Curriculum for

Post-Doctoral Fellowship Course

In

Oncoradiology Diagnostics

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**SRI AUROBINDO UNIVERSITY**

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# FELLOWSHIP IN ONCORADIOLOGY DIAGNOSTICS

**SYLLABUS**

### A sound understanding of the basis of oncological imaging including:

* The embryology, anatomy and pathophysiology of the major tumour-bearing organs.
* The various tumour staging methods used for each major organ
* Lymph node notation and routes of lymph node spread from primary tumours.
* Anatomical routes for the spread of common tumours.
* The pathological processes of malignant disease.
* Local, national and where appropriate, international imaging guidelines.
* Methods of analyzing tumour response.

### General oncological radiology

* Expertise in plain radiographic assessment for staging and follow-up of tumours.
* Knowledge of the indications for referral for cross-sectional imaging based on the plain film findings.
* Expertise in recommending the most appropriate investigation.

### CT

* Detailed knowledge of tumour types appropriate for CT staging and follow-up
* Detailed knowledge of the appropriate techniques for the examination and the assessment of different common cancers.
* Knowledge of patterns of disease spread for common tumour types on CT which will lead to greater diagnostic accuracy and more appropriately tailored examinations.
* Knowledge of the advantages of new developments in CT such as multi-helical techniques in cancer management, eg. three-dimensional imaging, multi-planar reformatting.
* Expertise in biopsy techniques with a particular relevance to cancer, such as retroperitoneal biopsy and pelvic side wall biopsy using PIGA CT.
* Knowledge of requirements for CT planning in radiotherapy and the importance of diagnostic input.

### Magnetic Resonance Imaging (3T MRI)

* Knowledge of the indications for MRI for staging, follow-up and reassessment of patients at the time of suspected relapse.
* Knowledge of basic MRI techniques, findings and pitfalls in diagnosis in those cancers frequently reffered for imaging , eg. Pelvic cancers, head and neck cancer.
* MR USG fusion technology for Brain Tumours and other malignancy..
* Knowledge of the advances in MRI which are relevant to the diagnosis and treatment of

cancer patients.

* Knowledge of imaging in **Functional MRI and diffusion tensor imaging with tractography.**

### US

* Knowledge of the indications for US examinations in cancer patients and the relationship of US to CT / MRI / Nuclear Medicine for lesion detection, eg. liver metastases.
* Knowledge of advances in US imaging and techniques that have an application to cancer.
* **USG elastogragraphy to evaluate malignancy.**

### Nuclear Medicine

* Knowledge of the indications for nuclear medicine techniques as required for staging and expertise in image interpretation, eg. technetium skeletal scintigraphy.
* Understanding of the complementary role of plain radiography, MRI and CT to nuclear medicine in the evaluation of an equivocal diagnosis of metastases.
* Detailed knowledge of indications for functional imaging techniques and expertise in image interpretation, eg. thyroid cancer imaging.
* Knowledge of tumour-specific agents and their application to cancer management, eg. MIBG Scanning.
* Knowledge of advances in nuclear medicine including positron emission tomography (PET/CT PET) & Single photon positron emission tomography (SPECT CT). A basic knowledge of the

technique is required. Knowledge of the current and evolving indications for referral for PET / SPECT.

# BASIC SKILLS REQUIRED

## INTERVENTIONAL TECHNIQUES

### Trainees should acquire experience in the following procedures:

* US – guided biopsy of masses and lymph nodes.
* CT – guided biopsy of masses and lymph nodes.
* Where appropriate and available, MRI-guided biopsy of masses and lymph nodes
* Drainage of collections.

## ONCOLOGY

### Core knowledge

* Knowledge of oncological pathology and clinical practice relevant to clinical radiology.
* Familiarity with tumour staging nomenclature.
* Familiarity with the application of US, radionuclide investigations, CT and MRI, angiography and interventional techniques in oncological staging, and monitoring the response of tumours to therapy.
* Familiarity with the radiological manifestatios of complications which may occur in tumour management.

### Core Skills

* Reporting plain radiographs performed to assess tumours
* Performing and reporting US, CT, MRI and radionuclide investigations in oncological staging and monitoring the response of tumours to therapy.
* Performing image-guided biopsy of masses under US and CT guidance.
* Tumour Ablation Therapy.

**TRAINING SCHEDULE:**

State-of-the-art equipment includes 64-slice CT, 1.5-T MRI, PET/CT, Gamma Imaging, digital radiography, US, Digital Mammography, Perfusion MRI , MR Spectroscopy.

* 64 Slice CT : Three sessions per week
* 1.5T MRI : One or two sessions per week
* Ultrasound : One session per week
* Nuclear Medicine (PET CT & SPECT CT) : Two sessions per week
* Flexible session for simple imaging-guided interventional procedures
* General oncological radiology (reporting / procedures) : one session per week
* Study / meetings : one session per week
* Research / audit : one session per week