

GUIDELINES FOR THE DIAGNOSIS AND MANAGEMENT OF ADULTS AT RISK OF AND WITH METASTATIC SPINAL CORD COMPRESSION

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ESSENTIAL READING FOR THE FOLLOWING STAFF GROUPS:

- 1 Acute Medical team**
- 2 Orthopaedic surgical team**
- 3 Accident and emergency staff,
medical and nursing**
- 4 Rehabilitation team**
- 5 Neurology team**
- 6. Acute Oncology team**
- 7. Oncologists**

STAFF GROUPS WHICH SHOULD BE AWARE OF THE POLICY FOR REFERENCE PURPOSES:

- 1 Radiologists and MRI radiographers**
- 2. Primary Care staff**
- 3. Specialist Palliative Care Team**

POLICY APPROVAL

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1	September 2012	September 2012	September 2015	New MRI weekend availability, incorporation of Peer review recommendations
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GUIDELINES FOR THE DAGNOSIS AND MANAGEMENT OF ADULTS AT RISK OF AND WITH METASTATIC SPINAL CORD COMPRESSION

KEY POINTS

1. Metastatic Spinal Cord Compression is a medical emergency
2. Referral early for investigation to improve quality of life outcomes and minimise disability
3. Give Dexamethasone 16mg immediately diagnosis suspected unless contraindicated
4. Immobilise spine where spinal instability suspected
5. Arrange a whole spine MRI within 24hrs of presentation
6. Refer the same day for treatment if well enough for treatment
7. Involve rehabilitation services early to support early discharge and improve quality of life.
8. An active approach to bowel and bladder care will improve quality of life.

**PLEASE NOTE THAT THIS LIST IS DESIGNED TO ACT
AS A QUICK REFERENCE GUIDE ONLY AND IS NOT
INTENDED TO REPLACE THE NEED TO READ THE
FULL POLICY**

1. INTRODUCTION

Metastatic spinal cord compression (MSCC) is defined in this guideline as in the 2008 NICE guideline as spinal cord or cauda equina compression by direct pressure and/or induction of vertebral collapse or instability by metastatic spread or direct extension of malignancy that threatens or causes neurological disability.

It occurs most commonly in patients with bone metastasis secondary to breast, prostate and lung cancer, although about 30% of people presenting with MSCC are not previously known to have a cancer.

Prompt treatment before neurological signs are present with the appropriate modality can prevent progression of paralysis and preserve continence of bowel and bladder.

In this document we support the local implementation within SWBH area of the NICE guidance to ensure efficient and effective diagnosis, treatment, rehabilitation and ongoing care of patients with MSCC

2. OTHER POLICIES TO WHICH THIS POLICY RELATES

This builds on the now dissolved Pan Birmingham Cancer Network's Guidelines for the Referral of Patients with Spinal Metastatic Disease and Suspected metastatic Spinal Cord Compression and Guidelines for imaging patients with suspected metastatic spinal cord compression.

3. DEFINITIONS

Metastatic Spinal cord compression (MSCC): When cancer has spread from elsewhere in a person's body to their spine and is causing spinal cord or cauda equina compression by direct pressure and/or induction of vertebral collapse or instability by metastatic spread or direct extension of malignancy that threatens or causes neurological disability.

MSCC co-ordinator role: within SWBH this is fulfilled by the Acute Oncology Service: Mon – Friday 8am-8pm, Weekend and Bank Holiday 8am – 1pm, CNS via switchboard.

4. ROLES AND RESPONSIBILITIES

Clinical team making diagnosis of bone metastasis	<ul style="list-style-type: none">• Counsel patient on risks of MSCC• Give written information on Bone Metastasis and risk of MSCC
Patient	<ul style="list-style-type: none">• Be aware of symptoms and signs of MSCC• Report early to clinician
Information technology department SWBH	<ul style="list-style-type: none">• Ensure alert process in place when people known to have bone metastasis are admitted to hospital
Primary care team	<ul style="list-style-type: none">• Be alert for signs and symptoms of impending MSCC• Refer urgently for investigation as per guidance
Acute Hospital care team	<ul style="list-style-type: none">• Give Dexamethasone as long as not contraindicated when diagnosis considered• Refer urgently for MRI with appropriate

	<p>clinical information to allow prioritisation</p> <ul style="list-style-type: none"> • If positive scan for MSCC to refer immediately to appropriate clinical Oncologist • If Oncology team recommends that a spinal surgical referral is needed contact the ROH completing referral form and ensure images linked • Refer early to rehabilitation services • When uncontrolled symptoms especially of pain refer for Specialist Palliative Care support.
Imaging Department	<p>Perform and report whole spine MRI within:</p> <ul style="list-style-type: none"> • 1 week when a new diagnosis of spinal metastasis is suspected • 24hrs of request when MSCC is suspected
Acute Oncology Service, SWBH	<ul style="list-style-type: none"> • Liaise with clinical oncology and spinal surgeons to expedite pathway • Prospectively collect and report audit data • Provide ongoing education and awareness training on MSCC
Clinical Nurse Practitioners, SWBH	<ul style="list-style-type: none"> • They can review patients who are deteriorating and support junior staff to escalate as appropriate
Executive team, SWBH	<ul style="list-style-type: none"> • Lead prioritisation and identification of resource in the event of more than 4 requests for emergency MRI needed doing within the same 24hrs, which senior clinicians agree all fit the criteria.
Clinical Oncology team University Hospital Birmingham	<ul style="list-style-type: none"> • Be accessible to provide prompt opinion on appropriateness of radiotherapy within 24hrs • To determine whether a surgical referral is required and ensure onward referral has taken place • To be involved in the case discussion with spinal surgeons if required • Ensure access to radiotherapy treatment if required within 24hrs of confirmed diagnosis of MSCC
Spinal surgeons Royal Orthopaedic Hospital, Birmingham	<ul style="list-style-type: none"> • Be accessible to provide prompt opinion on appropriateness of spinal surgery • Liaise with UHB clinical oncology team • Arrange surgery before further neurological deterioration

5. PROCESSES TO ENSURE EARLY DETECTION

5.1 Patient and carer information

Patients newly diagnosed with Bone metastasis at SWBH should be counselled as to the risk of MSCC by an experienced clinician such as an Oncologist, Cancer Site Specific Clinical Nurse Specialist or Specialist Palliative Care Team member and if appropriate offered the a patient information card detailing the symptoms and signs to watch out for.

