GUIDELINES FOR THE MANAGEMENT OF UROLOGICAL CANCER

Bladder Cancer Treatment Guidelines

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Review Date: May 2014
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<td>Appendix 8</td>
<td>Recurrent Muscle- Invasive Tumours</td>
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<td>Appendix 9</td>
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1. INTRODUCTION

This document sets out the guidelines for the management of patients with bladder cancer within the Merseyside and Cheshire Cancer Network (MCCN). It will act as a summary guide for the management of patients based on the available published evidence and should be regarded as a template for best practice. Its scope is to aid all health practitioners involved in the patient from primary care and referral through treatment to follow up. However, as constant modifications are being made, these guidelines should only be used to give an indication of current management. They should not be used to treat patients without checking that changes have not been made. These guidelines have been endorsed by the Merseyside and Cheshire Cancer Network Urology Site Specific Group. They will be reviewed and updated on an annual basis or more frequently as required.

These guidelines should be read in conjunction with:


1.1 What the Guideline Covers

This guideline is primarily concerned with patients with a diagnosis of transitional cell carcinoma (TCC) of the bladder. It will also deal with the less common bladder tumours such as adenocarcinoma and squamous cell carcinoma. Upper tract TCC either of the ureter or renal collecting system will also be covered.

Aspects of the guidelines are designed to offer the best evidence based management plan to optimise the treatment for a patient’s tumour. Clearly a patient’s co-morbidity, life expectancy and previous medical history will be a factor that may alter the treatment options that an individual patient can be offered.

As well as the clinical aspects of patient management this guideline also defines the requirements for efficient communication between primary, secondary and tertiary care and between all these and the patient and their carers. The guideline confirms that all newly diagnosed patients should be discussed at the local MDT and also defines which patients should be referred from the local to the specialist MDT, what information must be available at the time of the specialist MDT discussion and how communications at all levels will be achieved.

One of the commonest presenting symptoms of bladder cancer is haematuria, however other urological and nephrological pathologies can present with this symptom and some patients will be best investigated by the nephrology team.
1.2 Definition of Terms

Carcinoma in situ of the bladder describes a wide range of clinical situations from a small red patch on an otherwise normal looking bladder with a cautiously good prognosis to wide spread changes within the bladder often associated with significant cystitis symptoms, so called malignant cystitis, with a poor prognosis.

This diagnosis is invariably made by the histopathologist and various terms are used for this pathological appearance including pTis and CIS (carcinoma in situ). This guideline will regard these terms as equivalent but the prognosis and therefore management plan will depend on numerous other factors other than just the pathologist reporting the presence of carcinoma in situ.

Many patients will undergo either a diagnostic or surveillance cystoscopy using a flexible cystoscope performed under a local anaesthetic. This procedure offers many advantages by avoiding a general anaesthetic. However some patients may be best managed with a cystoscopy performed under a general anaesthetic, either to allow an EUA or to allow immediate bladder biopsy or tumour resection. Although these guidelines will on occasions specify a flexible cystoscopy the clinician will decide for individual patients whether this is appropriate or whether a GA cystoscopy is preferred.

Local multidisciplinary team meetings (MDT) take place in all 7 Acute Hospital Trusts in MCCN as they are all urology cancer units.

Specialist MDTs are based at the Royal Liverpool and Broadgreen University Hospital NHS Trust and Wirral University Teaching Hospital NHS Foundation Trust. SMDT members are detailed in Appendix 1.

1.3 Background

- Transitional cell carcinoma of the bladder is the fourth commonest cancer in males and 6th commonest in females.
- In England and Wales 11,000 new cases are diagnosed each year. Within the Merseyside and Cheshire Cancer Network there are approximately 440 new cases per year.
- The majority of tumours (70%) are non-invasive but have a risk of recurrence.
- Approximately 25% of these non-invasive tumours have a high risk of progression to invasive disease.
- Patients with superficial disease require surveillance to detect recurrence and treatment strategies to reduce recurrence rates.
- The overall 5 year survival for patients with muscle-invasive disease is 30% and these patients require radical treatment.
2. PRESENTATION/REFERRAL CRITERIA

Most patients will present with visible painless haematuria or microscopic haematuria and should be referred to the local urology department haematuria clinic under the rapid referral 2 week rule. The fast track referral form that has been approved by the PCTs is the preferred method of referral (see Appendix 2).

Patients should be investigated in primary care to exclude an obvious cause such as Urinary Tract Infection (UTI), menses, dietary etc. Once re-tested if haematuria persists, patients should be referred as fast track cases. Patients can be risk stratified according to other factors such as symptomatic lower urinary tract symptoms, smoking history and age.

Patients classified as high risk for bladder cancer include:

- Visible haematuria
- >45yrs with microscopic haematuria
- Microscopic haematuria in the presence of risk factors; smokers, industrial chemical exposure, irritative voiding symptoms.

Patients < 45yrs in the absence of risk factors are considered low risk and do not require urgent fast track referral.

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Fax number for urgent referral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southport and Ormskirk</td>
<td>01695 656819</td>
</tr>
<tr>
<td>Aintree</td>
<td>0151 529 2780</td>
</tr>
<tr>
<td>Royal Liverpool</td>
<td>0151 600 1102</td>
</tr>
<tr>
<td>Whiston</td>
<td>0151 430 1629</td>
</tr>
<tr>
<td>North Cheshire</td>
<td>01925 662372</td>
</tr>
<tr>
<td>Countess of Chester</td>
<td>01244 366013</td>
</tr>
<tr>
<td>Wirral</td>
<td>0151 604 7172</td>
</tr>
</tbody>
</table>

Arrangements are in place for patients to be contacted and offered the earliest date available to be seen in the fast track clinics and are then sent a letter confirming the appointment date and time.

The haematuria clinic investigates patients with microscopic or macroscopic haematuria to exclude urological disease. Haematuria can be broadly classified as nephrological or urological in origin. Urological causes include tumours (transitional cell carcinoma, renal carcinoma and prostate cancer), urinary tract infection, stone disease and bleeding from benign prostate conditions. Less common causes include, urethral caruncle, meatal ulcers, trauma, loin pain haematuria syndrome, familial telangiectasia, arteriovenous malformation, endometriosis, and factitious (added blood). Microscopic haematuria may be detected in the absence of any underlying pathology, e.g. after vigorous exercise.

In some patients there will be no identifiable problem, in these instances patients will be reassured that a significant or sinister lesion has been excluded. If macroscopic haematuria persists or if patients with haematuria develop progressive symptoms they may require reinvestigation.
Patients with haematuria may have an underlying nephrological disease and should be referred to the nephrology unit after appropriate urological investigation.

Any glomerular disease may result in haematuria. Active glomerular nephritis and acute interstitial nephritis are associated with large numbers of usually dysmorphic RBCs and RBC casts. Nephrotic syndrome and progressive glomerular nephritis typically have fewer erythrocytes on microscopy.

Other causes to consider are IgA nephritis, thin membrane disease and hereditary nephritis or Alport’s disease. These cases include patients with:

- haematuria and proteinuria
- elevated creatinine
- elevated age related blood pressure.

2.1 Other Referral Route Guidelines

Most patients will present to the GP or to other disciplines with haematuria. These patients should be referred urgently to the local urology department. If a bladder tumour is detected incidentally following other investigations or gynaecological procedures or the patient presents to another speciality such as colorectal surgery or care of the elderly, the urologist should list that patient urgently for discussion at the next local MDT, and arrange to see them urgently at the next available clinic appointment.

