of a team planning radiotherapy and performing radiation treatment for at least six weeks;
- f) participation in the work of the intensive care unit for at least two week;
- g) participation in the work of a histopathology and cytology department for at least eight weeks;
- h) participation in the work of a molecular biology department/laboratory for at least two weeks;

- i) participation in the work of the radio imaging and nuclear medicine departments for at least three weeks;
- j) participation in the work of the department of anaesthesiology for at least **one week**;
- k) participation in the work of the department of palliative medicine pain relief and home care for at least **two weeks**;
- l) participation in community based cancer screening and early detection program for at least **two weeks**

The course should also include as part of the training wherever possible:

- i. cadaver dissection for surgical anatomy.
- ii. participation in clinical research trials as investigator

4. Theory topics which should be covered for the Fellowship Programme

4.1 EPIDEMIOLOGY AND AETIOLOGY OF GYNECOLOGICAL CANCERS

The candidate should be able to explain the relationship between each of the following factors and carcinogenesis.

- (a) Virus: Relationship of herpes, papilloma, retrovirus, other viruses and malignancy.
- (b) Hormones
 - i. Hormones and genital tract malignancy
 - ii. Exogenous and endogenous oestrogens.
 - iii. Antenatal estrogens and genital tract malignancy
 - iv. Hormone replacement therapy and malignancy
 - v. Polycystic Ovarian Disease / Endometriosis and malignancy
 - vi. Medication for infertility and malignancy
- (c) Radiation induced malignancies
- (d) Chemotherapeutic Agents
 - i. Risk of myeloproliferative disorders, including leukemia after exposure to chemotherapeutic agents
 - ii. Risks to the foetus of maternal chemotherapy
 - iii. Risks to medical, nursing and ancillary staff handling chemotherapeutic drugs.
- (e) Environmental Factors including tobacco
- (f) Familial patterns in malignancies e.g. breast, endometrium, ovary and colon.

4.2 SURGICAL ANATOMY

The candidate should be able to describe

- (a) The relevant anatomy and histology and blood supply & lymphatics to
- Vulva and perineum including anus
 - Cervix
 - Uterus
 - Ovary & Fallopian Tube
 - Vagina
 - Omentum
 - Ureter
 - Bladder
 - Urethra
 - Gastrointestinal tract
 - Liver and spleen
 - Diaphragm
 - Thigh and lower limb
 - Diaphragm
 - Spleen
- (b) Neuroanatomy of the pelvis and abdomen
- (c) Retroperitoneal anatomy of abdomen and pelvis (including urinary tract)
- (d) Anatomy of anterior abdominal wall, inguinal and femoral regions.
- (e) Anatomy of distal sites of involvement in genital malignancy e.g., supraclavicular area, mediastinum and upper abdomen including diaphragm
- (f) Embryology and developmental / congenital abnormalities of intra-abdominal organs, neurological, vascular and lymphatic systems

4.3 GENETICS & MOLECULAR BIOLOGY

The candidate should be able to describe

- (a) the chromosome and DNA changes associated with neoplasia
- (b) the nature and extent of chromosome changes in cancer eg.
- i. numerical vs. structural changes
 - ii. specific vs. nonspecific changes
 - iii. inherited vs. acquired changes

- (c) the laboratory and clinical evidence to support genetic role in the development of neoplasia.
 - i. chromosome abnormalities in premalignant conditions
 - ii. chromosome abnormalities and oncogenes.
- (d) the genetic changes known to occur in neoplasms of the genital tract in females.
- (e) molecular genetics
 - a. DNA changes due to carcinogens
 - b. viral transforming genes
 - c. oncogenes and cell transfections
- (f) the role of oncogenes in the development of human cancer.
 - a. properties of oncogenes/proto-oncogenes and their products
 - b. mechanisms of oncogene activation
 - c. specific families of oncogene proteins
 - iv. nuclear oncogene / proto-oncogene proteins
 - v. relationship between growth factors and oncogenes
- (g) the principles of the molecular biology techniques which are used in cancer research e.g. DNA hybridization.