The clinical team caring for them should also communicate this information to the primary care team, including reference specifically to the patient information leaflet.

5.2 Flagging patients at risk

When a patient receives a new diagnosis of bony metastases an ICM healthcare flag is created.

This flag then sends an email to the Acute Oncology Service (AOS) advising them of a patient who has bony metastases and required adding to their patient intervention and activity database.

The AOS will then contact the appropriate CNS to ensure patient and carer information has been given.

When a patient who is flagged admits as an inpatient an email alert is sent to the AOS who will then attend and triage the patient to rule out suspected spinal cord compression.

Patient with suspected spinal cord compression will have their pathway facilitated by the AOS who will also record prospective audit data.

5.3 People suspected as having new spinal metastasis

The symptoms and signs suggestive of new spinal metastasis include:

- Metastatic cancer/suspected cancer (common in breast, prostate, lung, renal, myeloma), NB can occur as first presentation of a previously undiagnosed cancer
- Pain in the middle (thoracic) or upper (cervical) spine
- Progressive lower (lumbar) spinal pain
- 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.

These should be flagged within 24hrs to the SWBH acute oncology team via switchboard and referred for a whole spine MRI **within the week**.

If spinal metastasis on MRI

Actions:

1. Initial discussion with Oncologist re. radiotherapy/systemic therapy/surgery
2. Oncologist to decide whether onward referral if appropriate to Royal Orthopaedic Hospital
3. If consideration of surgery recommended referral form (Appendix 3), and reports to be completed by SWBH medical team and sent to ROH Spinal Oncology Co-ordinator Monday – Friday 08.00 -16.00 Tel: 0121 685 4000 ext. 55351 or bleep 2705, Fax 0121 685 4146
4. Ensure linking of images to ROH via email to PACS - swb-tr.pacs@nhs.net, out of hours via on call radiographer. Email to include: Patient's name/NHS Number/Hospital number/Destination Hospital/Trust/How the transfer of data will influence the patient's management (i.e. why do you want them transferred)/For whose attention at receiving Trust/The examinations required to be transferred

5.4 Clinical red flags for Metastatic Spinal cord compression

The presenting features of suspected MSCC include:

- **Metastatic cancer/suspected cancer** (common in breast, prostate, lung, renal, myeloma), NB can occur as first presentation of a previously undiagnosed cancer
- **Severe suspicious pain**, band like chest pain, shooting nerve pain, nocturnal pain, progressive spinal pain, sensory impairment
- **+/- Continence**- difficulty in controlling bladder or bowels (late sign)
- **+/- Cannot work** legs \ arms, loss of power (late sign)

6. REFERRAL PATHWAY IF MSCC SUSPECTED

For patients who have the clinical red flags for MSCC it should be treated as a medical emergency to prevent neurological deterioration.

6.1 [When patient in primary care setting](#)

1. An assessment made by the clinician to exclude the patient being in the last few days of life when transfer may not be in the patient's best interest. If patient does not want imaging or clinicians feel this is futile there should be a full assessment of their palliative and supportive care needs.
2. Discussion with the patient +/- carers to ensure:
 - A hospital transfer is acceptable.
 - They understand that the patient will need urgent MRI scan
 - There is a high risk of paralysis if intervention is too late and symptoms progress
3. If the patient and their carers are agreeable to transfer to hospital:
 - **Mon –Fri 8am-8pm, Weekend and Bank Holiday 8am-1pm:** Contact Acute Oncology CNS Tel: 07976499140
 - **All other times:** Refer in to SWBH Acute Medical Unit (AMU) for urgent MRI imaging
4. An emergency ambulance should be arranged for stretcher transfer to SWBH.

6.2 [Referral pathway if MSCC suspected when patient in acute care setting](#)

For patients who have the previously described clinical red flags for MSCC:

1. Clinicians should commence the MSCC pathway clinical notes care bundle (see [sample in Appendix 4](#)). This document is available on order from medical illustration and should be kept in the notes.
2. If patient not an inpatient (e.g. if in A&E or clinic setting) they must be admitted.
3. Nursing staff to utilise nursing guidance on care for patients with [suspected Metastatic spinal cord compression](#).

4. An assessment made to exclude the patient being in the last few days of life when further investigation or treatment may not be in the patient's best interest. If patient does not want imaging or clinicians feel this is futile there should be a full assessment of their palliative and supportive care needs.
5. Patients with suspected MSCC who have been completely paraplegic or tetraplegic for more than 24 hours should wherever possible be discussed urgently with their primary Oncologist or On-call clinical oncologist at UHB before any imaging or hospital transfer.
6. Contact acute oncology service for support Tel: 07976499140 or via bleep through SWBH switchboard (Mon-Fri 8am – 8pm, Weekend and Bank Holiday 8am – 1pm service)
7. Discussion with the patient +/-carers to ensure:
 - a. MRI scan is acceptable (can cause claustrophobia or be limited by severe pain) if MRI not possible consider a CT scan whole spine instead. If still not possible there should be a discussion with Oncology service for alternative investigation.
 - b. They understand that there is a high risk of paralysis if intervention late
 - c. That they would consider hospital transfer for radiotherapy or surgery

Prescription and dispensing to patient **immediately** of Dexamethasone 16mg stat p.o. plus Lansoprazole 30mg unless contraindicated. NB If new Lymphoma diagnosis suspected, steroids may interfere with diagnosis contact consultant Haematologist immediately for advice
To continue once daily (am) until decision made re definitive treatment.