3. INITIAL ASSESSMENT

Investigations for initial assessment are outlined in Table 1
3.1 Investigations for Patients Presenting with Haematuria

Table 1

Direct referral to clinic via GP with either macroscopic or microscopic haematuria. The GP should include the following tests with the referral Hb, U&Es, BP, MSU

Ultrasound/CT Scan/IVU flexible cystoscopy urine cytology. MSSU. Bloods for FBC. U&Es

Patients at risk of bacterial endocarditis should be given antibiotic prophylaxis as per local guidelines. Patients with heart valve replacements to be given antibiotics by nurse practitioner following local policies and procedures

No abnormalities seen in lower tract. Ultrasound normal. No LUTS. Appearance of prostate normal.

Bleeding from prostate (benign)

Consider 5 – alpha reductase inhibitor

Refer to Nurse Practitioner for counselling and information

No abnormalities seen in bladder or on ultrasound. Prostate enlarged. Raised PSA

Refer for TRUSP See prostate cancer guidelines

Suspicious area suggestive of bladder tumour observed.

Direct entry to theatre list – patient given date

Ultrasound/CT scan suggestive of ureteric cacull, ureteric stricture, or hydronephrosis

Arrange CT if not done

Proteinuria 1 creatinine raised BP (beyond age related centiles)

Nephrology referral

Difficulty inserting scope. Poor view. Unusual Appearance of lower urinary tract

Refer to proximal supervisor

Refer to stone team

Letter to GP

Patients at risk of bacterial endocarditis should be given antibiotic prophylaxis as per local guidelines. Patients with heart valve replacements to be given antibiotics by nurse practitioner following local policies and procedures

No abnormalities seen in lower tract. Ultrasound normal. No LUTS. Appearance of prostate normal.

Bleeding from prostate (benign)

Consider 5 – alpha reductase inhibitor

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No abnormalities seen in bladder or on ultrasound. Prostate enlarged. Raised PSA

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Suspicious area suggestive of bladder tumour observed.

Direct entry to theatre list – patient given date

Ultrasound/CT scan suggestive of ureteric cacull, ureteric stricture, or hydronephrosis

Arrange CT if not done

Proteinuria 1 creatinine raised BP (beyond age related centiles)

Nephrology referral

Difficulty inserting scope. Poor view. Unusual Appearance of lower urinary tract

Refer to proximal supervisor

Refer to stone team

Letter to GP
4. ASSESSMENT OF IDENTIFIED BLADDER TUMOURS

4.1 Transurethral resection of bladder tumours (TURBT)

If tumour looks solid at initial flexible cystoscopy arrange MRI prior to TURBT.

TURBT can be carried out under a general or regional anaesthetic although the procedure is helped if the patient is paralysed to aid full examination of the bladder and the EUA at the end of the procedure.

The number and size of the bladder tumours are recorded as part of the operation note. After resection the result of the EUA is also recorded.

The surgeon should resect the exophytic tumour and separate biopsies of the base of the tumour to assess for invasion into the lamina propria and muscularis propria should be taken. If the tumour is too large to be completely excised care should be taken to ensure muscle is included in the specimen to confirm muscle invasion.

Post-operatively, patients with superficial bladder tumours should receive intravesical mitomycin within 24 hours of the surgery. This is contraindicated if the bladder wall has been perforated. For patients with a muscle invasive bladder cancer who are thought to be best suited for radical radiotherapy, the surgeon should resect as much of the exophytic tumour as possible to de-bulk the tumour and improve the effectiveness of radiotherapy. Random biopsies of otherwise normal parts of the bladder, in particular at the bladder neck should be sent separately for histological examination to assess for carcinoma in situ in patients who are thought may be suitable for radical surgery with neobladder reconstruction.

4.2 Histological Examination of Endoscopic Tissue Resection of Bladder Tumour

Pathology specimens should be handled and reported in accordance with the latest version of the ‘Dataset for tumours of the urinary collecting system’, published by the Royal College of Pathologists (current version January 2007). Standards and datasets for the reporting of bladder cancer can be found at www.rcpath.org.uk.

4.3 Urothelial tumour classification

The TNM classification of urinary bladder cancer (2002) can be found in Appendix 3.

4.4 Locally-agreed variations from the RCPPath Guidance Follows:

**TURBT specimen sampling**

Uropathologists in Merseyside and Cheshire have agreed that TURBT specimens should be sampled according to the following protocol rather than as suggested by the RCPPath dataset:

Bladder tumour chippings should be weighed, and specimens weighing 12g or less should be embedded in their entirety. Larger specimens should have a further one blocked sampled for every further 5g of tissue over 12g.
Sampling should concentrate on larger, solid chippings. Further tissue should be examined if this initial sampling does not include muscularis propria, especially if lamina propria invasion has been demonstrated.

Base of tumour specimens and random biopsies will be examined separately.

**Cystectomy specimens**

It is very helpful to the reporting pathologist if the surgeon marks the cut ends of the ureters at the time of surgery, as retraction following fixation makes them difficult to identify in the laboratory.

**Cases requiring SMDT pathology review**

Cases for pathology review should be sent directly to one of the relevant SMDT pathologists. The original slides should be submitted, with a copy of the original report. Any relevant previous slides and reports should also be sent. Receipt of the cases should be confirmed by e-mail or fax-back. (Paraffin blocks should not be sent unless specifically requested by the SMDT pathologist.) The reviewing pathologist should issue a pathology report and send copies both to the lead uropathologist at the referring hospital and to the chair of the relevant SMDT.

5. **SPECIALIST AND LOCAL MULTI-DISCIPLINARY TEAM WORKING**

The Royal Liverpool's specialist multidisciplinary team (SMDT) provides the IOG defined service for bladder cancer cases from the local MDTs for the Northern part of the Merseyside and Cheshire Cancer Network. Local MDTs are at Aintree University Hospital NHS Foundation Trust, Southport and Ormskirk Hospital NHS Trust and St Helen’s and Knowsley NHS Trust.

The Wirral Hospital's SMDT provides a mirror service for the southern part of the network linked to local MDTs at Warrington and Halton Hospitals NHS Foundation Trust and Countess of Chester Hospital NHS Foundation Trust.

The majority of bladder cancer patients discussed in the local MDTs are identified from the pathology reports identified by the local MDT coordinator working closely with the pathology department. It is the responsibility of the clinician to inform the MDT coordinator if a patient with TCC is identified from a non routine referral route.

After each local MDT it is the responsibility of the MDT coordinator to inform the SMDT coordinator of which patients need to be discussed at the SMDT and arrange for the completed form to be transferred for the SMDT meeting.
5.1 Referral to the SMDT

1. It is the responsibility of the local MDT co-ordinators to establish the video link and ensure the IT suite is functional throughout the meeting.
2. Cases should be referred no later than 2.00pm on Wednesday for the following Friday SMDT.
3. Referral should be made to the SMDT co-ordinator by email on a SMDT proforma (Appendix 4).
4. Referral should include: Patient details, diagnosis, stage and grade, brief clinical summary and reason for referral.
5. Patient x-ray file should be sent and loaded onto PACS by the MDT co-ordinator prior to the meeting.
6. Path slides can be sent with referral to SMDT if a second opinion is necessary.

5.2 MDT Documentation of Action Plans and Communication with GP

Patients should be referred using the SMDT proforma (Appendix 4). Patient details and clinical history will be listed with the date of meeting and the reason for discussion. The MDT coordinator is responsible for generating and distributing the MDT list to core and extended team members.

Each listed case will be discussed by the SMDT. The Chair will ensure that an action plan is formulated by consensus agreement and that the action plan is recorded at the meeting. It is the responsibility of the SMDT coordinator to transcribe the action plan to the electronic format and for this to be reviewed by the Chair. The completed proforma will be distributed by the MDT coordinator within 1 working day to the following:

- Electronic copy to core and extended team members
- Faxed copy to GP
- Copy by way of referral to other teams to be placed in the case notes
- Referring clinician

In some complex cases the chairman may also dictate a letter to the referring consultant with a copy to the GP and other relevant clinicians summarising the recommended treatment options. The MDT action plan will include the name of the key worker who will be a core member of the MDT.

