



**X-RAY &
IMAGING**

PH: 13 XRAY

X-RAY & IMAGING

**NUCLEAR MEDICINE
CLINICAL INDICATIONS**

SKELETAL

Bone Scan

- Bone Tumors - primary & secondary (*metastases /staging/ restaging*)
- Osteomyelitis
- Metabolic bone disease – *Paget's Disease*
- Occult fracture, Stress fracture, Avascular Necrosis
- Arthritis - *sites of active disease*
- Active arthropathy - *To guide injections*
- Sports Injuries

Sestamibi Wholebody Scan

- Lytic mets - *multiple myeloma, renal, thyroid*

CARDIAC

Gated Heart Pool Scan

- Assess cardiac function
- Left Ventricular Ejection Fraction before and after chemotherapy
- Cardiomyopathy

Myocardial Perfusion Scan (Exercise stress or pharmacologic stress)

- Coronary artery disease and risk stratification
- Preoperative assessment and risk stratification
- Post-revascularisation assessment (*surgical or percutaneous*)
- Significance of lesions detected on CT Coronary Angiography
- Myocardial viability – *assess whether surgery/ revascularisation will provide significant benefit.*

ENDOCRINE

Thyroid Uptake Scan

- Hyperthyroidism – *Graves Disease, Thyroiditis, Toxic adenomas.*
- Enlargement of the thyroid gland (*Goitre*)
- Thyroid nodules

Thyroid Wholebody scan

- Detection of residual thyroid tissue following thyroid resection.

Parathyroid Scan

- Assess for parathyroid adenoma, hyperparathyroidism – *elevated PTH and Ca⁺⁺*

MIBG Scan

- Suspected Pheochromocytoma

Octreotide Scan

- Suspected Carcinoid (*neuroendocrine*) tumours

GASTROINTESTINAL

Gastric Emptying Study

- Diagnose and follow-up gastroparesis
- Rapid gastric emptying / dumping syndrome
- Investigate epigastric discomfort and bloating

Meckel's Scan

- Investigate Meckel's diverticulum

Colonic Transit Study

- Investigate function of the colon – *assess the severity and type of constipation*

Gastrointestinal Bleed / Labelled RBC Scan

- Acute gastrointestinal bleeding

Labelled White Blood Cell Scan

- Inflammatory bowel disease – *Ulcerative colitis and Crohn's disease*

INFECTION / INFLAMMATION

Gallium / Labelled WBC Scan / Leukoscan

- Assess sites of possible Infection & inflammation – *bone, joint (post surgical) and soft tissue*

LIVER / SPLEEN

Liver / Spleen Scan

- Assess size, shape, position and function of liver and spleen

Labelled RBC Scan

- Evaluate liver mass – *diagnose or exclude haemangioma*

Heat Damaged RBC Scan

- Examine the spleen or identify sites of residual splenic tissue (*post trauma or surgery*)

LUNG

V/Q SPECT (Ventilation/Perfusion) scan

- Suspected Pulmonary Embolism

Especially suitable for:

- females < 50 years - *due to lower breast radiation exposure*
- patients with renal impairment
- Patients with prior contrast reaction
- follow-up comparison to previous VQ

LYMPHATICS

Lymphoscintigraphy

- Assess peripheral lymph drainage in patients with lymphoedema
- Identify sentinel node in pre-operative breast cancer or melanoma patients

RENAL / URINARY TRACT

Renogram

- Assess Renal perfusion and relative function
- Assess urinary drainage
- Pelvi-ureteric junction obstruction
- Hypertension where narrowing of the renal arteries is suspected

DMSA Renal Scan

- Assess viable cortical tissue
- Quantify relative renal function
- Indicate presence of Renal scarring

BRAIN / NEUROLOGICAL DISORDERS

Cerebral Perfusion Study:

Detecting and evaluation of cerebral disease including:

- Dementia
- Brain tumour including suspected recurrence
- Stroke