4.4. PREVENTION AND SCREENING OF GYNECOLOGICAL CANCERS

The candidate should be well versed in the concept of prevention, the levels of prevention and early detection and downstaging of malignancy in the Indian situation..

- (a) Discuss the techniques and effects of the cervical screening programmes on incidence, morbidity and mortality rates.
- (b) Frequency of pap smears including economic considerations
- (c) Screening tests alternative to Pap smear
- (d) HPV testing and Vaccination
- (e) Prevention and screening including techniques of other gynaecological and non gynaecologic malignancies including breast and oral cancer.
- (f) Cancer Control and organization of screening programmes
- (g) Screening for hereditary malignancies
- (h) Universal precautions in prevention of infection

4.5 DIAGNOSIS & STAGING OF GYNECOLOGICAL CANCERS

The candidate should be able to obtain a comprehensive medical history in addition to a gynaecological history from patient / families / communities and synthesis the same perform a complete physical examination in addition to a gynaecological examination.

Should be able to select the diagnostic techniques needed to:

- (a) establish the diagnosis.
- (b) evaluate co-existing disease, which may have been important bearing on selection of and response to treatment
- (b) evaluate the response to treatment
- (c) evaluate recurrent disease

Establish the extent of disease. Understand the principles and applications of surgical and clinical staging where applicable. Stage the cancer according to the current FIGO classification for gynaecological organ site tumours and both FIGO and TNM staging for vulvar malignancies.

Should learn about the following techniques

- (a) Colposcopy, cryotherapy and LLETZ
- (b) Cystoscopy
- (c) Proctosigmoidoscopy
- (d) Laparoscopy
- (e) Hysteroscopy
- (f) DJ Stenting

Should have adequate knowledge of Cytology (both exfoliative and fine needle aspiration cytology)

The candidate should be able to describe the indications for the following radiologic diagnostic techniques and their relative value and limitations.

- (a) Standard plain film of heart and lungs, abdomen and skeletal system.
- (b) Computerised tomography
- (c) Lymphangiography
- (d) Angiography (pulmonary, renal and pelvic)
- (e) Intravenous and retrograde urography
- (f) Gastrointestinal and colonic radiography
- (g) Nuclear magnetic resonance imaging
- (h) Positron Emission Scan

The candidate should be able to describe the indications for and current use of radio-isotopic scanning of:

- (a) Liver-spleen
- (b) Bone
- (c) Brain
- (d) Kidneys
- (e) Lungs
- (f) Peripheral vascular system
- (g) Sentinel lymph nodes

The candidate should be able to describe the various types of sonographic examinations, their indications, relative value, limitations and current use, in evaluation of the:

- (a) Liver
- (b) Kidneys
- (c) Intraperitoneal masses
- (d) Retroperitoneal masses
- (e) Peripheral vascular thrombosis

The candidate should be able to describe examination, the indications and interpret the report of mammography

The candidate should be able to explain the basic principles, indications and interpretations of assays for tumour markers:

The candidate should be able to interpret abnormal values in blood chemistry as they pertain to gynaecological malignancy and its therapy in the following areas:

4.6 PATHOLOGY

The candidate should be able to identify, on the basis of direct visual and microscopic evaluation, lesions that are premalignant or malignant and distinguish them from benign disorders. The candidate should understand the genesis of malignant tumours, the biologic behaviour of premalignant and malignant tumours, important characteristics and prognostic features. The candidate should have extensive knowledge of the minutiae of clinicopathological correlation.

The candidate should be able to identify the following conditions correctly by gross and or microscopic evaluation

- (a) Benign conditions of vulva
 - i. Hyperplastic and hypoplastic dystrophy
 - ii. Lichen sclerosis
 - iii. Condyloma accuminata
 - iv. Subclinical papilloma virus infection
 - v. Granular cell myoblastoma