If it is intended that the SMDT provides treatment, patients will be contacted by the local CNS to inform them that their case has been discussed and that they will be seen the following week by the appropriate member of the core team. Patients with muscle invasive bladder cancer will be seen by the Surgeon, Oncologist and Clinical Nurse Specialist from the SMDT in appropriate clinics in order to discuss treatment options and receive counselling. Where possible, patients will be seen in a joint clinic. Patients who are referred back to the local MDT for further management will be contacted by the local MDT clinical key worker to inform them of the outcome and arrangements will be made for them to be seen the following week by an appropriate core member of the local MDT.

The MDT action plan, relevant case files and imaging files will be prepared by the relevant local MDT team and forwarded to the clinic. This process will be co-ordinated centrally by the Specialist Nurses.

See also Patient and Carer Information 7.3.
After the SMDT, the MDT coordinators liaise with the clinical nurse specialist (CNS) to ensure all clinical plans are carried out. Details of available trials that have been considered will also be included. Where appropriate the patient is contacted by the CNS to arrange an outpatient clinic appointment.

5.3 The MDT Co-ordinators are:-

<table>
<thead>
<tr>
<th>Hospital</th>
<th>MDT Co-ordinator</th>
<th>Phone Number</th>
</tr>
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<tbody>
<tr>
<td>Whiston</td>
<td>Gill Cauldwell</td>
<td>0151 430 472</td>
</tr>
<tr>
<td>Aintree</td>
<td>Claire Phillips</td>
<td>015 529 8863</td>
</tr>
<tr>
<td>Southport</td>
<td>Heather Steele</td>
<td>01704 704 805</td>
</tr>
<tr>
<td>Royal Liverpool</td>
<td>Claire Richards</td>
<td>0151 600 1564</td>
</tr>
<tr>
<td>Warrington</td>
<td>Dawn Ingham</td>
<td>01925 665179</td>
</tr>
<tr>
<td>Countess of Chester</td>
<td>Karen Beckett</td>
<td>01244 365268</td>
</tr>
<tr>
<td>Wirral</td>
<td>Graeme Totty</td>
<td>0151 678 5111 ext 2213</td>
</tr>
</tbody>
</table>

5.4 The Specialist Urology Nurses are:-

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Clinical Nurse Specialist (CNS)</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whiston</td>
<td>Nerys Williams Nancy Chisholm</td>
<td>0151 430 1898</td>
</tr>
<tr>
<td></td>
<td>Eleri Philips Jackie Williams</td>
<td></td>
</tr>
<tr>
<td>Aintree</td>
<td>Claire Parker Michelle Thomas</td>
<td>0151 529 3484</td>
</tr>
<tr>
<td>Southport</td>
<td>Sheila Coughlan Ann Wearing</td>
<td>01704 704 301</td>
</tr>
<tr>
<td>Royal Liverpool</td>
<td>Clare Teaney Salihu Samas</td>
<td>0151 600 1593</td>
</tr>
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<td></td>
<td>Jackie Thompson</td>
<td>0151 600 1595</td>
</tr>
<tr>
<td>Warrington</td>
<td>Mo Field Jackie Thompson</td>
<td>01925 665208</td>
</tr>
<tr>
<td>Countess of Chester</td>
<td>Karen Hopkins</td>
<td>01244 365 457</td>
</tr>
<tr>
<td>Wirral</td>
<td>Beverley Rogers Gill Riley</td>
<td>604 7477</td>
</tr>
</tbody>
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6. INVESTIGATIONS, STAGING AND TREATMENT GUIDELINES

Classification and treatment for patients with bladder cancer – definitions
S = standard G = guideline

These guidelines must be read in conjunction with the EAU guidelines 2008
National Library of Guidelines Specialist Library

This document assumes that all cases where histology is obtained are discussed initially in the local MDT, if only to agree that they proceed as per this protocol. IOG defined cases are referred to the SMDT.
For patients referred from the local MDT to the SMDT, the following information is required:

- Muscle invasive TCC bladder
- Staging results from the pelvic MR and abdominal/chest CT scan with radiology review where required
- Histology report with pathology review where required
- Assessment regarding fitness for radical treatment including Co-morbidity, Life expectancy
- Bladder symptoms, bladder pathology eg diverticulum, hydronephrosis
- Hip replacements
- Renal function
- Bone biochemistry

**Radiology Guidelines**

Please refer to the Royal College of Radiologists guidelines attached [http://www.rcr.ac.uk/Imaging of Cancer Patients](http://www.rcr.ac.uk/Imaging of Cancer Patients)

Network approved imaging protocols are detailed in **Appendix 9**.

### 6.1 Treatment of new non-muscle invasive tumours – see Figure 2/Appendix 5

At the first resection, as the histology is not available, those patients with clinically superficial bladder tumours receive intravesical MMC following resection.

**pTaG1 or pTaG2 – see Figure 3**

- Single dose of intravesical chemotherapy at initial resection(S) [1,2]
- MDT (S)
- Cystoscopy at three months (S)
- At 3 month cystoscopy, assign to a recurrence risk group (S), as follows.

<table>
<thead>
<tr>
<th>Initial Resection</th>
<th>3 month Cystoscopy</th>
<th>Recurrence risk group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solitary tumour and clear</td>
<td>low risk of recurrence</td>
<td></td>
</tr>
<tr>
<td>Solitary tumour and recurrence or clear</td>
<td>medium risk of recurrence</td>
<td></td>
</tr>
<tr>
<td>Multifocal tumour and clear</td>
<td>medium risk of recurrence</td>
<td></td>
</tr>
<tr>
<td>Multifocal tumour and recurrence</td>
<td>high risk of recurrence</td>
<td></td>
</tr>
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</table>
Figure 2: Treatment algorithm for superficial disease

Key questions for the MDT
Grade (WHO)
Tumour size
pTa/pT1
CIS
New/recurrent
Single/multiple
Previous tumours
Recurrence within 3 months
Previous response to intravesical therapy
Age/co-morbidity/life expectancy
Bladder symptoms

Key discussion points with the patient
Likelihood of recurrence
Likelihood of disease progression
Ability to tolerate general anaesthetic
Treatment side-effects
Impact on quality of life
Occupational exposure
Smoking history

INVESTIGATION OPTIONS

Low Risk
pTa G1/G2 and <3 cm tumour diameter and solitary

Intermediate Risk
pTa G1/G2 and >3 cm tumour diameter or multiple or frequently recurring
pT1 G2 and <3 cm tumour diameter and solitary

High Risk
pT1 G2 and pTa/T1 G3 CIS
>3 cm tumour diameter or multiple or chemoresistant

Cystoscopy
Histopathology

Cystoscopy
Histopathology
Intravenous urography (IVU)
Cytology

Cystoscopy
Histopathology
Cytology
IVU/US
Random biopsies
Biopsy of prostatic urethra
Re-resection
Figure 3: Treatment algorithm for low risk superficial disease

MANAGEMENT OPTIONS

Transurethral resection (TUR) of bladder tumour

Adjuvant intravesical chemotherapy
Single instillation within 6 hours after surgery (at least within 24 hours of surgery)*

"Strong evidence for benefit at first resection, reduction in recurrence suggests possible benefits at subsequent resections, although direct evidence of this is limited"

Low Risk
pTa G1/G2 and <3 cm tumour diameter and solitary

Is this patient suitable for clinical trial?