8. Review of the need for analgesics/bed rest – [See Assessment of Spinal stability](#)
9. Emergency MRI should be:
 - Booked immediately by the consultant or registrar
 - Performed within 24hrs
 - Reported urgently verbally to the referring clinician

Emergency MRI Access at SWBH

Sandwell General Hospital

Mon -Fri 08.00 -20.00hrs (protected slot 1-2pm)
Sat & Sun Request directly to consultant Radiologist before 10am for midday slot

City Hospital

Mon-Thurs 08.00-19.00 (protected slot 1-2pm)
Fri 08.00-17.00 (protected slot 1-2pm)
Sat & Sun Request directly to consultant Radiologist before 10am for midday slot (may need transfer on Sunday to SGH if no list available).

In the event of more than 4 requests all needed scanning within 24hrs if after consultant – consultant discussion all fit criteria for imaging, then escalation should be to the Executive Committee member on call for the day for identification of resources.

10. Possible Outcomes of MRI

Outcome 1: If there is a positive result for MSCC or unstable spine with impending MSCC

Actions:

1. Immediate request to PACS team to image link MRI to UHB for Oncology team to review this can be done via email to swb-tr.pacs@nhs.net out of hours via on call radiographer. Email to include: Patient's name/NHS Number/Hospital number/Destination Hospital/Trust/How the transfer of data will influence the patient's management (i.e. why do you want them transferred)/For whose attention at receiving Trust/The examinations required to be transferred
2. On the same day the Medical team should contact patient's own Oncologist, if not known or not available contact on call clinical oncologist for the day via UHB switchboard (24 hr availability) to review MRI images for a definitive management plan within 24hrs.
3. Where appropriate the Oncologist will advise the medical team to liaise with the spinal surgeons at the Royal Orthopaedic Hospital to assess whether surgical review is indicated. This will include decision as to whether a biopsy needed if the patient is previously unknown to have cancer or has a cancer of unknown primary.
4. Radiotherapy if indicated should be arranged to start within 24hours.
5. Surgery if indicated should be arranged within 24hrs by:
 - a. Referral form (Appendix 3) to be completed by SWBH medical team and sent to ROH Spinal Oncology Co-ordinator 08.00 -16.00 Monday – Friday Tel: 0121 685 4000 ext. 55351 or bleep 2705, Fax 0121 685 4146, out of hours contact the spinal surgical registrar on call.
 - b. PACs Image linking to ROH

Outcome 2: Bone metastasis without MSCC

See section 5.3 above on [Spinal Metastasis](#)

Outcome 3: Patient deemed not appropriate for further investigation, radiotherapy or surgery

Actions:

1. Manage symptoms including pain using the [West Midlands Palliative Care Physicians Guidance](#)
2. Discuss with Oncologist the possible use of palliative steroids to maintain function, with clear plan for dose reduction
3. Involve rehabilitation team to ensure effective discharge
4. Consider referral to SWBH Specialist Palliative Care Team
Telephone: 0121 507 2511, Monday to Friday between 8am and 4pm or if at home their appropriate community specialist palliative care team.
5. Assess for psychological distress and consider referral to local psychology services for further support.

Outcome 4: No spinal malignancy

Actions:

Alternative care should be arranged.

7. NURSING GUIDANCE ON CARE FOR PATIENTS WITH SUSPECTED METASTATIC SPINAL CORD COMPRESSION

This is intended as guidance for general nursing staff that may care for patients with suspected MSCC to allow identification of potential problems at the earliest opportunity, maintenance of comfort and safety and to manage associated problems as effectively as possible.

7.1 Key Actions

1. Ensure that the patient remains on strict bed rest until spinal instability is ruled out. If spinal instability is suspected, nurse flat and log roll when moving/turning.
2. Refer to rehabilitation services to be seen within 24hrs of suspicion of MSCC.
3. Carry out a holistic nursing assessment but assess for specific signs and symptoms of spinal cord compression e.g. back pain, upper and lower motor deficits, sensory deficits and autonomic dysfunction
4. Steroids should be commenced **immediately**.
5. Ensure acute oncology service aware of patient Tel: 07976499140 or via bleep through SWBH switchboard (Mon-Fri 8am – 8pm, Weekend and Bank Holiday 8am – 1pm service)

7.2 Holistic Assessment

7.2.1 Pain

1. Observe for any pain and allow the patient to describe the nature of this pain.
2. Give prescribed analgesia and observe effect. Seek advice from palliative care support team if indicated and patient consents.
3. Continue strict bed rest, nurse flat, log roll and ensure careful positioning and handling to minimise further back pain and seek advice from the physiotherapy team.
4. If cervical lesion is responsible for the cord compression then refer urgently to orthotics to fit cervical collar and give further advice to prevent movement of head, Mon – Fri between 8.30am and 4pm fit a hard collar (Miami J or Philadelphia), ext 2784 (Sandwell) ext 4358 (City). Out of these hours use neck blocks to immobilise head.

7.2.2 Autonomic dysfunction

1. Observe for signs of urinary hesitancy or retention or incontinence, encourage regular toileting and promote diuresis.
2. If incontinent of urine, catheterise on doctors instructions and ensure catheter/skin care is carried out, adequate intake of oral fluids and monitor for infection.
3. Observe the patient's bowel habit daily; assessing for constipation, loss of urge to defecate or incontinence.
4. Give prescribed laxatives; administer suppositories/enema if necessary, providing dignity, support and skin care as appropriate. (refer to [Guidance on Bowel Management in Patients with Metastatic Spinal Cord Compression](#))

7.2.3 Motor deficits (weakness, heaviness, stiffness, loss of coordination or paralysis in limbs) and Sensory deficits (numbness, paraesthesia):-

1. Liaise with physiotherapists who will conduct assessment of motor function and sensory deficits; and will provide advice/instruction in respect of nursing management.