- (b) Vulvar Intraepithelial neoplasia (VIN)
- (c) Invasive carcinoma of vulva of various types
- (d) Benign conditions of vagina
 - i. Endometriosis
 - ii. Adenosis
 - iii. Acuminatum and other forms of wart virus disease
 - iv. Subclinical papilloma infection of vagina
 - v. Vaginal cysts, fibromas and other benign lesions
- (e) Vaginal intraepithelial neoplasia (VAIN)
- (f) Invasive carcinoma of vagina of different types
- (g) Benign conditions of cervix
 - i. Squamous metaplasia
 - ii. Microglandular hyperplasia
 - iii. Condyloma acuminatum or squamous cell papilloma
- (h) Premalignant conditions of cervix (CIN /dysplasia /carcinoma in situ)
- (i) Invasive disease of cervix
 - i. Microinvasive carcinoma
 - ii. Squamous cell carcinoma
 - iii. Adenocarcinoma including clear cell and Adenocarcinoma in situ
 - iv. Adenosquamous carcinoma
 - vi. Other malignant tumours, e.g. Carcinosarcoma, Sarcoma etc.
- (j) Benign cyclical endometrial changes including those of pregnancy
- (k) Hyperplastic endometrium
 - i. Cystic glandular hyperplasia – simple
 - ii. Adenomatous hyperplasia – complex
 - iii. Hyperplasia with "atypia" – atypical
- (l) Carcinoma of endometrium
- (m) Sarcomas of the body of uterus
- (n) Benign lesions of fallopian tubes
 - i. Salpingitis
 - ii. Tuberculous salpingitis with an active epithelial component
 - iii. Salpingitis isthmica nodosa
 - iv. Healed follicular salpingitis
 - v. Ectopic pregnancy

- (o) Adenocarcinoma and carcinosarcoma of fallopian tube
- (p) Normal and non-neoplastic ovarian conditions
- (q) Epithelial tumours of ovary (differentiate between benign and malignant, and tumours of low malignant potential).
- (r) Germ cell & stromal tumours of ovary
- (s) Gestational trophoblastic disease

4.7 PHYSIOLOGY AND PATHOPHYSIOLOGY

The candidate should have sufficient knowledge of normal physiology and pathophysiology to manage appropriately the gynaecologic oncology patients.

The candidate should be able to describe the following:

- (a) Fluid compartments and normal exchange of fluid
- (b) Fluid and Electrolyte Abnormalities
- (c) Respiratory and metabolic acidosis and alkalosis.
- (d) Nutrition support to cancer patients
- (e) Transfusion of blood and its components
- (f) The process of normal haemostasis
- (g) Changes in the process of haemostasis in abnormal coagulation states.
- (h) The normal physiology of pulmonary function and pulmonary function tests
- (i) Ventilatory failure due to acute or chronic pulmonary disease
- (j) Aetiology, diagnosis and treatment of physiologic alterations in major organs induced by hypovolemic shock, cardiogenic shock & septic shock
- (k) Normal renal function including control mechanisms
- (l) The physiology of abnormal renal function
- (m) Normal function of digestive tract including hepatobiliary system & their disorders related to malignancies
- (n) Normal function of Endocrine System & its abnormalities related to malignancies
- (o) Immune system and its relevance in oncology

4.8 MICROBIOLOGY

The candidate should be able to discuss the problem of infection:

- (a) Prevention of infection and Universal Precautions
- (b) Nosocomial infections e.g. VRE and MRSA
- (c) Postoperative infections
- (d) Precautions involved in the collection, preservation and transport of specimens for microbiological testing

4.9 PHARMACOLOGY

The candidate should know the pharmacologic properties of the agents commonly used in gynaecological oncology specially the classification, mode of action, routes of administration, dosages and toxicities of various cytotoxic drugs and immunotherapeutic agents.

4.10 Recent Advances in Gynaecologic Malignancy

4.11 Theory lectures on organ specific cancers

4.12 Different types of incisions

4.13 Class on Surgical instruments

5. Desired skills to be achieved by the candidates:

Patient care: The candidate will have to learn and gain competence in the entire outpatient and inpatient ward procedures of physical examination, assessment and investigations including cervical cytology, colposcopy and perform minor surgical procedures independently. The candidate will learn principles of management of women with gynaecologic cancer which will involve diagnosis, clinical staging, planning management, prevention of complications, follow up, palliative care and pain relief, terminal care etc.