New

Observation
Follow-up cystoscopy at 3 and 9 months and then annually
Discharge at 5 years if clear

Recurrent

Intermediate risk management options

Ongoing Support
Local patient support network
Role of nurse/GP/healthcare professional team
pT1G1

Rare to be discussed at SMDT

pT1G2 - see Figure 4

- Review of pathology by local MDT lead uropathologist with an option for review by SMDT if required(S)
- 2nd look TURBT may be indicated (G) [4]
- If substantiated, a course of 6 weekly treatments of intravesical chemotherapy (S)
- 1st post-chemo cystoscopy under anaesthesia, then 3 monthly flexis for two years, then six monthly for two years, then annually for life (S)

pTaG3 [5] or pT1G3 – see Figure 5

- Review of pathology by local MDT lead uropathologist with an option for review by SMDT if required(S)
- 2nd look TURBT (G)
- Consider BCG on cystectomy (S), recommend BCG [6], as below (G)
- An induction course of six weekly doses of BCG, with GA cystoscopy and biopsy after 1st course [7] as per local protocol
- If 2nd look worse than pT1G3, treat radically (S)

pTis

- Review of pathology by local MDT lead uropathologist with an option for review by SMDT if required(S)
- Consider BCG and cystectomy (S), recommend BCG (G)
- Induction and maintenance BCG and FU as per pTaG3 (S) [9]
Figure 4: Treatment algorithm for intermediate risk superficial disease

**Management Options**

1. **Transurethral resection (TUR) of bladder tumour**
   - Adjuvant intravesical chemotherapy
     - Single instillation within 6 hours after surgery (at least within 24 hours of surgery)*

   *Strong evidence for benefit at first resection, reduction in recurrence suggests possible benefits at subsequent resections, although direct evidence of this is limited.

2. **Intermediate Risk**
   - pTa G1/G2 and >3 cm tumour diameter or multiple or frequently recurring
   - pT1 G2 and <3 cm tumour diameter and solitary

   Consider re-resection if incomplete TUR or no muscle in specimen (re-resection may identify invasive tumour and radical treatment options should be considered)

3. **Consider intravesical chemotherapy**
   - Regular cystoscopic follow-up
   - Fail intravesical chemotherapy
     - High risk management options

**Ongoing Support**
- Local patient support network
- Role of nurse/GP/healthcare professional team
Figure 5: Treatment algorithm for high risk superficial disease

MANAGEMENT OPTIONS

Transurethral resection (TUR) of bladder tumour

Adjuvant intravesical chemotherapy
Single instillation within 6 hours after surgery (at least within 24 hours of surgery)*

High Risk
pT1 G2 and
>3 cm tumour diameter or
multiple or chemoresistant

pTa/pT1 G3
CIS

Consider early re-resection if grade 3, if incomplete TUR or no muscle in specimen

Bacillus Calmette-Guerin (BCG)

Induction BCG (6 + 3 instillations)

Recurrence
G3 or T1
CIS

Consider cystectomy
Consider novel therapies

Maintenance BCG
Ta G1
Ta G2

Observation
Regular follow-up cystoscopy

Endoscopic follow-up

Ongoing Support
Local patient support network
Role of nurse/GP/healthcare professional team
6.2 Recurrent Non-muscle Invasive Tumours – see Appendix 6

Initial pTaG1 or pTaG2 Disease

- For single recurrence resect/biopsy & diathermy single post operative dose of intravesical chemo, and flexi in three months
- Large or multifocal or high recurrent intravesical chemo, six week course then flexi at three months. Consider BCG if failed chemotherapy.
- If failed BCG consider radical therapy

For Other Patients Treated with BCG (pTaG3, pT1G2/3 or Cis)

- If recurrence, recommend radical treatment [10]

6.3 Muscle-invasive Tumours – see Appendix 7

- If a new tumour looks solid at initial flexible cystoscopy, arrange urgent MRI before
- TURBT (G) [11] if suitable for radiotherapy, some patients for cystectomy may only require deep loop biopsy before surgery.
- TUR biopsy of prostatic urethra (men) or bladder neck (women) (S)
- Document bimanual examination of clinical stage
- Review of pathology by local MDT lead uropathologist with an option for review by SMDT if required (S)
- Consider 2nd look TURBT (S):
  - Debulking, if RT likely (G)
  - Biopsy prostatic urethra (men)/bladder neck (women) if not done beforehand (G)
- MRI pelvis & CT scan abdomen, if not done already (S)
- Chest X-ray, alkaline phosphatase (bone scan if elevated alkaline phosphatase or otherwise indicated) (S)

Discuss cases at SMDT

- Consider cystectomy or radical radiotherapy (S) [12, 13]
- High risk disease (vascular invasion, pN+, positive margins)
- MDT (S)
- Consider neo-adjuvant chemotherapy (S)

The choice of primary treatment for muscle invasive bladder cancer should be taken after the patient has been fully counselled on short and long term risks of both surgery and radiotherapy. Performance status, co-morbidity and tumour stage may all affect treatment choice.

6.4 Pathologies other than Transitional Carcinoma of the Bladder:

Squamous cell carcinoma of the bladder
This is staged and managed in the same way as TCC bladder but radiotherapy is ineffective and therefore the treatment of choice is radical cystectomy.

Adenocarcinoma of the bladder
This is staged and managed in the same way as TCC bladder but radiotherapy is ineffective and therefore the treatment of choice is surgical excision. If the tumour is within a urachal remnant surgical options include partial cystectomy with the en bloc removal of the urachal remnant and the umbilicus.
Transitional cell carcinoma of the ureter or renal collecting system.
This type of tumour is often diagnosed by a combination of urine cytology, a normal cystoscopy and an abnormality identified on upper track imaging.

Staging is by CT scanning. Radiotherapy is largely ineffective in the curative treatment of this type of tumour and therefore surgical excision, usually nephro-ureterectomy is the treatment of choice.

Consider the POUT trial (Peri-Operative chemotherapy versus sUrveillance in completely resected upper Tract TCC).

Sarcoma of the bladder.
This is staged in the same way as TCC bladder. Where possible the only curative treatment option is surgical excision.

Transitional cell carcinoma of the urethra.
In the female this is staged as for TCC bladder but curative treatment is invariably by surgical excision.

In male patients this is more commonly associated with TCC bladder and is staged as for TCC bladder. Surgery is invariably the only curative treatment option.

6.5 Curative Treatment Options

6.5.1 Cystectomy

Discuss the following (S):
- Neo-adjuvant chemotherapy
- Role of lymphadenectomy [15]
- Nerve sparing in young males [16]
- Diversion/reconstruction options (all that are possible for the patient in question) [17]:
  - Conduit [18,19]
  - Bladder substitute [20, 21]
  - Catheterisable reservoir [22, 23]
- Hospital course
- Peri-operative mortality and complications (early & late, specific & general) [25-27]
- Need for life-long oncological and functional follow-up [28-30]
- Meeting with Nurse Specialist to discuss peri-operative course and issues around diversion/reconstruction (S)
- Offer meeting with patient who has had intended diversion/reconstruction (S)
- Check PSA, B12 & folic acid (S)
- Check GFR (G)
6.52 Radiotherapy

Radical RT
- Fit patients (PS 0-1) with muscle invasive disease – ideally those with no ureteric obstruction with small tumours away from trigone
- Younger fitter patients with limited lymphadenopathy (but no metastases) can be offered radical radiotherapy if good response to neoadjuvant chemotherapy
- Preference over radical surgery:
  - Concomitant disease increasing the risks of surgery – eg cardiovascular disease
  - Inability to manage a stoma
Discuss the following with the patient (S):
- Lack of evidence to favour RT over cystectomy.
- Level of current LUTS
- Treatment course
- Complications (early & late )
- Need for life-long follow-up with check cystoscopy

Planning
- CT planning
- 64 Gy in one phase in 32 fractions over 6.5 weeks. They are category 1 patients so require treatment twice a day (with 6hr gap) prior to long weekend breaks or service days
- Alternative fractionations include:
  - 55 Gy in 20 fractions
  - 30 Gy in 6 fractions over 6 weeks (1 x week )

Palliative RT
- Palliative radiotherapy is to control symptoms, particularly pelvic pain (not cystitis) and haematuria in the following circumstances:
- Frail patients
- Metastatic disease
- Fractionation used is at the discretion of the clinical oncologist:
  - 30 Gy in 6 fractions over 2 weeks
  - 8 Gy single fraction