2. Observe pressure areas daily and avoid injury to skin. Nurse the patient on a profiling bed & pressure relieving mattress but not airflow.
3. Assist with personal hygiene ensuring spine stays in line, give effective analgesia prior to activity if required.
4. Observe for signs of chest infection (increased respirations, pyrexia, cough, sputum) and report.
5. Observe for any signs of DVT due to immobility.

7.2.4 Psychological care

1. Assess the patient's psychological state, listen, support, explain and reassure as appropriate.
2. If required refer for psychological assessment by trained personnel.

7.3 Transfer for treatment with radiotherapy or spinal surgery

1. There should be provision for pain relief prior to journey. Send additional oral analgesia to accompany outpatients, which can be used if necessary while they are off site.
2. Copies of health records and drug charts must accompany patient

8. ASSESSMENT OF SPINAL STABILITY

- 8.1 Spinal instability refers to the ongoing or potential for neurological damage as a result of movements of the diseased spine. 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.

Clinical studies in this subject are too few to support the formation of evidence-based guidelines. Even patients judged to have a stable spine may develop instability, following minor trauma or further tumour growth along the spinal column.

This guideline has been adapted from Christie Hospital's Guidelines for assessment of spinal stability.

- 8.2 Spinal stability in metastatic spine disease is dependent on the following factors:

1. *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.
2. *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.
3. *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.

4. *Effect of open surgery or disease progression:* Decompressive surgery alone may alter the stability status of the spine fixation. Spinal stability may also be compromised in some patients managed non-surgically, due to tumour progression. In this instance follow pathway for urgent radiotherapy

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 **[if in doubt, obtain a surgical opinion from Spinal Surgeon on call at the Royal Orthopaedic Hospital (ROH)]**.

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

- Ensure patient is nursed on flat bed and log rolled.
- If cervical lesion is suspected, Mon – Fri between 8.30am and 4pm fit a hard collar (Miami J or Philadelphia) via urgent referral to orthotics, ext 2784 (Sandwell) ext 4358 (City). Out of these hours use neck blocks to immobilise head.
- In addition to MRI and if the overall clinical situation suggests surgery may be appropriate a staging CT scan will normally be suggested. This should include transverse images of any involved spinal levels with sagittal and coronal reformats which will facilitate decisions about stability and suitability for vertebroplasty. (this should not delay referral of urgent cases i.e. deteriorating neurology)
- Obtain an urgent surgical opinion from Royal Orthopaedic Hospital spinal surgeons.

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

8.5 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 with or without tumour progression. 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.

9. BOWEL MANAGEMENT IN PATIENTS WITH METASTATIC SPINAL CORD COMPRESSION

9.1 Autonomic dysfunction is a late sign of spinal cord compression that can cause significant disturbance in bowel habit. This can be manifest as loss of rectal sensation, constipation, diarrhoea or incontinence.

9.2 Management may be influenced by the level of the vertebral lesion:

Above T12-L1 'reflex bowel' (reflex arcs intact)

- Cauda equina in tact → spastic bowel; sacral reflex generally preserved

Below T12 – L1 'flaccid bowel' (reflex arcs damaged)

- Cauda equina involved → flaccid bowel; generally requires manual evacuation of rectum

9.3 ABC approach

Assessment

1. What is the level of compression?
2. Document the current bowel habit
3. Review and document the current medication
 - laxatives / suppositories
 - constipating drugs (e.g. opiates)
4. Examination – including PR, assessment of anal tone, faecal loading
5. Assess bladder function (constipation may contribute to bladder symptoms)

Baseline abdominal x-ray

If suspicion of obstruction or to assess for faecal loading

Control protocol

- **Aim is regular evacuation of formed faeces every 1-3 days**
- **Controlled continence may take weeks to achieve - the protocol below should be varied according to response to treatment and individual needs**

9.4 Management strategy

Step 1 If faecal loading:

- 1st line: insert 2 glycerine suppositories or micro-enema deep into the rectum
- Digital manual stimulation may be useful if spastic bowel (lesion above T12-L1)*
- 2nd line Microlax enema
- 3rd line Phosphate enema
- 4th line: gentle digital manual evacuation (Generally required if flaccid bowel – lesions below T12-L1)*

Step 2 Establish regular bowel routine:

- Review diet / fluid intake (high fibre diet, high fluid intake)
- Regular oral laxatives with PR intervention every 1-3 days may be required to achieve controlled continence (see below).
- Consider anti-diarrhoeal preparations (e.g. loperamide or codeine) *as part of a* control regime if there is persistent faecal leakage.

Step 3 Recommended regular oral laxatives regime

Softener: Sodium Docusate 200mg bd

NB Non formulary drug please complete DTC online proforma giving details of indication

Stimulant: Senna 2 tabs alt. nights (or night before PR intervention)**

Step 4 Recommended regular PR intervention regime

Suppositories: Glyceine 1 supp each night

If not effective: Microlax enema (instead of suppositories)

* Follow trust guidelines on [digital rectal examination and manual removal of faeces available on trust intranet](#)

**Also consider Movicol (1-2 sachets) if required - up to 6 sachets if faecal impaction

Note: Autonomic dysreflexia

- Autonomic dysreflexia is a potential problem if the spinal lesion is above T7
- It presents as headache (often pounding), profuse sweating, nasal stuffiness, facial flushing, hypertension and bradycardia
- It is caused by a stimulus below the level of the lesion causing sympathetic autonomic over activity → vasoconstriction and hypertension; this stimulates parasympathetic over activity above the lesion via the carotid and aortic baroreceptors
- Action: treat the cause - check urinary catheter; PR assessment

10. POST- METASTATIC SPINAL CORD COMPRESSION TREATMENT GUIDANCE

This is intended as guidance for general staff that may care for patients with suspected MSCC to allow identification of potential problems at the earliest opportunity, maintenance of comfort and safety and to manage associated problems as effectively as possible.