Theory: At the end of the first six months the candidate will be assessed on staging of all the gynaecologic cancers, surgical anatomy including genetics, physiology as applied to gynaecologic oncology, prevention, early detection, management of premalignant and benign lesions of the female genital tract. At the end of the second six months the assessment will be on pathology and cytology, pharmacology and medical oncology, microbiology, biochemistry, including interpretation of laboratory reports as applied to gynaecologic Oncology

Surgical Skill : At the very outset the candidate's surgical skill will be assessed and accordingly surgical responsibility will be allotted. This is because generally the Obstetrics and Gynaecology course is obstetrics oriented. Hence it may be necessary initially to train the candidate to become competent in performing surgery for non malignant conditions independently and assist the consultants in surgery for malignant disease. The candidate should have done satisfactorily at least 20 surgeries for benign conditions independently before being permitted to do surgery for malignant disease with consultants assisting and under their direct supervision.

Research Project: The candidate will choose the research topic within 6 weeks and present the same including aims, objectives, literature review, methodology, proposed method of analysis and data management at the Institutional Ethics Committee and commence work after obtaining clearance. A progress report will be submitted to the head of the department every three months.

6. **Desired clinical & surgical procedures which should be demonstrated to the candidates or the candidates be imparted competencies:**

Procedures to be performed without anaesthesia in the outpatient

Papanicolaou smear of lower genital tract,
Colposcopy of lower genital tract & directed biopsies
Endometrial biopsy
Biopsy of gross malignant lesion of cervix / vagina
Clinical staging of cancer cervix and vagina
Cryotherapy for cervical precancers

Minor Procedures to be performed under local anaesthesia /general anaesthesia

Biopsy - vulva, cervix, vagina, endometrium, lymph nodes
LLETZ of cervix
Dilatation and curettage; fractional curettage
FNAC - lymph nodes, parametrium, metastatic nodules
Paracentesis – Abdominal and pleural
Repair of superficial wound dehiscence
Clinical staging of cancer cervix
Examination under anaesthesia
Conisation of cervix

Major procedures undertaken under regional or general anaesthesia

Hysterectomy both vaginal and abdominal
Repair of pelvic organ prolapse
Radical hysterectomy and retroperitoneal lymphadenectomy for cancer cervix
Surgical staging laparotomy for cancer of the body of the uterus – total hysterectomy with bilateral salpingo-oophorectomy and retroperitoneal lymphadenectomy
Staging laparotomy for cancer ovary – conservative surgery - radical surgery for cancer ovary – debulking surgery – total hysterectomy and removal of tubes and both ovaries, omentectomy, retroperitoneal lymphadenectomy, splenectomy and diaphragmatic stripping
Partial / Complete / Radical vulvectomy and inguinal lymphadenectomy and collaboration with Plastic surgery for reconstruction
Colostomy

The trainee must **independently perform** under direct supervision and assisted by consultants the following procedures in first years:

Sl.	Type of procedure	Total
1	Pap smear	100
2	Colposcopy	100
3	Cervical biopsies	50
4	Fractional Curettage	30
5	Lletz	10
6	Hysterectomy	10
7	Management of Benign ovarian /uterine mass	10
8	Simple vulvectomy	2
10	Clinical staging of cancer cervix	50

7. Theory topics which should be covered for the candidates

7.1 CHEMOTHERAPY OF GYNAECOLOGICAL TUMOURS

- (a) The kinetics of cancer cell growth and the cell growth and the cell cycle
- (b) General principles of action:
- i. Log kill hypothesis
 - ii. Cycle specificity
 - iii. Phase specificity
 - iv. Growth fraction
- (c) Classes of Chemotherapeutic Agents
- i. Alkylating agents
 - ii. Antimetabolites
 - iii. Natural products, including mitotic inhibitors, antibiotics and enzymes
 - iv. Hormones
 - v. Biologic response modifiers e.g. BCG, Interferon etc
 - vi. Other currently used classes
- (d) Mechanisms of Action of cytotoxic drugs
- (e) Pharmacology of Specific Agents
- i. Distribution
 - ii. Biotransformation
 - iii. Excretion
 - iv. Interaction with other drugs
 - v. Interaction with radiotherapy and hyperthermia
 - vi. Mechanism of drug resistance and approaches to reducing tumour resistance to anti-cancer drugs
 - vi. Schedule dependency
 - vii. Rationale for regional therapy e.g., Intraperitoneal therapy, Intra-arterial perfusions