6.53 Chemotherapy

Neo adjuvant
- Gem / CIS (Gemcitabine and Cisplatin) or Gem/Carbo (Gemcitbine and Carboplatin) now current choice for network for patients PS 0-1 with normal renal function
- Concurrent Cisplatin (40mg/m²) weekly if patient PS 0-1 with normal renal function
- For mild renal impairment consider Carboplatin
- Palliative chemotherapy in young patients may be considered

6.54 Recurrent Muscle-Invasive Tumours (Appendix 8)
7. FOLLOW UP AFTER RADICAL TREATMENT

7.1 Invasive Bladder Cancer Treated by Surgery

- Cystectomy, ileal conduit or neobladder
- Patients will be reviewed at the cancer centre initially extending to shared care between the cancer centre and the referring local MDT.
- A six week post surgery visit will be arranged to exclude complications of surgery, assess recovery and inform patients of outcome and diagnosis. (S)
- Patients will have a physical examination including an assessment of the ileal conduit or diversion, serum haemoglobin and creatinine will be performed as well as acid base estimation in patients with bladder reconstruction. (S)
- For all patients either a conduitogram or an CTU should be arranged at six weeks. (S)
- All cystectomy patients should be seen 3 monthly in the first 2 years, then 6 monthly alternating after the first year with the local MDT as requested. (G)
- Patients should be seen by a specialist nurse practitioner in stoma and reconstruction. (G)

7.2 Invasive Bladder Cancer Treated by Radiotherapy

- 6 weeks Oncology review (S)
- 1st post-RT cystoscopy(GA) at 3 months (S)
- If clear, CT and flexible cystoscopy at 6 months (G)
- If clear at 6 months, flexible cystoscopy three monthly for 18 months, with CT at 1 year post RT (G)
- If clear, flexible cystoscopy six monthly for 4 years, then annually for life (G)
- If residual/recurrent tumour, restage with a low threshold for salvage cystectomy especially for high grade tumour & MDT (S)
- If CT shows nodes, then consider chemotherapy/palliative radiotherapy & MDT (S)

8. PATIENT AND CARER INFORMATION

Patients will be contacted by the local MDT key worker to inform them that their case has been discussed at the SMDT and that they will be seen the following week by the appropriate member of the core team. This process will be co-ordinated centrally by the Specialist Nurses.

The Uro-Oncology team will discuss the diagnosis, MDT action plan and care pathway with patients and carers. Patients/carers will receive relevant written information about their diagnosis and treatment plan. Patients with visual and hearing impairment will be offered aids to understand the patient information.

Interpreter services are available for patients via the patient advisory liaison office. Patients will be asked if they wish to receive a copy of the permanent consultation record which outlines the information that they have been given. It includes the diagnosis and the treatment plan agreed by the patient at the meeting with the urologist. Patients should be seen by a specialist nurse practitioner in stoma and reconstruction as appropriate. Many aspects of palliative care are also applicable earlier in the course of the illness in conjunction with anti-cancer or other treatment. (Please refer to the Palliative Care section)
All patients will be offered clear and comprehensive information in a format which is suitable to their needs and stage of treatment in the cancer journey, this should include:

- Nature of the disease
- Diagnostic procedures being undertaken
- Treatment options available
- Likely outcomes of treatment in terms of benefits, risks and side effects
- Management of side effects of treatment, and who would be most appropriate to contact for advice
- Details of future appointments/contacts
- Contact details of clinical nurse specialist/key worker for urological cancers
- Contact details of clinical nurse specialist for other individual issues (stoma care/continence advice/sexual issues/body image issues) as appropriate
- Cancer information services such as Cancer BACKUP
- Where appropriate patients should receive a copy of any medical/clinical communications e.g. from surgeon/GP
- Details of MDT
- The role and responsibilities of their CNS

Hard copies of the information, available within the Merseyside and Cheshire Cancer Network for patients with urological cancer and their carers, can be obtained from the clinical nurse. This information will meet agreed MCCN / National Patient Information Guidelines, as per mapping

Access will be made available for all patients/carers to a named nurse whose specialist knowledge is in urological cancers

As the concept of the information prescription is introduced, urology patients will be included in the process.

Patient satisfaction surveys will be carried out annually and results acted upon.

9. **PALLIATIVE CARE**

Palliative Care is defined by the World Health Organisation (WHO 2002) as:

“...the active holistic care of patients with advanced progressive illness. Management of pain and other symptoms and provision of psychological, social and spiritual support is paramount. The goal of palliative care is achievement of the best quality of life for patients and their families. Many aspects of palliative care are also applicable earlier in the course of the illness in conjunction with other treatments”

Many patients with advanced incurable bladder cancer will not require referral to specialist palliative care, but will find that their supportive care can be managed by their GP and district nursing team. Patients felt to be in the last 6 – 12 months of life should be included on the GP practice’s Supportive Care Register (also known as a GSF register). This will ensure that the needs of both the patient and their carers are regularly assessed and will promote discussions about Advance Care Planning. An Holistic Needs Assessment should be undertaken to identify the patient’s needs and ensure the care plan meets those needs.
Patients with the following problems may benefit from referral to specialist palliative care services:

- Pain or other symptoms which are difficult to control
- Complex psychological or spiritual issues
- Complex family dynamics including the presence of young children in need of support
- Advice required for complex placement issues

**Accessing Specialist Palliative Care Advice**

Specialist Palliative Care Advice is available in each locality from the community and hospital specialist teams, and also from the local Specialist Inpatient Unit. Many inpatient units are able to give 24 hour telephone advice to healthcare professionals.

**Useful resources**

For patients - Macmillan support line: 0808 808 0000

**10. DATA COLLECTION**

All newly presenting patients with a urological cancer are registered on BAUS. The minimum data set should be collected via the Somerset Cancer Register.

A complex operation data set should be completed for patients who have had:

- Cystectomy
- Nephroureterectomy
References


Appendix 1 - SMDT contacts

RLUH
Mr Philip A Cornford
Chair of SMDT
Phone: 0151 706 3631
Fax: 0151 706 5310
E-Mail: Philip.Cornford@rlbuht.nhs.uk
Dr Vijay Aachi
Lead Histopathologist
Phone: 0151 706 4484
Fax: 0151 706 5883
E-Mail: Vijay.aachi@rlbuht.nhs.uk

Dr Jane Belfield
Lead Imaging/Radiologist
Phone: 0151 706 2917
E-mail: Jane.Belfield@rlbuht.nhs.uk
Mr Claire Richards
MDT Co-ordinator
Phone: 0151 600 1564
Email: Claire.Richards@rlbuht.nhs.uk

Arrowe Park
Mr Nigel Parr
Chair of SMDT
Phone: 0151678 5111 ext 2233 (sec)
Fax: 0151
E-Mail: Nigel.Parr@whnt.nhs.uk
Dr Ranjula Seneviratne
Lead Histopathologist
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Fax: 0151
E-mail: Hani.zakhour@whnt.nhs.uk

Dr David Hughes
Lead Imaging/Radiologist
Phone:0151 678 5111 ext 8137
E-mail: david.hughes@whnt.nhs.uk
Mr Graeme Totty
MDT Co-ordinator
Phone: 0151 678 5111 ext 2213
Email: graeme.totty@whnt.nhs.uk
## Appendix 2 – Referral Form

**SUSPECTED UROLOGICAL CANCER – REFERRAL FORM**

To make an **URGENT REFERRAL**, Fax / E-mail to:  
TelephoneNumber Contact No.:

<table>
<thead>
<tr>
<th>Referring GP</th>
<th>GP Code:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Registered GP</strong></td>
<td></td>
</tr>
<tr>
<td><strong>GP Address &amp; postcode</strong></td>
<td></td>
</tr>
<tr>
<td><strong>GP Tel. No.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>GP Fax. No.</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date seen by GP:</th>
<th>Decision to refer date:</th>
</tr>
</thead>
</table>

## PATIENT DETAILS

<table>
<thead>
<tr>
<th>Title &amp; Surname</th>
<th>Forename(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D.O.B.</strong></td>
<td><strong>AGE:</strong> Gender: Male ☐ Female ☐</td>
</tr>
<tr>
<td><strong>Address</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Postcode</strong></td>
<td>**Tel. No. (day)</td>
</tr>
<tr>
<td>*Tel. No. (evening)</td>
<td>NHS No.</td>
</tr>
</tbody>
</table>

* N.B. It is essential that you provide a current contact telephone number for the patient so that the Trust can contact the patient within 24-hours to arrange a convenient appointment.