10.1 Roles and Responsibilities

10.1.1 Medical Team

- Check patient and carer understanding of treatment, including giving information leaflets
- From day 2 post completion of **radiotherapy** reduce Dexamethasone dose by 4mg every two days unless directed otherwise by the treating oncologist.
 - If patients develop worsening pain or neurological signs / symptoms increase to previous dose and seek advice
- Post **spinal surgery**, review surgical plan for steroid reduction and mobilisation, if none available contact surgeons directly for advice.
- Ensure adequate analgesia prescribed, including prn
- Ensure thromboprophylaxis guidelines followed (LMWH and anti-embolism stockings) unless contraindication.
- Monitor chest for signs of infection.
- Monitor for spinal shock (low BP, tachycardia).
- Consider commencement of the Supportive Care Pathway.

10.1.2 Nursing Team

- Document pressure areas and assess Waterlow score.
- Perform 2 hourly turns and checks if patient immobile.
- Ensure bowels open – refer to [Guidance On Bowel Management In Patients With Metastatic Spinal Cord Compression](#).
- Ensure passing urine adequately – if uncertain perform bladder scan
 - Catheterise if necessary
- Support patient and family psychologically.
- Observe for any pain and allow the patient to describe the nature of this pain.
- Give prescribed analgesia and observe effect.
- Ensure regular observations performed (HR, BP, RR, pulse oximetry)
- Check blood sugar if on steroids (Dexamethasone)
- Refer to specialist palliative care team if patient consents
- Refer to other HCPs as needed (e.g.) dietician, social worker
- Referral should be made to both the Physiotherapy & Occupational Therapist (OT) within 24 hours of admission

10.1.3 Occupational Therapy

Initial assessment (not necessarily done in one day) of:

- Physical ability
- Cognitive function
- Psychological state
- Functional assessment of ADLs
- Ensure realistic goal setting
- Use of wheelchairs / adaptations as appropriate
- Early consideration of discharge planning

10.1.4 Physiotherapy – see [Protocol For Mobilisation And Rehabilitation Following Treatment For Spinal Cord Compression](#)

- Mobilisation of patients should only be attempted by physiotherapists with specialist knowledge of this area (e.g.) specialist neurology or oncology physiotherapists.
- Assess respiratory function and need for breathing exercises / assisted coughing
- Gradually increase angle patient is nursed at from flat to upright, as per network guidance
- Once able to sit upright, assess sitting balance and continue attempts to mobilise as per network guidance
- Use brace / collar if spinal instability suspected
- Liaise closely with OT regarding goal setting and discharge planning.

10.1.5 Discharge planning

- All members of the MDT should be involved in discharge planning which should start early in the patient journey.
- Ensure transfer sheet is completed and forwarded to relevant professionals.

11. PROTOCOL FOR MOBILISATION AND REHABILITATION FOLLOWING TREATMENT FOR SPINAL CORD COMPRESSION

The aim of rehabilitation is to improve quality of life, maintain or increase functional independence, prolong life by preventing complications and to return the patient to the community wherever possible.

11.1 Key points:

- Referral should be made to both the Physiotherapy & Occupational Therapist (OT) within 24 hours of admission and all patients assessed within 24-48 hours, wherever possible.
- Initial physiotherapy and occupational therapy assessments and management should be performed following discussion with the Medical team regarding spinal stability.
- Rehabilitation should be patient-centred with short-term, realistic goals, which focus on functional outcomes in order to achieve the best quality of life for each individual patient.
- All patients with MSCC should have daily re-assessment for changes in their condition and the treatment plan revised accordingly.
- Even if functional outcome is limited; quality of life may be achieved by providing patients with physical, social and emotional support and a sense of control.

11.2 Admission

Patient on flat bed rest and log rolled, nursed profiling bed – assume spine unstable until radiological evidence/clinical findings suggest otherwise.

If cervical lesion suspected – fit with Miami J collar/sand bags to stabilise spine.

- Assessment of muscle power and sensation – record on chart.
- Assessment of respiratory function.
- Advice/reassurance and ensure patient information sheet given.
- Teach passive/active leg exercises, calf massage (if not on anticoagulants), thoracic breathing exercises, assisted cough (if applicable).

11.3 Following treatment with radiotherapy or surgery

Day 1: If radiotherapy discuss MRI results and treatment with medical team and if necessary the treating oncologist. If spinal surgery then review written surgical plan, if none available then contact surgical team directly by telephone. If spine and neurology stable and pain permit:

- Re-assess muscle power and sensation – record on chart.
- Once spinal shock has settled gradual sitting to 60° over a period of 3-4 hours. Re-assess at intervals.
- Passive/active leg exercises, calf massage, breathing exercises.

Day 2: If clinical findings stable and pain permits commence gentle mobilization (if able) by:

- sitting edge of bed/in chair
- standing/walking (mobility aids, as required)

N.B. Monitor any changes. If increased pain or deterioration in neurology, return to flat bed rest and report to medical team.

Day 3: Set appropriate and realistic goals with patient.

