





Referral of Patients with Spinal Metastatic Disease and Suspected Metastatic Spinal Cord Compression (to be used in association with locally agreed MSCC pathways and guidelines).

West Midlands Clinical Networks and Clinical Senate

Coversheet for Network Expert Advisory Group Agreed Documentation

This sheet is to accompany all documentation agreed by the West Midlands Strategic Clinical Network Expert Advisory Groups. This will assist the Clinical Network to endorse the documentation and request implementation.

EAG name	Metastatic Spinal Cord Compression (MSCC), Acute Oncology (AO) and Cancer of the Unknown Primary (CUP) – Expert Advisory Group (EAG)	
Document Title	Referral of Patients with Spinal Metastatic Disease and Suspected Metastatic Spinal Cord Compression (to be used in association with locally agreed MSCC pathways and guidelines).	
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Document Purpose	This document provides details of the clinical guidelines adopted by the West Midlands Expert Advisory Group for the management Metastatic Spinal Cord Compression (MSCC), Acute Oncology (AO) and Cancer of the Unknown Primary (CUP) – Expert Advisory Group (EAG)	
Authors		
References	Please refer to reference page	
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	 Peter Correa Date: 22 March 2018	 Rob Gornall Date: 22 March 2018

West Midlands Strategic Clinical Network MSCC, Acute Oncology and Cancer of Unknown Primary Expert Advisory Group Guideline for the Referral of Patients with Spinal Metastatic Disease and Suspected Metastatic Spinal Cord Compression (to be used in association with locally agreed MSCC pathways and guidelines).

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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 line with the recommendations of the NICE Guidance (2008 and 2014) is necessary. This requires MSCC referrals to be discussed with the designated MSCC coordinator 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.

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

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

- 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

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 is needed 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 of the whole spine. 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, whereas 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.

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.

Spinal Neoplastic Instability Score (SINS)

This scoring tool specifically designed for assessment of potential for instability by radiology and oncology teams and will give a guide as to whether referral for surgical stabilization should be considered prior to oncological treatment. (Appendix 1).

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 and VTE management being mindful that patients may require urgent surgery)
- if cervical lesion is suspected, immobilise with neck blocks, tape and fit a hard collar (Miami J or Philadelphia)
- obtain an urgent surgical opinion from spinal surgeons as per referral guideline

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

7.3 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 from the Macmillan cancer Support website

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 for emergency or urgent referrals.

8.2 Emergency referrals should be discussed with the on call MSCC co-ordinator for the Trust.

8.3 Urgent referrals

Patients presenting with spinal metastases, but with the absence of signs of cord compression are classed as **urgent**.

8.3.1 Oncologist Opinion:

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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 at the appropriate Trust should be contacted.

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 to the appropriate local service.

8.4 **Emergency referrals**

Patients with spinal metastases and clinical symptoms suggesting cord compression (see [3.2](#)) 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 .

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

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.

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.

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
- 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.

9.7 Percutaneous vertebroplasty and radio frequency ablation:

9.7.1 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). Patients should be referred to the appropriate centre for an opinion.

9.7.2 Both the spinal surgeon and interventional radiologist should agree the suitability and feasibility of this form of treatment at the spinal MDT.

10. Monitoring of the guideline

10.1 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 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

Trust MSCC specific pathway/algorithm

Please add trust specific MSCC algorithm/pathway here.

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>
 - Metastatic spinal cord compression in adults **NICE quality standard [QS56] (February 2014)** <https://www.nice.org.uk/guidance/qs56>
 - Fisher CG, DiPaola CP, Ryken TC, Bilsky MH, Shaffrey CI, Berven SH, et al. A novel classification system for spinal instability in neoplastic disease: an evidence-based approach and expert consensus from the Spine Oncology Study Group. Spine 2010; 35:E1221-9.
 - <https://www.macmillan.org.uk/information-and-support>

West Midlands Strategic Clinical Network MSCC, Acute Oncology and Cancer of Unknown Primary Expert Advisory Group membership:-

University Hospital Coventry and Warwickshire NHS Trust
University Hospital of North Midlands NHS Trust
Heart of England NHS Foundation Trust
University Hospital Birmingham NHS Foundation Trust
Dudley Group NHS Foundation Trust
Royal Wolverhampton NHS Trust
Royal Orthopaedic Hospital NHS Foundation Trust
Worcestershire Acute Hospitals NHS Trust
Walsall Hospitals NHS Trust
Sandwell and West Birmingham Hospitals NHS Trust
Shrewsbury and Telford Hospitals NHS Trust
Hereford Hospital/Wye Valley NHS Trust

Spinal Instability Neoplastic Score

Location

- 3 points: Junctional (C0-C2, C7-T2, T11-L1, L5-S1)
- 2 points: Mobile spine (C3-C6, L2-L4)
- 1 point: Semi-rigid (T3-T10)
- 0 points: Rigid (S2-S5)

Pain relief with recumbency and/or pain with movement/loading of the spine

- 3 points: Yes
- 1 point: No (occasional pain but not mechanical)
- 0 points: Pain free lesion

Bone lesion

- 2 points: Lytic
- 1 point: Mixed (lytic/blastic)
- 0 points: Blastic

Radiographic spinal alignment

- 4 points: Subluxation / translation present
- 2 points: De novo deformity (kyphosis / scoliosis)
- 0 points: Normal alignment

Vertebral body collapse

- 3 points: >50% collapse
- 2 points: <50% collapse
- 1 point: No collapse with >50% body involved
- 0 points: None of the above

Posterolateral involvement of the spinal elements (facet, pedicle or costovertebral joint fracture or replacement with tumor)

- 3 points: Bilateral
- 1 point: Unilateral
- 0 points: None of the above

Interpretation

- sum score 0-6: stable
- sum score 7-12: indeterminate (possibly impending) instability
- sum score 13-18: instability

SINS scores of 7 to 18 warrant surgical consultation.

Reference

Fisher CG, DiPaola CP, Ryken TC, Bilsky MH, Shaffrey CI, Berven SH, et al. A novel classification system for spinal instability in neoplastic disease: an evidence-based approach and expert consensus from the Spine Oncology Study Group. Spine 2010; 35:E1221-9.