### CULTURAL, MOBILITY, IMPAIRMENT ISSUES

<table>
<thead>
<tr>
<th>What is the patient’s preferred first language?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the patient require Translation or Interpretation Services?</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td>Please list any hearing or visual impairments requiring specialist help (Sign language, Braille, Loop Induction systems)</td>
<td></td>
</tr>
<tr>
<td>Is Disabled Access Required?</td>
<td>YES ☐ NO ☐</td>
</tr>
<tr>
<td>Is transport required?</td>
<td>YES ☐ NO ☐</td>
</tr>
</tbody>
</table>

| Ethnic Origin: | Religion: | |
|-----------------|-----------|
| Is the patient from overseas? | YES ☐ NO ☐ |
| Is the patient a temporary visitor? | YES ☐ NO ☐ |

### REFERRAL INFORMATION (referral guidelines are provided below / attached to proforma)

#### PROSTATE

<table>
<thead>
<tr>
<th>PSA Value</th>
<th>Hard irregular prostate on DRE</th>
<th>symptoms (including symptoms of metastases) and raised PSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>………ng/ml</td>
<td>Raised age-related PSA</td>
<td></td>
</tr>
</tbody>
</table>

Age related cut-off measurements: 50-59 >3.0ng/ml; 60-69 >4.0ng/ml; 70-80 >5.0ng/ml. Elderly patients or those with significant co-morbidity do not require urgent referral for mildly elevated PSA in the absence of symptoms. Exclude urinary infection before PSA testing.
<table>
<thead>
<tr>
<th><strong>BLADDER &amp; RENAL</strong></th>
<th><strong>TESTICULAR</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Painless visible haematuria (any age)</td>
<td>Swelling or mass in the body of the testis.</td>
</tr>
<tr>
<td>Unexplained microscopic haematuria (50+ years)</td>
<td>Attach Ultrasound Report, if completed.</td>
</tr>
<tr>
<td>Haematuria associated with recurrent/persistent UTI (40+ years)</td>
<td></td>
</tr>
<tr>
<td>Palpable renal mass or solid renal mass on U/S scan</td>
<td></td>
</tr>
<tr>
<td>Attach copies of all completed investigations i.e. MSU, U&amp;E’s, U/S</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PENILE</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ulceration/mass in the glans or prepuce.</td>
<td></td>
</tr>
</tbody>
</table>

Any additional information

Is the patient aware of the reason & urgency for referral & aware that they will be seen within 2 weeks? YES ☐ NO ☐

**Referral Criteria: NICE – Clinical Guideline 27 (issued June, 2005)**

**Urgent referral** = the patient is seen within the national target for urgent referrals = currently 2 weeks

**PROSTATE:** Refer urgently patients:
- With a hard, irregular prostate typical of a prostate carcinoma. Prostate-specific antigen (PSA) should be measured and the result should accompany the referral. (An urgent referral is not needed if the prostate is simply enlarged and the PSA is in the age-specific reference range1, see below)
- With a normal prostate, but rising/raised age-specific PSA, with or without lower urinary tract symptoms. (In patients compromised by other co-morbidities, a discussion with the patient or carers and/or a specialist may be more appropriate.)
- With symptoms and high PSA levels.

**BLADDER & RENAL:** Refer urgently patients:
- Of any age with painless macroscopic haematuria
- Aged 40 years and older who present with recurrent or persistent urinary tract infection associated with haematuria
- Aged 50 years and older who are found to have unexplained microscopic haematuria
- With an abdominal mass identified clinically or on imaging that is thought to arise from the urinary tract

**TESTICULAR:**
- Refer urgently patients with a swelling or mass in the body of the testis.

**PENILE:**
- Refer urgently patients with symptoms or signs of penile cancer. These include progressive ulceration or a mass in the glans or prepuce particularly, but can involve the skin of the penile shaft. (Lumps within the corpora cavernosa can indicate Peyronie’s disease, which does not require urgent referral.)

---

1The age specific cut-off PSA measurements recommended by the Prostate Cancer Risk Management Programme are as follows:
- Aged 50-59 ≥ 3.0 ng/ml
- Aged 60-69 ≥ 4.0 ng/ml
- Aged 70 and over ≥ 5.0 ng/ml.

Note that there are no age-specific reference ranges for men over 80 years. Nearly all men of this age have at least a focus of cancer in the prostate. Prostate cancer only needs to be diagnosed in this age group if it is likely to need palliative treatment.
Non-urgent referral
- Refer non-urgently patients **under 50 years of age** with **microscopic haematuria**. Patients with proteinuria or raised serum creatinine should be referred to a renal physician. If there is no proteinuria and serum creatinine is normal, a non-urgent referral to an urologist should be made.

Investigations
- In an **asymptomatic** male with a **borderline level of PSA**, repeat the PSA test after 1 to 3 months. If the PSA level is rising, refer the patient urgently.
- A **digital rectal examination** and a **PSA test** (after counselling) are recommended for patients with any of the following unexplained symptoms:
  - Inflammation or obstructive lower urinary tract symptoms
  - Erectile dysfunction
  - Haematuria
  - Lower back pain
  - Bone pain
  - Weight loss, especially in the elderly
- **Exclude urinary infection before PSA testing**. Postpone the PSA test for at least 1 month after treatment of a proven urinary tract infection.
- In male or female patients with symptoms suggestive of a urinary infection and macroscopic haematuria, **diagnose and treat the infection before considering referral**. If infection is not confirmed, refer them urgently.

Consider an urgent ultrasound in men with a scrotal mass that does not transluminate and/or when the body of the testis cannot be distinguished.

An algorithm summarising the principal recommendations on how to proceed when a patient presents with the following symptoms.

Definitions

‘Urgent’: the patient is seen within the national target for urgent referrals (currently 2 weeks)

‘Persistent’ as used in the recommendations in this guideline refers to the continuation of specified symptoms and/or signs beyond a period that would normally be associated with self-limiting problems. The precise period will vary depending on the severity of symptoms and associated features, as assessed by the healthcare professional. In many cases, the upper limit the professional will permit symptoms and/or signs to persist before initiating referral will be 4–6 weeks.
‘Unexplained’ as used in the recommendations in this guideline refers to a symptom(s) and/or sign(s) that has not led to a diagnosis being made by the primary care professional after initial assessment of the history, examination and primary care investigations (if any).

An algorithm summarising the principal recommendations on how to proceed when a patient presents with the following symptoms.

Definitions

‘Urgent’: the patient is seen within the national target for urgent referrals (currently 2 weeks)

‘Persistent’ as used in the recommendations in this guideline refers to the continuation of specified symptoms and/or signs beyond a period that would normally be associated with self-limiting problems. The precise period will vary depending on the severity of symptoms and associated features, as assessed by the healthcare professional. In many cases, the upper limit the professional will permit symptoms and/or signs to persist before initiating referral will be 4–6 weeks.

