Version Control

This is a controlled document please destroy all previous versions on receipt of a new version.

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For the latest version of these guidelines please see the NEYHCA (Cancer) website
Please press control and click on the link below:

www.hyccn.nhs.uk/NetworkGuidelinesAndPublications/NetworkImagingGroup.htm

Signature Sheet

Agreement of the NEYHCA (Cancer) Urology Imaging Guidelines

These guidelines have been agreed by:

<table>
<thead>
<tr>
<th>Title</th>
<th>Name</th>
<th>Date Agreed</th>
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<tbody>
<tr>
<td>Chair of the Urology CEG</td>
<td>Mr Matt Simms</td>
<td></td>
</tr>
<tr>
<td>Chair of the NEYHCA (Cancer) Imaging Clinical Expert Group</td>
<td>Dr David Salvage</td>
<td></td>
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The Urology CEG have agreed these guidelines
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1. Introduction

These Imaging guidelines are available as a separate document. Please check the NEYHCA Website to ensure you are using the most up to date version.
(Please press control and click on the link below)
www.hyccn.nhs.uk/NetworkGuidelinesAndPublications/NetworkImagingGroup.htm

‘A Guideline is not a rigid constraint upon clinical practice, but a concept of good practice against which the requirements of the individual patient can be considered’. (RCR, 1990)

It therefore remains the responsibility of the practising Clinicians to interpret the application of guidelines, taking into account local service constraints and the needs and wishes of the patients.

This Guidance is based on the recommendations contained in:

It is not intended to be prescriptive nor exhaustive, but a guide towards best practice. Imaging protocols may vary depending on local circumstances, and the quality of the imaging service should be supported by regular audit and by attendance at multidisciplinary meetings.

CT and MRI scans should be performed to the standards within the document - The Royal College of Radiologists – Recommendations for Cross-Sectional Imaging in Cancer Management.

Services should be planned to minimise travelling times whilst maintaining the highest standards of specialist care using local expertise and agreed protocols (Calman Hine report, paragraph 4.1.4) Patients should be scanned locally where there is suitable equipment and expertise.

All clinical trials should be approved at the Urological CEG and if a patient is within a clinical trial which requires a change to the routine performance of the investigation or the scan to be reported against specific criteria it is the responsibility of the clinician leading the trial to discuss and agree the scanning protocols (including frequency, techniques, coverage and reporting) with the appropriate department prior to the trial commencing.
A. Renal Tumours

Suspected renal tumours should be characterised / staged by CT of the kidneys in non contrast, arterial and nephrographic phase imaging. The remainder of the upper abdomen and chest should then be scanned. The pelvis only needs to be included if there are symptoms referable to this, e.g., bone pain.

If the patient has an obvious renal tumour on ultrasound, non contrast and arterial phase scanning are not necessary.

CT arterial phase with 3-D reconstruction can be useful to evaluate the relationship of the tumour to the collecting system of the kidney and the kidney's arterial and venous supply if a partial nephrectomy is being considered e.g. tumours less than 4 cm. MRI is reserved for patients with locally advanced malignancy, possible venous involvement, renal insufficiency or contrast allergy. MRI is also an option for the evaluation of inferior vena cava tumour thrombus.

A bone scan should be considered if there is clinical suspicion of metastatic disease.

18FDG PET-CT is not used for primary renal tumour assessment as 18FDG is excreted in the urine and therefore uptake by tumour may be masked. Furthermore, primary renal cell carcinoma displays wide-ranging uptake of 18FDG from negative through to intense. 18FDG PET-CT can be useful for the demonstration of metastatic disease, particularly for the demonstration of lytic metastatic bone disease and for assessing response of bone metastases to treatment.

Follow Up

CT is the primary imaging modality for follow-up after nephrectomy or when there is evidence of metastatic disease. In patients receiving systemic treatment for metastatic disease, the timing and frequency is determined by chemotherapy schedules and planned surgery. As 30% of recurrent disease occurs in the chest, follow-up should always include imaging of the chest.

For non metastatic disease the frequency of follow up depends on stage and histology at presentation. Data now suggests that no follow-up is needed for T1 N0 M0 tumours.

B. Bladder Cancer and Other Urothelial Tumours

Once a diagnosis of invasive bladder cancer has been established, the imaging modality for formal staging depends on treatment intent.

Muscle Invasive Bladder Cancer

Patients with muscle invasive bladder tumours are currently staged with contrast CT, CT of the chest, abdomen and pelvis (with full bladder).

