Pan Birmingham NHS
Cancer Network

Guidelines for the Referral of Patients with Spinal Metastatic Disease and Suspected Metastatic Spinal Cord Compression

Date Approved by Network Governance	**September 2012**

Date for Review	**September 2015**

Changes between Versions 1 and 2

- Addition of flowcharts showing process for emergency and urgent referrals to Spinal Team at Royal Orthopaedic Hospital NHS Foundation Trust (ROHFT)\University Hospitals Birmingham NHS Foundation Trust (UHBFT).
- Additional information included in guideline statement to show which patients should be referred and method of referral.
- Integration of MSCC case discussion policy
- Integration of MSCC imaging guideline

1. Scope of the guideline

This guideline has been produced to support the prompt investigation, diagnosis and onward referral of patients with metastatic spinal cord compression (MSCC) and\or spinal metastases, to a defined team specialising in spinal assessment and management. It describes the steps necessary to ensure early diagnosis, appropriate investigation and coordination of treatment to prevent paralysis or other neurological damage which may adversely affect quality of life and prognosis.

2. Guideline background

Metastatic spinal cord compression (MSCC) is a well recognised complication of cancer and is usually an oncological emergency. Early diagnosis and treatment is essential to prevent irreversible neurological damage.

2.1 Some patients with spinal metastases are at risk of developing spinal cord compression and need to be assessed by a specialist team to reduce the likelihood of permanent loss of function.

2.2 To ensure early detection and responsive management of MSCC a clear pathway for referrals in the Pan Birmingham Cancer Network (PBCN) has been developed in line with the recommendations of the NICE Guidance (2008). This requires MSCC referrals to be discussed with the designated MSCC co-ordinator for each Trust. The responsibility of the MSCC coordinator is to ensure the required information is available and collated so that senior clinical advisors can decide on the most appropriate management for the patient avoiding unnecessary delays.

2.3 Within PBCN there are two specialist teams for the surgical management of patients with spinal metastases; one at Royal Orthopaedic Hospital NHS Foundation Trust (ROHFT), and one at University Hospitals Birmingham NHS Foundation Trust (UHBFT).

2.4 Radiotherapy treatment is provided at UHBFT.

2.5 Patients with actual or potential MSCC diagnosed at Heart of England FT, Sandwell and West Birmingham Trust and Walsall Healthcare Trust are referred for surgical opinion to ROHFT.

2.6 UHBFT In-patients with actual or potential MSCC are referred for surgical opinion to the spinal surgeons at UHBFT.

2.7 Patients in a community or hospice setting with suspected MSCC – the management of these patients is described in section 8.4.1.

Guideline statements

Patients presenting with suspected spinal cord compression may be classified as either urgent or emergency referrals. The distinction is made based on the basis of the symptoms and signs and subsequent imaging confirmation of the compression of the neural elements within the spine.

3. Clinical presentation

3.1 **Urgent Presentation** (see appendix 1 for a flow chart of the management of urgent referrals)

3.1.1 Patients presenting with the following clinical symptoms and signs of spinal metastatic disease and should be dealt with as **urgent** (i.e. treatment planning within one week of presentation).

- pain in the middle (thoracic) or upper (cervical) spine
- progressive pain in the lower (lumbar) spine
- severe unremitting lower spinal pain
- spinal pain aggravated by straining (for example, at stool, or when coughing or sneezing)
- localised spinal tenderness
- nocturnal spinal pain preventing sleep

3.1.2 See section 8.3 for the clinical management of patients classed as urgent.

3.2 **Emergency Presentation** (see appendix 2 for a flow chart of the management of emergency referrals)

3.2.1 Patients presenting with clinical symptoms suggesting cord compression should be dealt with as an **emergency** (i.e. treatment planning should be within 24 hours of presentation or sooner if clinically indicated). This means patients with any of the clinical symptoms outlined in 3.1 plus neurological symptoms including;

- radicular pain
- any limb weakness
- difficulty walking (including falls)
- sensory loss or bladder or bowel dysfunction

3.2.2 **Please note:** neurological signs of spinal cord or cauda equina compression develop late in the evolution of spinal cord compression.