(f) Combination Chemotherapy

- i. The principles of combination chemotherapy
- ii. Drug combinations in current use for gynaecological malignancy

(g) General Guidelines for Clinical Evaluation

- i. Criteria for complete response, partial response, progressive disease, relapse, stable disease and survival duration
- ii. The concept of Phase I, II and III drug trials.
- iii. The criteria or prerequisites for adjuvant chemotherapy.

(h) Toxicity

- i. The effects of chemotherapeutic agents on rapidly proliferating epithelium such as bone marrow, GI tract and hair follicles.
- ii. The major toxic effects of specific chemotherapeutic agents.
- iii. Management of toxicity
 - * Supportive (nutritional, hematinic, prophylactic antibiotics)
 - ** Specific (blood component therapy, specific antagonists)
 - *** Protective environment

(i) Chemotherapy treatment by Organ Site, Histology and Stage

7.2 THERAPEUTIC PRINCIPLES

(a) Pretreatment Evaluation:

The candidate should be able to fully evaluate clinically and order the appropriate tests to assess: -

- i. Major organ system (e.g. cardiac, renal, pulmonary, hepatic)
- ii. Coagulation profile
- iii. Presence of metastatic disease
- iv. The ability of the patient to psychologically cope with the treatment programme and her disease

(b) Preoperative Preparation

- i. The candidate should be able to:
- ii. Prepare the bowel preoperatively
- iii. Select ostomy sites
- iv. Correct fluid, electrolyte, haematological and nutritional deficiencies.
- v. Order pulmonary preparation when indicated
- vi. Fully inform and counsel the patient and family
- vii. Order anticoagulant and prophylactic antibiotics where indicated
- viii. Order antithrombotic measures such as stockings and sequential compression devices and their limitation

(c) Choice of treatment

The candidate should be able to discuss the evaluation and management of patients with the following diseases in addition the candidate should be able to describe the aetiology, pathology, natural history, risk factors, staging and alternatives of treatment of all stages of the disease, and symptoms and signs produced by the malignancy. This should include management of patients of all age group, those who are pregnant and those with recurrent disease.

(d) Management of Per-operative Complications

- i. Transfusion reaction
- ii. Coagulopathies
- iii. Massive pelvic venous haemorrhage
- iv. Trauma to major artery or vein
- iv. Cardiac arrest
- v. Injury to bladder, ureters or bowel
- vi. Transection of obturator nerve

(e) Management of Postoperative Complications

- i. Shock
- ii. Atelectasis and other respiratory problems
- iii. Intra-abdominal bleeding
- iv. Anuria or oliguria
- v. DVT and Pulmonary embolism
- vi. Cardiac problems
- vii. Infections
- viii. Ureterovaginal fistula and ureteric obstruction
- viii. Vesicovaginal fistula
- ix. Bowel fistula
- x. Ileus
- xi. Bowel obstruction
- xii. Jaundice
- xiii. Coagulopathies

7.3 SURGICAL MANAGEMENT OF GYNECOLOGICAL CANCERS

- (a) Primary Therapy
- i. Hysterectomy-
 - Abdominal
 - Vaginal
 - Radical

- ii. Salpingo-oophorectomy
- iii. Radical debulking of ovarian malignancy along with omentectomy
- iv. Pelvic lymphadenectomy
- v. Para-aortic lymphadenectomy
- vi. Partial and total vaginectomy
- vii. Radical vulvectomy
- viii. Skinning, simple and hemivulvectomy and conservative procedure for vulval carcinoma
- ix. Inguinal and femoral lymphadenectomy
- x. Pelvic exenteration (anterior, posterior and total)
- xi. Cryosurgery, LLETZ, diathermy and cone biopsy
- xii. Laproscopic procedures appropriate to gynaecologic oncology