‘Unexplained’ as used in the recommendations in this guideline refers to a symptom(s) and/or sign(s) that has not led to a diagnosis being made by the primary care professional after initial assessment of the history, examination and primary care investigations (if any).
Appendix 3 – TNM Classification of Urinary Bladder Cancer (2002)

**SUPERFICIAL DISEASE**
- pTa/T1
- Carcinoma in situ (CIS)
- N0/M0

**MUSCLE-INVASIVE DISEASE (Non-metastatic)**
- T2/T3/T4
- NX/N0/N1
- M0

**ADVANCED DISEASE (Metastatic)**
- N2/N3
- M1
- Any T

---


**T – Primary tumour**
- TX Primary tumour cannot be assessed
- T0 No evidence of primary tumour
  - Ta Non-invasive papillary carcinoma
  - Tis Carcinoma in situ: ‘flat tumour’
- T1 Tumour invades subepithelial connective tissue
- T2 Tumour invades muscle
  - T2a Tumour invades superficial muscle (inner half)
  - T2b Tumour invades deep muscle (outer half)
- T3 Tumour invades perivesical tissue
  - T3a Microscopically
  - T3b Macroscopically (extravesical mass)
- T4 Tumour invades any of the following: prostate, uterus, vagina, pelvic wall, abdominal wall
  - T4a Tumour invades prostate, uterus or vagina
  - T4b Tumour invades pelvic wall or abdominal wall

**N – Lymph nodes**
- NX Regional lymph nodes cannot be assessed
- N0 No regional lymph node metastasis
- N1 Metastasis in a single lymph node 2 cm or less in greatest dimension
- N2 Metastasis in a single lymph node more than 2 cm but not more than 5 cm in greatest dimension, or multiple lymph nodes, none more than 5 cm in greatest dimension
- N3 Metastasis in a lymph node more than 5 cm in greatest dimension

**M – Distant metastasis**
- MX Distant metastasis cannot be assessed
- M0 No distant metastasis
- M1 Distant metastasis
# Appendix 4 PELVIC SPECIALIST MDT REFERRAL PROFORMA

**PELVIC SPECIALIST MDT
REFERRAL PROFORMA**

**FAXBACK NUMBER:** 0151 706 2313

---

### PATIENT DETAILS

<table>
<thead>
<tr>
<th><strong>PATIENT ID</strong></th>
<th><strong>DOB</strong></th>
<th><strong>Postcode</strong></th>
<th><strong>Name</strong></th>
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### REFERRER DETAILS

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<th><strong>TELEPHONE NO:</strong></th>
<th><strong>FAX NO:</strong></th>
<th><strong>DATE OF REFERRAL:</strong></th>
</tr>
</thead>
</table>

### GP DETAILS

<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th><strong>Address</strong></th>
<th><strong>Postcode</strong></th>
</tr>
</thead>
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### RADIOLOGIST / PATHOLOGIST REVIEW REQUEST

N.B Images must be received **at the latest** by Wednesday before the meeting.

- Radiology to be reviewed? [ ] If so, specific question to be asked:
- Pathology to be reviewed? [ ]

- Films referred to (SMDT Radiologist)
- Slides referred to (SMDT Pathologist)

<table>
<thead>
<tr>
<th><strong>Date:</strong></th>
<th><strong>Date:</strong></th>
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### BLADDER CANCER - CHECKLIST PRIOR TO REFERRAL

<table>
<thead>
<tr>
<th><strong>Histological grade and stage</strong></th>
<th><strong>Clinical stage</strong></th>
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<tr>
<th><strong>U &amp; Es</strong></th>
<th><strong>LFTs</strong></th>
<th><strong>MRI</strong></th>
<th><strong>CT scan</strong></th>
<th><strong>Co-morbidity / medication</strong></th>
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</table>

- **Upper Tract Status**
  - [ ] No Hydronephrosis
  - [ ] Bilateral Hydronephrosis
  - [ ] Unilateral Hydronephrosis

<table>
<thead>
<tr>
<th><strong>Question</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<table>
<thead>
<tr>
<th><strong>Decision</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
Appendix 5 - TCC Algorithm: New Non-muscle Invasive Tumour

First TURBT

Non Muscle invasive

G1pTa / G2pTa

Local MDT
Single dose of intravesical chemo at resection
Flexi cysto at 3/12 (GA or Flexi)
Assign risk group at first cystectomy

Solitary tumour initially

Clear

Low Risk
Flexi at 1 year then annually for 5 years as per EAU Guidance.
Then annual urine cytology analysis by GP

Recurrence

Medium Risk
3/12 flexis for 1 year then 6/12 flexis for 3 years then annual flexis for life

Multifocal tumour initially

Clear

High Risk
6 doses of intravesical chemo then 3/13 flexi for 1 year then 6/12 flexi for 2 years then annual flexi for life

Recurrence

Muscle Invasive

G2pT1

Local MDT
6x weekly intravesical chemotherapy
1st check cysto under GA at 4/12 then 3/12 flexis for 2 years, then 6/12 for 2 years, then annual for life

G3pTa, G3pT1 or CIS

SMDT
Pathology review by experienced uro-pathologist
Consider 2nd look TURBT
BCG
Consider cystectomy

BCG protocol
Induction course
6 weeks with GA cysto and biopsy 8/52 after maintenance schedule as agreed local protocol.
Monitoring
3/12 flexi for 2 years then 6/12 for 3 years then annually for life

See Muscle invasive algorithm
Appendix 6 - TCC Algorithm: Recurrent Non-muscle Invasive Tumours

G1pTa, G2pTa or G2pT1

Patients previously treated with BCG i.e. G3pTa, G3pT1 and CIS

Single recurrence <5mm
- Resect / biopsy / diathermy

Single recurrence >5mm or multifocal recurrence
- Single post op dose of intravesical chemotherapy & flexi in 3 months

Recurrence >5mm or multifocal recurrence after single dose of intravesical chemo
- 6 week course of intravesical chemo then flexi at 3 months

Recurrence >5mm or multifocal recurrence after course of chemotherapy
- BCG and GA cysto and biopsy at 3 months

Recurrence after previous BCG
- If recurrence radical treatment recommended
**Appendix 7 – TCC Algorithm: Muscle Invasive Tumours**

- **First TURT**
- **Muscle invasive**
  - Review in SMDT
  - Consider 2nd look TURT
  - Debulk if radiotherapy likely
  - Biopsy prostatic urethra / bladder neck if not already done
  - CXR, LFTs, alk phos (bone scan if elevated)
  - MRI/CT scan abdo and pelvis

- **Consider suitability for trial**

- **Chemotherapy**
  - MVAC – Neo adjuvant to surgery or radiotherapy improves survival by 5% at 5 years – toxic regimen requiring careful patient selection – Gemcitabine & Cisplatin has similar outcome with less side-effects

- **Cystectomy**
  - Discuss the following
  - Lack of evidence to favour cystectomy over RT LUTS.
  - Role of lymphadenectomy
  - Neo Chemo adjuvant for locally advanced disease
  - Nerve sparing
  - Diversion vs reconstruction
  - Peri-operative mortality/morbidity
  - Need for life long oncological & functional follow up
  - Meeting with Sp nurse to discuss periop course and issues around diversion/reconstruction
  - Offer meeting with patient who has intended diversion/reconstruction

- **Radiotherapy**
  - **Radical Radiotherapy**
    - Fit patients with muscle invasive but not extravasical disease
    - Younger fitter patients with limited N+ disease (but not M+ ) can be offered radical RT after good response to neoadjuvant chemo
    - Preference over cystectomy if comorbidity precludes surgery or inability to manage

- **Palliative Radiotherapy**
  - To control symptoms esp pelvic pain and haematuria
  - Typically 30Gy in 6 fractions over 2 weeks or 8Gy single fraction

- **Follow up schedule**
  - 6/52 oncology review. 1st post cysto (GA) at 3 months if clear CT and flexi 3/12ly for 18 months with CT 1 year post RT then 6/12ly for 4 years then annually for life. Residual /recurrent tumour consider salvage cystectomy if CT shows nodes consider FNA then chemo + chemo + TURT vs salvage cystectomy

- **If tumour looks solid at initial flexi**
  - arrange MRI prior to TURT
  - Bx prostatic urethra (men or bladder neck (women)
Appendix 8 – Recurrent Muscle-invasive Tumours

Figure 7: Treatment algorithm for advanced disease (metastatic)

Key questions for the MDT
- Stage
- Grade (WHO)
- Age/co-morbidity/
  - life expectancy
- Symptoms
- Renal function/GFR
- Performance status

Key discussion points with the patient
- Life expectancy
- Is local control an issue?
- Fitness for chemotherapy
- Major symptoms
- Patient preference
- Treatment side-effects
- Impact on quality of life
- Palliative care referral

Investigation options
- Cystoscopy
- IVU/US
- CT scan of chest/abdomen/
  - pelvis
- MRI scan pelvis
- Renal function tests/GFR
- Liver function test
- Full blood count
- Bone scan

MANAGEMENT OPTIONS

Is this patient suitable for clinical trial?