3.2.3 The following is commonly used as a guide to indicate which patients require emergency referral:

Metastatic cancer\suspected cancer (common in breast, prostate, lung, renal, myeloma)

Severe suspicious pain, band like chest pain, shooting nerve pain, nocturnal pain, progressive spinal pain, sensory impairment

Continence- difficulty in controlling bladder or bowels

Cannot work legs \ arms, loss of power

3.2.4 See section 8.4 for the management of patients classed as emergency

4. Imaging

4.1 MRI of the whole spine should be performed in patients with suspected MSCC, unless there is a specific contraindication. This should be done in time to allow definitive treatment to be planned within:

- 1 week of the suspected diagnosis in the case of spinal pain suggestive of spinal metastases or sooner if there is a pressing clinical need for emergency surgery,

or

- 24 hours in the case of spinal pain suggestive of spinal metastases and neurological symptoms or signs suggestive of MSCC and occasionally sooner if there is a pressing clinical need for emergency surgery.

4.2 MRI is the imaging modality of choice to demonstrate the extent of soft tissue and bone involvement, and the extent and degree of neurological compromise.

4.3 When MRI is contraindicated other imaging such as CT or myelography may assist with the diagnosis.

4.4 In addition to MRI, if the overall clinical situation suggests surgery may be appropriate, a staging CT scan will normally be suggested.

4.5 CT is more appropriate to define the potential for structural spinal failure. A targeted CT scan with three-plane reconstruction should be considered to assess spinal stability and to plan vertebroplasty, kyphoplasty or spinal surgery in patients with MSCC.

4.6 This should include transverse images of any involved spinal levels with sagittal and coronal reformats. This will also facilitate decisions about stability and suitability for vertebroplasty. (NB: this should not delay referral of emergency cases i.e. deteriorating neurology)

5. Access to imaging and reporting

5.1 Radiology departments should configure lists to allow examination of patients with suspected MSCC at short notice, including availability of reporting scans out of hours, at weekends and bank holidays.

5.2 MRI should be available 24/7 for those patients presenting with the symptoms outlined above (3.2.1) or when there is an intention to proceed to immediate treatment.

5.3 If MRI is not available within the required time frame deemed clinically necessary at the referring hospital, the patient with suspected MSCC should be transferred to a unit with 24 hour capability if there is a pressing clinical need for surgery.

5.5 If MSCC is confirmed the imaging examination should be transferred via the Image Exchange Portal to the centre to which the clinician will refer the patient. The timeframe for this will depend upon clinical need; however there should be the facilities for image transfer 24/7.

5.6 Image transfer via the Image Exchange Portal may require further training of radiographic staff at referring centres to enable transfer of images **outside** normal office hours. There may be instances where some referring centres send the images by CD Rom or other means.

6.0 Assessment of spinal instability

6.1 Spinal instability refers to potential or actual mechanical spinal failure possibly leading to neurological damage as a result of movement. It is a major concern in management of traumatic spinal injury. Spinal column infiltrated by metastatic tumour is likely to be weakened and therefore potentially less stable. However, in metastatic spine disease, whether the spine is stable or not can be difficult to decide.

6.2 Spinal Stability in metastatic disease is dependent on:

- *Site of disease(cervical, thoracic or lumbar):* For example, in the thoracic spine the presence of ribs and chest wall provide added support to the spinal column affected by metastatic disease, where as this is lacking in the cervical spine and below the tenth thoracic vertebra

- *Extent of tumour infiltration:* In general, the greater the tumour involvement of the vertebrae (particularly of the vertebral body), the more likely it is that stability is compromised. Collapsed vertebrae are also less likely to be stable.

- *Co-morbidity*: For example, pre-existing osteoporosis of the vertebrae (related to old age, chronic steroid use etc) will lead to weakened bones, which when infiltrated by tumour is likely to be less stable.

- *Effect of open surgery or disease progression:* Decompressive surgery without stabilisation (in the form of instrumentation, vertebroplasty or both) may reduce spinal stability. Spinal stability may also be compromised in some patients managed non-surgically, due to tumour progression.