(b) Gastrointestinal Surgery

- i. Resection anastomosis
- ii. Intestinal Bypass surgery
- iii. Ileostomy
- iv. Mucous fistula formation
- v. Fistula repair
- vi. Feeding jejunostomy and gastrostomy
- vii. Ileal conduit
- viii. Colostomy
- ix. Transverse colon conduit
- x. Sigmoid conduit

(c) Urological Surgery

- i. Partial & total cystectomy
- ii. Cystotomy
- iii. Vesicovaginal fistula repair (abdominal and vaginal)
- iv. Ureteroneocystostomy
 - with psoas hitch
 - with bladder flaps
- v. End-to-end ureteric anastomosis
- vi. Uretero-ureterostomy
- vii. Repair of operative injury to ureter
- viii. Partial resection & Reconstruction of urethra
- ix. Repair of urethral fistula

(d) Reconstructive Procedures

- i. Vagina
 - Split thickness skin graft
 - Pedicle grafts
 - Myocutaneous grafts
 - Williams procedure
 - Repair of fistula

- ii. Vulva
 - Rotational flaps
 - Split thickness skin graft
 - Myocutaneous flaps
- iii. Pelvic floor
 - Omental pedicle grafts
 - Hernias and prolapsed

(f) Control of Intraoperative or Postoperative Haemorrhage

7.4 RADIATION THERAPY FOR GYNECOLOGICAL MALIGNANCIES

(a) Radiobiology

- i. Radiation effect on
 - Cell metabolism
 - Chromosomes
 - Cell cycle
 - Cell population
- ii. Intrinsic radiosensitivity
- iii. Modification of cellular radiosensitivity
 - Molecular Oxygen
 - Radio sensitisers
 - Combined radiation chemotherapy effects
- iv. The four R's of radiobiology - Repair, Repopulation, Re-distribution, Re- oxygenation
- v. Basis of fractionation
- vi. Protection from radiation effect
- vii. Relative radio sensitivity among different organs (tissue tolerance)
- viii. Time dose relationship
- ix. Therapeutic ratio
- x. Long-term effects

(b) Radiation Physics

- i. Introductory Radiation Physics
- ii. External Beam Therapy (teletherapy)
 - Teletherapy sources of x-rays, gamma ray or electron beams: linear accelerators, cobalt, orthovoltage and superficial therapy units
 - Endotherapy tube attachments
 - Characteristics of teletherapy beams: energy, SSD, output, percentage depth dose, field size, flatness penumbra. Relationships between these parameters, Isodose charts.
 - Surface build-up (skin sparing) with megavoltage beams.
 - Increased attenuation by and excess dose in bone, and their dependence on beam energy.
 - Modification of beams: wedges, blocks, compensators
 - Basic principles of radiotherapy: tumour volume, target volume, magnitude and homogeneity of tumour dose:
 - Combination of beams: parallel opposed pairs, four field box technique.
 - Standard configurations used in gynaecological treatments.
 - SSD and isocentric techniques, rotation therapy, simulators
 -]The planning process: tumour and normal structure localization: target volume, dose and beam configuration selection; taking of outlines, computation of dose distributions; verification;
 - Dose distribution with endotherapy tubes;
 - Intensity modulated radiotherapy
 - Image guided radiotherapy
 - Particulated therapy (proton therapy)
- iii. Intracavitary and interstitial irradiation (brachytherapy)
 - General forms of the dose distribution required for brachytherapy of Ca Cervix. The Manchester system points A and B.
 - Radium and caesium gynaecological tubes; dose distribution around a single tube.
 - Preloaded uterine tubes and ovoids; require loadings.
 - Packing to reduce the rectal dose; rectal dose measurements.
 - Manual after loading, Fletcher-Suit-Delclos apparatus.
 - Remote after loading, low and high dose rate equipment; caesium, iridium and cobalt sources.