- Continue all above + progress mobility, as able
- Patients with incomplete/complete paraplegia:
 - sitting balance
 - supply wheelchair for loan in hospital
 - assess functional grip

Day 4: Patients with incomplete/complete paraplegia, progress to:

- rolling supine → side
- lying → sitting
- improved sitting balance
- sliding board transfers
- wheelchair assessment
- pressure lifts / pressure care
- wheelchair skills
- advanced transfers
- assessment and practice of personal and domestic activities of daily living
- provide appropriate aids
- If pain persists, consider use of external support (collar and braces)
- If patient has not achieved sitting balance within 1 week, unlikely to be able to do sliding board transfers and will require hoisting

11.4 Unwell and bed bound patients

Prophylactic care: Passive leg exercises, teach relatives calf massage and TA stretch

11.5 Ongoing care options to consider with patient and carers

- Home with input from community services
- Intermediate care for rehabilitation
- Hospice for respite, symptom control or end of life care
- Nursing home (palliative, intermediate, long-term care, no prospect of rehabilitation)
- Spinal unit/rehabilitation unit (good general condition/long-term prognosis, i.e. months to years)
- If rehabilitation not appropriate, screen for CHC (NHS Continuing Health Care)

For further advice regarding rehabilitation, contact the Physiotherapy and Occupational Therapy Departments at SWBH, or the Macmillan Oncology OT in the SWBH Specialist Palliative Care Team.

12. CONSULTATION

This process and guideline document has been developed by:

1. Dr Anna Lock, Consultant in Palliative Medicine SWBH
2. Suzanne Miles, Senior Physiotherapist SWBH
3. Jenny Donovan Cancer Lead SWBH
4. Adrian Kearns Pan Birmingham Cancer Network
5. Dr Neilsuraj Patel Acute Physician SWBH
6. Dr Rod Macrorie Macmillan GP Sandwell

And sent for comments to:

1. Dr Jenny Pascoe Consultant Medical Oncologist and joint lead of SWBH Acute Oncology team
2. SWBH Cancer Locality Group (CLEG)
3. Acute Medicine Directorate (SWBH)
4. Mr Alistair Stirling Spinal Surgeon and Pan Birmingham Cancer Network Bone Metastasis Network Site Specific Group member
5. Kay Harries Pan Birmingham Cancer Network AHP lead
6. Anita Killingworth Spinal cord compression co-ordinator Royal Orthopaedic Hospital
7. Dr David Spooner Clinical Oncology Consultant and Chair of the Pan Birmingham Cancer Network Bone Metastasis Network Site Specific Group
8. Fiona Shorney and Linda Pascall Assistant Director of Nursing - Workforce & Strategy Nursing, Therapies & Facilities

13. AUDITABLE STANDARDS/PROCESS FOR MONITORING EFFECTIVENESS

The standards chosen are based on the NICE guidance on MSCC Audit support tool

Criterion		Exceptions	Standard
1	Percentage of patients at high risk of developing bone metastases, patients with diagnosed bone metastases or patients with cancer who present with spinal pain offered evidence-based written information about: <ul style="list-style-type: none">• symptoms of MSCC• what to do on symptom onset• the treatment and care they should be offered, for example using the Pan Birmingham booklet	none	100%

	<p>Cancer that has spread to the bones (bones metastases)</p> <ul style="list-style-type: none"> the service providing their treatment and care. 		
2	<p>Percentage of carers of patients at high risk of developing bone metastases, patients with diagnosed bone metastases or patients with cancer who present with spinal pain offered evidence-based written information about:</p> <ul style="list-style-type: none"> symptoms of MSCC what to do on symptom onset the treatment and care the patient should be offered for example using the Pan Birmingham booklet Cancer that has spread to the bones (bones metastases) the service providing the patient's treatment and care. 	Where no carer is involved	100%
3	<p>Percentage of patients with cancer that were discussed with the MSCC coordinator (SWBH Acute oncology service) <u>within 24 hours</u>, who exhibited any of the following symptoms suggestive of spinal metastases:</p> <ul style="list-style-type: none"> pain in the middle (thoracic) or upper (cervical) spine progressive lower (lumbar) spinal pain severe unremitting lower spinal pain spinal pain aggravated by straining localised spinal tenderness nocturnal spinal pain preventing sleep. 	None	100%
4	<p>Percentage of patients with cancer that were discussed with the acute oncology service, who exhibited signs suggestive of spinal metastases and any of the following symptoms and signs suggestive of MSCC:</p> <ul style="list-style-type: none"> neurological symptoms including radicular pain, any limb weakness, difficulty in walking, sensory loss or bladder or bowel dysfunction neurological signs of spinal cord or cauda equina compression. 	None	100%
5	Percentage of patients with suspected MSCC who had MRI of the whole spine in order to plan definitive treatment.	None	100%
6	<p>Percentage of patients who had a whole spine MRI (as detailed in Criterion 5a), where the definitive treatment was planned:</p> <ul style="list-style-type: none"> within 1 week of the suspected diagnosis in the case of spinal pain suggestive of spinal metastases, or 	None	100%

	<ul style="list-style-type: none"> • within 24 hours in the case of spinal pain suggestive of spinal metastases and neurological symptoms or signs suggestive of MSCC. 		
7	<p>Percentage of patients nursed flat with neutral spine alignment until spinal and neurological stability was ensured, if they exhibited the following:</p> <ul style="list-style-type: none"> • severe mechanical pain suggestive of spinal instability, or • any neurological symptoms or signs suggestive of MSCC. 	None`	100%
8	Percentage of patients for whom definitive treatment was started, if appropriate, before any further neurological deterioration.	None	100%
9	<p>Percentage of patients with MSCC whose discharge planning and ongoing care was started on admission and led by a named individual and involved the following:</p> <ul style="list-style-type: none"> • the patient and their families and carers • their primary oncology site team • rehabilitation team • community support <p>primary care and specialist palliative care (as required).</p>	None	100%
10	MSCC patients requiring definitive treatment or who are unsuitable for surgery should have access within 24 hours to radiotherapy and simulator services.	None	100%

Audit programme within SWBH

Data pertaining to the above standards will be collected prospectively by the acute oncology service and reported 6 monthly to the SWBH Cancer Locality Group for action and service improvement.