Local control
- Radiotherapy
- Palliative surgery
  for local control

Systemic therapy
- Chemotherapy

Palliative care
- Pain control
- Local radiotherapy
  - Bone pain
  - Spinal cord
  - compression
  - Nerve root
  - compression
- Nephrostomy/stent
- Continual assessment

Ongoing Support
- Local patient support network
- Role of nurse/GP/healthcare professional team
### Specific Anatomic Region
Abdo/Pelvis - Bladder

### Application
Treatment response / staging

### Author
Dr C S Romaniuk

### Scanner Used
Philips Inters 1.5T

### Coil used
Synergy Body Coil, Quadrature Coil

### Venflon site
N/A

### Oral Contrast Volume and Type
N/A

### Rectal Contrast Volume and Type
N/A

### IV Contrast Volume and Type
N/A

### Injection rate (manual or pump injector)
N/A

### IV Buscopan (Y/N)
N

### Area scanned
Pelvis - iliac crest to below symphysis
Abdomen – Diaphragm down, must overlap with pelvis slices

### Positioning 1
AXIAL 1;- slices to cover from iliac crest to below symph
AXIAL 2;- From Diaphragm down to overlap AXIAL 1

### Positioning 2
CORONAL 1;- slices to cover bladder
CORONAL 2;- slices to cover from anterior bladder wall to anterior margin sacrum/coccyx

### Scan Delay
N/A

### Reference scan 1

### Reference scan 2

### SEQUENCES
(Remove/add sequences below, as necessary)

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Slice Thickness</th>
<th>Slice Count</th>
<th>Field of View</th>
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</thead>
<tbody>
<tr>
<td>T1 TSE</td>
<td>AXIAL 1</td>
<td>8mm/2mm gap</td>
<td>24slices 400FOV</td>
</tr>
<tr>
<td>T2 TSE</td>
<td>AXIAL 1</td>
<td>8mm/2mm gap</td>
<td>24slices 400FOV</td>
</tr>
<tr>
<td>T2 TSE</td>
<td>CORONAL 1 OR SAGITTAL</td>
<td>3mm/1mm gap</td>
<td>30slices 180FOV</td>
</tr>
<tr>
<td>T1 SE</td>
<td>CORONAL 2</td>
<td>8mm/2mm gap</td>
<td>16slices 400FOV</td>
</tr>
<tr>
<td>T1 TFE</td>
<td>AXIAL 2 Free breath</td>
<td>10mm/2mm gap</td>
<td>24slices 400FOV</td>
</tr>
</tbody>
</table>

### Hard-copy Imaging Slice Thickness
All as above

### CD Imaging
- Image format to allow successful image transfer
- All base images to be recorded

### Hard-copy Imaging Format
- 20 images per film
- Each different sequence imaged on separate film
<table>
<thead>
<tr>
<th>Film Identification</th>
<th>Name and DOB</th>
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<tbody>
<tr>
<td>Scanogram</td>
<td>As large as possible Numbered axials posted on scout</td>
</tr>
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</table>

**Comment**
- Upper abdomen often scanned on Quadrature coil
- If patients are suitable for radical treatment MRI is preferred technique
- If locally advanced or metastatic disease is suspected CT preferred
- 64 slice CT does provide high resolution images of the bladder in all three planes
- MRI superior due to its ability to show muscle wall invasion/penetration and invasion of adjacent organs
- Dynamic contrast-enhanced T1w fat saturated sequences demonstrate tumour, invasion and multifocality
- Bladder MRI protocol under review at CCO
- CT is the primary modality for follow up scans
- Empty bladder should be avoided
**CT BLADDER CCO**

<table>
<thead>
<tr>
<th>Specific Anatomic Region</th>
<th>Abdomen and Pelvis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Application</strong></td>
<td>Staging bladder tumours or treatment response or relapse</td>
</tr>
<tr>
<td><strong>Author</strong></td>
<td>Dr C S Romaniuk, CCO.</td>
</tr>
<tr>
<td><strong>Venflon</strong></td>
<td>Sited in appropriate vein</td>
</tr>
<tr>
<td><strong>Oral Contrast</strong></td>
<td>800 mls Gastrografin 2% over 45 minutes</td>
</tr>
<tr>
<td><strong>Rectal Contrast</strong></td>
<td>100ml Optiray 300</td>
</tr>
<tr>
<td><strong>Volume &amp; Type</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Area scanned</strong></td>
<td>Just above liver to symphysis pubis</td>
</tr>
<tr>
<td><strong>Injection rate</strong></td>
<td>3ml/s</td>
</tr>
<tr>
<td><strong>Scanning phase</strong></td>
<td>64 Slice Helical</td>
</tr>
<tr>
<td><strong>Slice (mm)</strong></td>
<td>Recon (mm)</td>
</tr>
<tr>
<td>1.</td>
<td>0.625</td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td><strong>Reformats</strong></td>
<td>2.5mm axial, coronal and sagittal reformats</td>
</tr>
<tr>
<td><strong>CD Imaging</strong></td>
<td>DVD preferred due to large volume of data acquired but not suitable for transferring to all hospitals.</td>
</tr>
<tr>
<td></td>
<td>Image format to allow successful image transfer</td>
</tr>
<tr>
<td></td>
<td>All base images to be recorded</td>
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<td>Maximum: 20 images per film</td>
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<tr>
<td></td>
<td>Each different sequence imaged on separate film</td>
</tr>
<tr>
<td></td>
<td>Axial images to give reference levels</td>
</tr>
<tr>
<td></td>
<td>Callipers/Measurement scale on axial images</td>
</tr>
<tr>
<td></td>
<td>Optimum FOV for scanning and display</td>
</tr>
<tr>
<td>Comments</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>• RCR: “MRI is superior to CT for staging bladder cancer, if patient is for radical treatment MRI is the preferred modality, if locally advanced or metastatic disease is suspected then CT advised”.</td>
<td></td>
</tr>
<tr>
<td>• Unusual histological tumour types such as small cell bladder cancer: CT of the chest should also be performed.</td>
<td></td>
</tr>
<tr>
<td>• CT is the primary technique for follow up imaging.</td>
<td></td>
</tr>
<tr>
<td>• Local practice: 64 slice or multi-slice CT does provide high resolution images of the bladder in all three planes and can be used for staging.</td>
<td></td>
</tr>
<tr>
<td>• MRI superior due to its ability to show muscle wall invasion/penetration and invasion of adjacent organs. Dynamic contrast-enhanced MRI T1w fat saturated sequences can demonstrate tumour, invasion and multi-focality.</td>
<td></td>
</tr>
<tr>
<td>• An empty bladder should be avoided. Full bladder useful for CT scan.</td>
<td></td>
</tr>
</tbody>
</table>