6.3 An assessment of the risk of spinal instability should be made in each patient by the medical/surgical team, based upon clinical and radiological information (derived from both MRI and CT imaging see section 4 above). If the spine is thought to be unstable inform the patient's oncologist who will get a surgical opinion if deemed necessary and discuss treatment options. If in doubt, obtain a surgical opinion from spinal surgeon on call.

7. Immediate management

7.1 If spinal instability is suspected at diagnosis of cord compression:

- ensure patient is nursed on flat bed and log rolled (with appropriate pressure care management)
- if cervical lesion is suspected, fit a hard collar (Miami J or Philadelphia) via urgent referral to orthotics - out of hours use neck blocks to immobilise head
- obtain an urgent surgical opinion from spinal surgeons as per referral guideline

7.2 In certain patients mobilization may be considered after a suitable thoraco-lumbar brace (or hard collar in cervical spine disease) has been fitted but surgical advice should be sought first.

7.3 Spinal instability should be considered if there are new neurological symptoms/signs on initial attempts at mobilisation of the patient. Patients with cord compression, who have received radiotherapy, may subsequently develop instability due to tumour progression.

7.4 All patients with metastatic spine disease, considered initially stable, need to be educated with respect to the warning signs of progression to instability and cord compression. Patients should be given a copy of patient information leaflet and alert card if not already given. This is available at http://www.birminghamcancer.nhs.uk/patients/leaflets/bone-cancer see also appendix 3.

8. Referral for specialist opinion

8.1 The process for referral for a specialist opinion is dependent upon the severity of symptoms at presentation, and referrers should follow the appropriate route in terms of an urgent referral (see appendix 1) or emergency (see appendix 2).

8.2 Emergency referrals should be discussed with the on call MSCC co-ordinator for the Trust. A rota of MSCC coordinators will be available via the hospital switch board see below.

Table 1

Trust
Royal Orthopaedic Hospital NHS Foundation Trust Tel: 0121 685 4000
Sandwell and West Birmingham Hospitals NHS Trust Tel: 0121 554 3801
University Hospitals Birmingham NHS Foundation Trust Tel: 0121 627 2000
Heart of England NHS Foundation Trust Tel: 0121 424 2000
Walsall Hospitals NHS Trust Tel: 01922 721172

8.3 **Urgent referrals**

Patients presenting with spinal metastases, but with the absence of signs of cord compression are classed as **urgent** (see flowchart in appendix 1).

8.3.1 Oncologist Opinion:

Following MRI patients should be referred for initial opinion by an oncologist. This should be done within a timescale that enables treatment planning within 1 week of diagnosis:

- patients already known to an oncology team should be referred, where possible, directly to that team via their registrar/consultant
- if patients are not known to an oncology team, or the team is unavailable, the on-call oncologist should be contacted via the UHBFT switchboard (0121 371 2000)

8.3.2 Surgical Opinion

The Consultant oncologist, (in consultation with the patient) will decide whether onward referral for a surgical opinion should take place.

The Oncologist is responsible for determining whether a surgical opinion is required. The secondary care clinician, making the referral, is responsible for contacting the surgical team. The oncologist is responsible for ensuring this onward referral has taken place.

All urgent (**non emergency)** patients with spinal metastatic disease requiring a spinal surgical opinion are to be referred using the form in appendix 4.

8.4 Emergency referrals

Patients with spinal metastases and clinical symptoms suggesting cord compression (see 3.2 and appendix 2) are classed as emergency referrals. **An immediate opinion is required in this instance and the following steps are to be taken:**

8.4.1 Primary care clinicians, including hospice and care home staff, should immobilise the patient (with appropriate pressure care precautions) and transfer him\her to the nearest accident & emergency department or equivalent medical admissions unit (MAU) with a copy of the patient alert guide if available (see appendix 3).

8.4.2 Where possible contact should be made with the local Acute Oncology team\MSCC Coordinator advising them of the transfer. See table 1 above.