14. TRAINING AND AWARENESS

Staff group	Training/Awareness Need	Session	Delivered by (date)
GP's Primary Care	Awareness of referral pathway and urgency of treatment	Sandwell Protected Learning Event 28 th March 2012 Email/letter with referral pathway to all Primary Care teams within RCRH area	Dr Anna Lock
GP's out of hours	Awareness of presenting symptoms and referral pathway	21 st March 2012 workshop on palliative care including management of MSCC Prime care OOH service provider	Dr Anna Lock and Dr Diana Webb
Hospital Clinical nurse specialists	Counselling patients at risk of MSCC and use of patient information leaflets Awareness of presenting symptoms and referral pathway	16 th February 2012 CNS team meeting to discuss use to leaflets	Dr Anna Lock
Clinical oncologists	Counselling patients at risk of MSCC and use of patient information leaflets	Ongoing	Personal communication by Dr Jenny Pascoe and Dr Anna Lock
Medical FY1/2 City and Sandwell sites	Urgency of treatment, imaging and referral Post treatment care	Part of regular training for each FY1/2 rotation	Dr Anna Lock
Acute medicine team	Understanding of urgency of initial treatment and referral for MRI and ongoing treatment	Raising awareness with posters and case based learning	Dr Neilsuraj and Acute Oncology CNS
Nursing staff	Awareness of care needs pre and post diagnosis, role and urgency of dexamethasone	Raising awareness with posters and case based learning	Acute Oncology CNS
Rehabilitation team	Spinal stability Rehabilitation process		Suzanne Miles

15. EQUALITY AND DIVERSITY

The Trust recognises the diversity of the local community and those in its employment. Our aim is, therefore, to provide a safe environment free from discrimination and a place where all individuals are treated fairly, with dignity and appropriately to their need. The Trust recognises that equality impacts on all aspects of its day-to-day operations and has produced an Equality Policy Statement to reflect this. All policies are assessed in accordance with the SWBH Equality Impact Assessment Toolkit, the results for which are monitored centrally.

16. REVIEW

This guideline will be reviewed in 3 years.

17. REFERENCES

1. NICE guideline on Metastatic Spinal Cord Compression(CG75) (2008)
2. Christie Hospital's Guidance, Assessment of Spinal Stability
3. Christie Hospital's Guidance (2009), Bowel management in patients with Metastatic spinal cord compression
4. Royal College of Nursing (2004). Guidance for nurses RCN publication Digital rectal examination & manual removal of faeces
5. Norton C et al, Management of faecal incontinence in adults: summary of NICE guidance, BMJ 2007;334:1370-1

18. FURTHER ENQUIRIES

Questions about this guideline should be directed to Dr Anna Lock, Consultant in Palliative Medicine

**Could your community patient have Metastatic Spinal Cord Compression (MSCC)?
EMERGENCY REFERRAL TODAY**

Metastatic cancer/suspected cancer (common in breast, prostate, lung, renal, myeloma), NB can occur as first presentation of a previously undiagnosed cancer
Severe suspicious pain, band like chest pain, shooting nerve pain, nocturnal pain, progressive spinal pain, sensory impairment

+/- Contingence- difficulty in controlling bladder or bowels (late sign)

+/- Cannot work legs \ arms, loss of power (late sign)



Exclude last few days of life

Discuss with patient and carers

1. Patient will need urgent MRI scan
2. High risk of paralysis if intervention late
3. Acceptability of hospital transfer



**Mon – Fri 8am-8pm, Weekends and Bank Holiday
8am – 1pm**

Contact Acute Oncology CNS Tel: 07976499140

All other times

Refer in to AMU for urgent MRI imaging



**Emergency ambulance for stretcher transfer to
SWBH**



Acute trust will liaise with cancer centre if spinal cord compression confirmed for possible spinal surgery, radiotherapy and supportive care

Could your patient have Metastatic Spinal Cord Compression? EMERGENCY ACTION TODAY

Metastatic cancer\suspected cancer (common in breast, prostate, lung, renal, myeloma), NB can occur as first presentation of a previously undiagnosed cancer
Severe suspicious pain, band like chest pain, shooting nerve pain, nocturnal pain, progressive spinal pain, sensory impairment
+/- Continenence- difficulty in controlling bladder or bowels (late sign) **Catheterise if necessary**
+/- Cannot work legs \ arms, loss of power (late sign)

- a. Exclude last few days of life
- b. Discuss with patient and carers
 - Patient will need urgent MRI scan
 - High risk of paralysis if intervention late
 - Acceptability of hospital transfer for radiotherapy or surgery

1. Give Dexamethasone 16mg stat p.o. plus Lansoprazole 30mg unless contraindications (to continue o.d. mane, seek AOS advice)
2. Review need for analgesics/bed rest – **See Spinal cord compression assessment tool**
3. Contact Acute Oncology Service via switchbaord

Emergency MRI within 24hrs (consultant or registrar to book)

Sandwell General Hospital

Mon-Fri 08.00 -20.00hrs (protected slot 13.00-14.00hrs)

Sat, Sun D/W Consultant radiologist
& BH before 10am for 12.00hrs slot

City Hospital

Mon-Thurs

Fri

Sat, Sun
& BH

08.00-19.00hrs (protected slot 13.00-14.00hrs)

08.00-17.00 (protected slot 13.00-14.00hrs)

D/W Consultant radiologist
before 10am for 12.00hrs slot (may need SGH transfer on Sun)

Same day verbal result

Positive result

Same day: Medical team to contact patient's own Oncologist, if not known or not available contact Oncall clinical oncologist for the day via UHB switchboard (24 hr availability)

If surgical opinion needed UHB Oncology team to contact ROH Spinal Oncology Co-ordinator 08.00 -16.00 Monday – Friday Tel: 0121 685 4000 ext. 55351 or bleep 2705, Fax 0121 685 4146 out of hours the on call spinal team via switch 0121 685 4000