- Fluoroscopic and radiographic verification of insertion geometry; calculation of dose distribution from AP and lateral or tubeshift radiographs.
- Vaginal cylinders, Vaginal implants, Interstitial needles, intraperitoneal radio colloids.
- Special loadings for Ca Corpus uteri -Heyman capsules.
- Combination of brachytherapy and teletherapy treatments.
- Syed – Neblet Template
- Brachytherapy procedures, intracavitary, perineal template, sorbo etc.

iv. Radiation Protection

- Dose equipment, Sv, rem
- Radiation protection philosophy of the ICRP
- Estimation of risk of radiation-induced harm
- Special consideration of the foetus
- Dose equivalent limits for radiation workers, including pregnant and potentially pregnant women. Dose equivalent limits for members of the public.
- Application of ICRP principles to radiation protection of radiotherapy patients.
- Design features of radiotherapy equipment and procedures to prevent malfunctions or errors in dose delivery.
- Dose to foetus of a pregnant radiotherapy patient
- Shielding incorporated in teletherapy sources.
- Leakage radiation limits
- Design of radiotherapy treatment rooms, primary and secondary barriers, mazes, windows, doors, inter locks.
- Sealed sources for brachytherapy; use of time, distance and shielding to minimize staff exposure during handling. The value of manual and remote after loading.
- Care and storage of sealed sources. Record keeping and precautions against loss.
- Leak testing.
- Departmental surveys, area monitoring and personnel monitoring

(c) Clinical Radiotherapy

Place of radiotherapy and treatment planning i.e. (indications, limitations and side effects) in gynaecological malignancy in the following:

- i. Cervix
- ii. Endometrium
- iii. Ovary and Fallopian tube and nodal irradiation
- iv. Vagina and vulva
- v. Complications of radiotherapy – early and late.

7.5 PAIN RELIEF, PALLIATIVE AND TERMINAL CARE

(a) Concept of palliative care

(b) Breaking the news and counseling

(c) Pain relief: -

- i. WHO guidelines for pain relief
- ii. Non-narcotic analgesics
- iii. Narcotic analgesics
- iv. Invasive procedures for pain relief
- v. Non-pharmacological & non-invasive procedures for pain relief

(d) Symptom relief other than pain

(e) Community support roles; - general practitioner; family- religion;

(f) Concept of hospice care.

8. Theory topics which should be covered for the candidates

8.1 PSYCHO-SOCIAL ASPECTS OF ONCOLOGY CARE

- (a) The quality of life issues in gynecological cancers
- (b) Rehabilitation
- (c) The psycho-sexual aspects of Gynaecological Oncology

8.2 BIostatistics AND RESEARCH METHODS

The candidates should be taught about

- (a) Evaluation of research methodology and findings of research reports and scientific articles.
- (b) Planning research studies or clinical investigations, analysis of the data and report the results.
- (c) The basis of quantitative approaches to diagnosis, prognosis and medical decision-making
- (d) Descriptive statistics
- (e) Formulation of testable hypotheses for a clinical investigation
- (f) Select and apply appropriate statistical tests (Chi square, 't' test, Mann-Whitney etc) to clinical data in order to test hypotheses
- (g) Calculate the sensitivity and specificity and predictive values of screening tests or clinical investigations.
- (h) Analyse the relative prognostic importance of separate clinical and pathological variables using the Cox model.
- (i) Use the life table method for reporting results and Compare different life tables
- (j) Writing scientific articles for peer review.

8.3 ETHICS AND GOOD CLINICAL PRACTICE IN RESEARCH

- (a) Understand the principles of ethical practices in research
- (b) ICH-GCP guidelines and ICMR guidelines
- (c) Obtaining Informed consent
- (d) Protection of rights of patients and research participants
- (e) Maintaining privacy of records and information
- (f) Reporting of adverse events and serious adverse events

- 8.7 Please refer to the theory examination (present pattern is 10 short structured questions in each of the four / three papers each paper is of 100 marks) in the specialty and list the topics

Theory Examination should be held at the end of the course consisting of four theory papers each for the duration of three hours and for 100 marks – total of 400 marks. There will be following types of questions in each paper:

- (a) Case based questions
- (b) Short structured questions
- (c) Very short questions

The details of the subjects to be covered in respective papers are as follows. Some degree of overlapping of the subjects is inevitable:

Paper 1

Basic sciences and principles of oncology as applicable to gynaecologic oncology:

Aetiology of Cancer
Pathogenesis of Cancer
Comparative Neoplasia
Experimental Oncology
Tumor Immunology including vaccines
Tumor Biology
Principles of Cytogenetics and Molecular Biology
Host effects of cancer
Cancer Epidemiology
Haematological complications of cancer
Disseminated intravascular coagulation
Development of new drugs
Infections including HIV in patients with cancer
Cancer Detection and Prevention
Diagnostic and intervention radiology as applicable
Principles of Patient Management
Principles of Nuclear Medicine
Experimental design of clinical trials
Principles of Cancer Surgery
Principles of Radiation therapy
Principles of Cancer Chemotherapy
Chemotherapeutic agents
Principles of endocrine therapy
Principles of staging of cancer
International Classification of Disease - Oncology
Cancer Registry
Cancer Control

Paper 2

Clinical Gynaecologic Oncology

Paper 3

Aetiology, Epidemiology, Pathology, Screening, Prevention, Detection, Clinical features, Investigation, Diagnosis, Management, Rehabilitation, Follow-up, Palliation, Pain relief, Terminal care.

Paper 4

Recent advances in gynaecologic oncology and oncology with implications in gynaecologic oncology including innovative therapies.

The theory examination should be followed by clinical and practical examinations in the following format:

Day 1

1. At least three typical cases to be examined and discussed in terms of :

history

physical findings

ability to reach a logical diagnosis

ability to formulate a plan for work up and management of each case

ability to modify management according to the results of various

investigations made available by the examiner

2. Spot diagnosis

Imaging, histopathology slides, instruments, spot cases

Day 2

Clinical ward rounds and viva thereof

Grand Viva - Questions involving gynaecologic oncology syllabus

Viva Voce related to (a) The Research Project (b) The Daily Record log book

9. Recommended Books

- Novak's Gynecology
- Jeffcoate's Principles of Gynaecology
- Dewhurst's Testbook of Obstetrics & Gynaecology For Postgraduates
- Te Linde's Operative gynaecology Editor- John D.Thompson & John A. Rock
- SHAW'S Test book of operative gynae
- Operative Laparoscopy - Richard M. Soderstrom
- Practical Gynaecologic Oncology - Jonathans Berek & Neville F Hacker
- Devita – Cancer : Principles & Practice of Oncology
- Operative Laparoscopy- Richard M. Soderstrom
- Principles & practice of colposcopy - B Shakuntala Baliga
- Ovarian Cancer - F.Sharp,T.Blackett,J.Berek,R.Bast
- Bailey & Love – Short Practice of Surgery
- Cuschieri – Essential Surgical Practice
- The Washington Manual of Oncology - Govindan
- Halprin – Perez and Brady's Principles & Practice of Radiation Oncology.
- Harrison – Textbook of Internal Medicine.
- Laparoscopy for Gynecology and Oncology - Hatch
- Moeller – Pocket Atlas of Sectional Anatomy. (Vol. 1, 2 & 3)
- Perry – The Chemotherapy Source Book.

9.1 Standard Reference books

- Recent Advances in Obstetrics & Gynaecology Editor- Dunlop & Ledger
- Progress in Obstetrics & Gynaecology Editor- John Studd
- Gynaecologic Cancer Surgery - C.Paul Marrow & John P. Curtin
- Mastery of Endoscopic & Laparoscopic Surgery - Nathniel J Soper& others
- Lower Genital Tract Precancer- Colposcopy,Pathology & Treatment - Albert Singer & John M. Monaghan
- Gynaecologic oncology - Principles & practice of Chemotherapy- Gunter Deppe& Vicki V Baker

9.3 Journals (that can be printed or online)

- Brit. J. Ob Gyn
- Brit. J. Surgery
- Brit. J.Cancer
- British Medical Journal International
- Cancer
- Cancer Epidemiol.Biomarkers & Prevention
- Gynecologic Oncology
- Int.J.Gynecological Cancer
- International Journal of Radiation Oncology, Biology & Physics
- J. Surgical Oncology including seminars in surgical oncology
- Medical Oncology
- Palliative Medicine
- The Lancet
- Indian Journal of Cancer
- International Journal of Cancer
- Journal of Pathology
- New England Journal of Medicine
- Seminars in Oncology