8.4.3 Oncologist Opinion:

Following MRI patients should be referred for initial opinion by an oncologist. This should be done within a timescale that enables treatment planning within 24 hours of diagnosis:

- patients already known to an oncology team should be referred, where possible, directly to that team via their registrar/consultant
- if patients are not known to an oncology team, or the team is unavailable, the on-call oncologist should be contacted via the UHBFT switchboard (0121 371 2000)

8.4.4 Surgical Opinion

The Consultant oncologist, (in consultation with the patient) will decide whether onward referral for a surgical opinion should take place.

- patients with actual or potential MSCC diagnosed at Heart of England FT, Sandwell and West Birmingham Trust and Walsall Healthcare Trust should be referred for surgical opinion to ROHFT (0121 685 4000)
- UHBFT In-patients with actual or potential MSCC should be referred for surgical opinion to the on call consultant for neuro/spinal surgery at UHBFT

The Oncologist is responsible for determining whether a surgical opinion is required. The secondary care clinician, making the referral, is responsible for contacting the surgical team. The oncologist is responsible for ensuring this onward referral has taken place.

8.4.5 Staff in the acute Trust setting caring for patients who may have MSCC should follow local procedures for acute oncological emergencies via the Trust Acute Oncology Service. As a minimum this should include the following:

Staff in A&E/MAU should ensure that:

- immediate clinical and full neurological assessment is carried out
- MRI whole spine is performed within 24 hours of the patient presenting (or sooner if clinically indicated)
- oral dexamethasone 16mg od is commenced as soon as possible if there are signs of neurological compromise*, unless lymphoma is strongly suspected* when it is preferable to obtain a biopsy. If it is felt that steroids may be necessary please discuss this with the spinal surgery team before commencement if it is thought surgery may be indicated.

In addition the A&E\MAU staff should liaise with the acute oncology team\MSCC Co-ordinator to ensure that:

- imaging is completed
- where possible all clinical information is available (please see referral form in appendix 4 as a guide)
- the patient is discussed with an oncologist as described above
- if appropriate the patient is referred for surgical opinion (as described above)

8.4.6 The referring clinician must be in a position to provide clinical details of the patient to the respective on call senior clinical advisors to enable appropriate case discussion; this should involve availability to view images.

9. MSCC case discussion policy

9.1 All cases of confirmed or suspected MSCC should be assessed by local clinicians and be referred for initial discussion with a clinical oncologist.

9.2 Based on the opinion of the clinical oncologist patients who might potentially benefit from surgery should be referred for senior surgical opinion from a specialist with experience of treating MSCC.

9.3 The referring clinician should be able to provide the clinical details of the case to each senior clinical advisor.

9.4 The case discussion should take place whenever it is needed, urgently as individual cases newly present. Case discussion should involve oncologist, spinal surgeon and if required radiologist.

9.5 Each senior clinical advisor should be able to view the patient's imaging during the case discussion.

9.6 The outcome of the case discussion should be recorded in the patient's medical notes.

10. Management

10.1 The surgical management of patients with actual or potential MSCC is the responsibility of the ROHFT unless the patient is physically residing within UHBFT.

10.2 Percutaneous vertebroplasty and radio frequency ablation:

10.2.1 Percutaneous vertebroplasty and radio frequency ablation are available within the Network for patients deemed suitable. (this may include patients with non malignant conditions e.g. osteoporosis).

10.2.2 Both the spinal surgeon and interventional radiologist should agree the suitability and feasibility of this form of treatment at the spinal MDT. The urgent referral's route (appendix 1) should be followed.

11. Monitoring of the guideline

11.1 Implementation of this guidance is subject to the Acute Oncology Measures Peer Review process which commenced nationally in April 2011.

11.2 Each hospital with an imaging department is required contribute to Network wide audit of the timeliness of investigation of MSCC. This includes:

- recording the date and time of the request for imaging
- recording the date and time of imaging takes place
- recording the type of primary imaging requested and dates it is delivered,
- recording the date the imaging is reported and the date it is transferred using the image exchange portal (or other means)
- recording the number of case referred to other centres from MRI