If the patient is being considered for radical treatment, and there are specific concerns about local staging, MRI of the pelvis could be performed. The patient would require completion CT chest also.

18FDG PET-CT is not useful in the assessment of bladder cancer and other urothelial tumours as the radiotracer is excreted within urine physiologically.
Follow-up

- Initial assessment post radical radiotherapy should include ultrasound of the renal tract, chest X-ray and CT of the pelvis.
- After radical radiotherapy patients will be followed up by regular cystoscopies. If there is evidence of recurrent disease then a full staging CT chest, abdomen and pelvis should be repeated.
- Initial assessment post cystectomy should include ultrasound of the renal tract (to be repeated if renal function deteriorates), and chest X-ray.
- For high risk nodal / pT3 disease consider CT follow up.
- IVU to assess upper tracts should be considered.

Superficial Bladder Tumour

The need for IVU once a superficial bladder tumour has been detected is questionable. Renal tract USS and/or IVU should be considered for high grade tumours (grade 3)

Upper Urinary Tract Tumours

Upper tract transitional cell cancers are suspected to be present following investigation of haematuria. Ureteroscopy and biopsy are usually undertaken to confirm the diagnosis and CT - triple-phase (pre-contrast, post-contrast including liver and delayed) to include the entire urothelial system, is then performed for staging the tumour.

If ureteroscopy has been unsuccessful, CT is appropriate for further assessment.

Follow Up

CT is the primary imaging modality for follow-up after nephroureterectomy or where there is evidence of metastatic disease. In patients receiving systemic treatment for metastatic disease, the timing and frequency of reassessment is usually determined by chemotherapy schedules. For early stage disease treated with primary surgery, there is no clear evidence base for timing and frequency of follow-up, which is often dictated by patient symptoms.

C. Prostate Cancer

Diagnosis

Transrectal ultrasound guided biopsy is indicated in men with an abnormal digital examination or a raised PSA, after assessment and counselling by a Urology department.

Staging

MRI scanning of the prostate is needed in men with histologically confirmed cancer who are being considered for radical treatment. MRI should include high resolution Axial and coronal T2 imaging of the prostate at slice thickness of 3mm or less.

To avoid under- and overestimation of tumour location and extent, MR imaging should be delayed for 6 weeks after prostate biopsy to minimize the affect of haemorrhage. This is particularly important if spectroscopic or diffusion weighted imaging is performed.
Bone scans are not routinely required in men with histologically confirmed prostate cancer when the presenting PSA is less than 10 and the Gleason score 7 or less.

$^{18}$FDG PET-CT does not currently have a role in the staging of primary prostate cancer.

**Follow Up**

- **Patients with non metastatic disease**
  Patients treated by radical prostatectomy or radical radiotherapy require no routine planned radiological follow up. Biochemical failure (serial rising serum PSA levels) may require imaging to determine whether the disease is confined to the pelvis (local) or systemic. MRI is more helpful than CT for assessing the prostate bed following radical prostatectomy.

- **Patients presenting with metastatic disease**
  These patients require follow up bone scans if they develop new sites of bone pain and if further treatment options are to be considered.

- **Patients on “watchful waiting”**
  These will require follow up bone scans if they develop new sites of bone pain and if further treatment options are to be considered.

**D. Testicular**

Following orchidectomy and an established diagnosis of testicular germ cell tumour, all patients should be staged with CT. The primary tumour is not assessed

- Non-seminomatous germ cell tumour  CT chest, abdomen and pelvis.
- Seminoma  CT chest, abdomen and pelvis.
- If a patient presents with more than 20 pulmonary metastases or an HCG level greater than 10,000, brain deposits are sufficiently likely that MRI brain is indicated.
- The trophoblastic subtype of NSGCT is associated with a high incidence of brain deposits.

**Follow Up**

- **NSGCT**  3 monthly CT chest, abdomen and pelvis for 1 year
  - 6 monthly for 2nd year
  - Final CT at end of 3rd year.
- Seminoma  chest X-ray annually
- Rising tumour markers will usually require further imaging:
  
  CT chest, abdomen and pelvis and ultrasound of the remaining testicle.

If no new disease is seen, an MRI of brain for occult disease and $^{18}$FDG PET-CT should be considered.
E. Penile

Staging

- MRI or Contrast CT abdomen and pelvis to include inguinal regions, if there are palpable lymph nodes or histologically proven nodal metastatic disease.

Follow Up

- As directed by supra network in Leeds.
- Physical examination, CT scan, chest radiography and the appropriate intervals between them should be defined by each institution.
- Bone scan and other tests are only recommended in symptomatic patients