References

- NICE guideline CG75 MSCC (November 2008) – *(Quick Reference Guide) available at: http://guidance.nice.org.uk/CG75/QuickRefGuide/pdf/English*
- The National Peer Review Programme Manual for Cancer Services Acute Oncology - Including Metastatic Cord Compression Measures (March 2011) available at *http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_125889.pdf*
- British Association of Spinal Cord Injury Specialists SCI available at

http://www.sci-link.org.uk/downloads/

- National Cancer Action Team Rehabilitation Pathways available at http://www.ncat.nhs.uk/our-work/living-with-beyond-cancer/cancer-rehabilitation
- NICE Clinical Pathway for Metastatic Cord Compression (January 2012) available at http://pathways.nice.org.uk/pathways/metastatic-spinal-cord-compression
- BMJ learning module MSCC http://learning.bmj.com/learning/module-intro/.html?moduleId=10032165

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SPINAL METASTASES WITHOUT MSCC
Urgent Referral Fast Track

RED FLAGS

- Metastatic cancer \ suspected cancer
- Pain in spine (new \ persistent)
- Nerve root pain

Referral to oncologist. If patients does not have an oncologist then contact the UHBFT on call oncologist on 0121 371 2000

Imaging within 1 week of suspected spinal disease

Initial discussion with oncologist/oncology review of patient
Radiotherapy/systemic therapy (where surgery not indicated)

Onward referral if appropriate to ROHFT
Referral form, imaging and reports should be sent to:-
The Royal Orthopaedic Hospital NHS Foundation Trust
Spinal Oncology Co-ordinator Monday – Friday 08.00 -16.00.

Tel 0121 685 4000 extension 55351 or bleep 2705
Fax 0121 685 4146

Spinal oncology multi disciplinary team discussion
- Fast track spinal oncology clinic assessment\plan
- Transfer – assessment\treatment
- Onward referral

Biopsy\vertebroplasty\surgery
Rehabilitation

Oncology referral
Rehabilitation

Palliative care referral
Rehabilitation

Metastatic Spinal Cord Compression (MSCC) EMERGENCY REFERRAL TODAY

Metastatic cancer\suspected cancer (common in breast, prostate, lung, renal, myeloma)

Severe suspicious pain, band like chest pain, shooting nerve pain, nocturnal pain, progressive spinal pain, sensory impairment

Continence- difficulty in controlling bladder or bowels

Cannot work legs \ arms, loss of power

Think red flag! think MSCC! early diagnosis and treatment can prevent paralysis

GP | Community Clinician | Hospice | Patient

A&E/MAU WITH ALERT GUIDE
ADMIT, ACT, ADVICE

- Immobilise and nurse flat
- Neurological assessment
- MRI whole spine within 24 hours or sooner if immediate intervention intended
- Dexamethasone 16mg od (if signs of neurological compromise unless lymphoma strongly suspected)
- Commence local MSCC Care Pathway

Clinical information

Imaging

Phone MSCC Co-ordinator\Acute Oncology Team

Rehabilitation referral

Contact patient's oncologist if available or the on call oncologist at UHBFT for initial advice. Onward surgical referral will be made on the advice of the oncology team as appropriate -
On call senior clinical advisory team ROHFT\UHBFT *case discussion*

- Oncology consultant
- Spinal surgical consultant
- Radiology consultant (as required)

University Hospitals Birmingham NHS Foundation Trust

Royal Orthopaedic Hospital NHS Foundation Trust

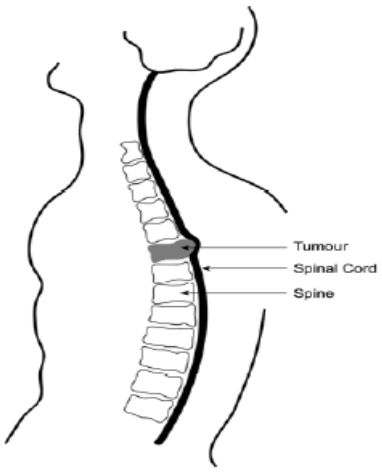
Radiotherapy
Surgery

University Hospitals Birmingham NHS Foundation Trust

Rehabilitation\palliative care

ENDORSED BY THE GOVERNANCE COMMITTEE

Alert Guide for Metastatic Spinal Cord Compression



If you develop any symptoms listed below please get advice immediately:

- Contact the hospital team where you usually go for your cancer follow-up clinics, your GP or your Macmillan Nurse (or key worker).
- Describe your symptoms.
- Explain that you are worried that you may have spinal cord compression and that you need to be seen urgently.
- Show the health professional this card.

Contact someone today even if it is a weekend or holiday period.

If you are unable to contact any of the above please visit your nearest A&E.

Do not wait for further symptoms to develop. The earlier treatment takes place the more effective it is likely to be.

Symptoms that may indicate spinal cord compression:

- Back pain lasting more than 1 - 2 weeks. Pain may feel like a band around the chest or abdomen and can sometimes radiate over the lower back into the buttocks or legs.
- Numbness or pins and needles in toes, fingers or over buttocks.
- Feeling unsteady on feet, weakness, legs giving way, difficulty walking.
- Problems passing urine including difficulty controlling your bladder, or passing little or no urine.
- Problem controlling your bowels.

Patient Referral Form for Spinal Oncology Urgent Referrals – for use by the Acute Oncology Team\Trust MSCC Co-ordinator\Other Acute Sector Referrer

PLEASE NOTE: for emergency patients initial referral MUST be by telephone. This form can then be completed and sent separately as instructed by on-call oncologist

Date and Time of Referral:-
An acknowledgement will be faxed back, please give the fax number:

Type of referral
*Emergency Referral (telephone call already made, form can be sent separately)** *Urgent Referral**
**Delete as appropriate*

Patient Details	**Referring Consultant/GP/Oncologist**
Surname Forename D.O.B. Gender Address Postcode Telephone No NHS No In / Out Patient Hospital and Ward Direct Dial Number	Consultant/GP Contact No (Mobile) Oncologist (If already diagnosed) Contact No (mobile) Is Oncologist aware of referral Y/N **Current Relevant Co-morbidities** None 1 2 3 4 **Hb Ca++ Alb** **Is patient anticoagulated?** Y / N
Tumour Presentation (circle provisional diagnosis) Previous known primary: probable mets Previous unknown primary; probable mets Probable musculo-skeletal primary Probable intradural primary Estimated prognosis >3 months Y/N/not known **Biopsy** Y/N Result Date	**Prior Discussion at MDT** Y / N Hospital Date **Patient understanding** Has diagnosis and possible surgery been discussed with patient? Y / N Does Patient wish to consider surgery? Y / N Has an information booklet been provided for the patient? Y / N Has an information booklet been provided for the carer? Y / N

Please send all available imaging and copies of reports

PLEASE COMPLETE NEXT PAGE

Spinal Oncology Referral Form (PAGE 2 OF 2)

Patients Name:	**DOB**
TUMOUR	**SPINE**
Primary *(circle disease site)* Breast Bronchus GIT GU Lymphoma Melanoma Myeloma Prostate Renal Thyroid Uterine/Cx Unknown Other (specify)	**Presenting Complaint** None Pain only Y / N since (date) Location: Type: Non specific Mechanical Postural Pattern: Nocturnal Diurnal Constant Neurological Symptoms Y / N since (date) Neurological Signs Y / N since (date)
Date of diagnosis:	
Primary Rx	
Adjuvant Rx 1 2 3	**Walking Status** Normal Unsteady since (date) Not ambulant since (date)
Previous Metastases Y / N Define	**Incontinence** Urinary Y / N since (date) Faecal Y / N since (date) PR Y / N Anal tone Y / N since (date)
Current Staging **Osseous Mets** Y / N demonstrated by:	**Sensory Level** Y/N Define Since
Isotope scan -date / Not done Plain Radiographs -date / Not done	**Lowest MRC grade** 0 1 2 3 4 5 Muscle Group(s) Since
Sites:-	**MRI (whole spine)** Yes / Not done Location Date Time
Visceral Mets Y / N demonstrated by:	
CT Chest /Abdo -date / Not done Liver US -date / Not done	CXR -date / Not done Sites:-
Other relevant information	
Senior clinical advisor review (1)	**Senior clinical advisor review (2)**
Name:-	Name:-
Decision:	Decision:
Details of clinician responsible for ongoing care of the patient following surgery.	
Name:-	Contact Number:-