Negative result

Alternative care arranged

Plan of care in place within 24hrs
Surgery/radiotherapy/supportive care

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:- <i>An acknowledgement will be faxed back, please give the fax number:</i>	
Type of referral <i>Emergency Referral (telephone call already made, form can be sent separately)* Urgent Referral* *Delete as appropriate</i>	
Patient Details	Referring Consultant/GP/Oncologist
Surname	Consultant/GP
Forename	Contact No (Mobile)
D.O.B.	Oncologist (If already diagnosed)
Gender	Contact No (mobile)
Address	Is Oncologist aware of referral Y/N
Postcode	Current Relevant Co-morbidities
Telephone No	None
NHS No	1
In / Out Patient	2
	3
Hospital and Ward	Hb Ca++ Alb
Direct Dial Number	Is patient anticoagulated? Y / N
Tumour Presentation (circle provisional diagnosis)	Prior Discussion at MDT Y / N
Previous known primary: probable mets	Hospital Date
Previous unknown primary; probable mets	Patient understanding
Probable musculo-skeletal primary	Has diagnosis and possible surgery been discussed with patient? Y / N
Probable intradural primary	Does Patient wish to consider surgery? Y / N
Estimated prognosis >3 months Y/N/not known	Has an information booklet been provided for the patient? Y / N
Biopsy Y/N	Has an information booklet been provided for the carer? Y / N
Result Date	

PAGE 1 OF 2 PLEASE COMPLETE NEXT PAGE

Spinal Oncology Referral Form (PAGE 2 OF 2)

Patients Name:	DOB
TUMOUR	SPINE
Primary <i>(circle disease site)</i> 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	Walking Status
1	Normal
2	Unsteady since (date)
3	Not ambulant since (date)
Previous Metastases Y / N	Incontinence
Define	Urinary Y / N since (date)
	Faecal Y / N since (date)
	PR Y / N
	Anal tone Y / N since (date)
Current Staging	Sensory Level Y/N
Osseous Mets Y / N	Define Since
Isotope scan -date / Not done	Lowest MRC grade 0 1 2 3 4 5
Plain Radiographs -date / Not done	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	CXR -date / Not done
Liver US -date / Not done	Sites:-
Other relevant information Please send all available imaging and copies of reports	
Senior clinical advisor review (1)	Senior clinical advisor review (2)
Name:-	Name:-
Decision:	Decision:
Details of clinician responsible for on-going care of the patient following surgery.	
Name:-	Contact Number:-

Suspected Metastatic Spinal Cord Compression Pathway (MSCC)

Date of completion: ____ / ____ / ____

Time of completion: ____ : ____

Name: _____

Designation: _____

Surname	Reg no	
Forename	Sex	Date of birth
Address	Cons	
	Ward/Dept	
	Hosp	

Patient history suggestive of cancer?

Clinical information on Clinical Data Archive (CDA)?

Presentation suggestive of cancer?

Investigations suggestive of cancer?

Tick
appropriate box
☐
☐
☐
Yes to
one or
moreGo to
symptom
assessment for
possible cord
compression

No to all

Investigate other causes of symptoms
Discontinue pathway**Any Symptoms suggestive of MSCC?**

Tick all boxes that apply

Severe suspicious pain

- a. Band like chest pain
- b. Shooting nerve pain
- c. Nocturnal back pain disturbing sleep
- d. Escalating back pain

Subjective neurology reported in history

- a. Altered sensation
- b. Gait disturbance

Continence (late signs)

- a. Difficulty controlling bladder
- b. Difficulty controlling bowels

Function (late signs)

- a. Reduced leg power
- b. Reduced arm power

No

Yes

1. If referred by cancer team for investigation please contact cancer CNS or Oncologist via switchboard to discuss plan of care prior to discharge
2. Investigate other causes of symptoms

Patient at risk
of MSCCAdmit to
inpatient
bed and
start MSCC
pathway
immediately

Metastatic spinal cord compression pathway meeting NICE standards

Preventing paralysis	Time done	Print name	Reason not done/results
1. Dexamethasone 16mg stat dose (continue o.d. until result of MRI) + Proton Pump Inhibitor. Seek advice if: a. Steroids contraindicated b. Lymphoma suspected (steroids interfere with diagnosis - contact Haematologist immediately if lymphoma suspected) c. Surgery likely: good general condition i.e. expected survival > 6months (contact surgeon immediately for advice if unable to contact, give steroids)			
2. MRI Whole spine booked as urgent - WITHIN 24HRS OF REQUEST MRI Access: <ul style="list-style-type: none"> Mon-Sat 8.00-17.00hrs @ SGH and City Hospitals Sat, Sun & BH D/W Consultant radiologist before 10am for 12.00hrs slot If patient has poor performance status and widespread metastatic disease, or has been completely paraplegic or tetraplegic for more than 24 hours, discuss with an oncologist before imaging or transfer If MRI contraindicated discuss with clinical oncologist via UHB switchboard 			
3. Referral made to Acute Oncology Team			

Preserving function	Time done	Print name	Reason not done/results
Check for urinary retention			
Prescribe analgesia			
Patient on flat bed rest and log rolled, nursed profiling bed – assume spine unstable			
Not for air mattress if spinal instability suspected			
If cervical lesion suspected – fit with Miami J collar/sand bags to stabilise spine			
Prescribe low molecular weight heparin unless contraindicated or surgery likely within 24hrs			
Refer to rehab team			
Communication			
Explain plan with patient and carers			

MRI results- verbal within 24hrs	Tick appropriate box	Action taken	Time done	Print name
MSCC or Cauda Equina		Immediately contact own Oncologist or on call clinical oncologist via UHB		
Threatened Cord at high risk of progressing to MSCC		Immediately contact own Oncologist or on call clinical oncologist via UHB		
New spinal metastases		Contact own Oncologist or AOS if unknown to oncologist		
Benign pathology		Leave pathway		
No pathology		Leave pathway		

Outcome of discussion

Oncology advice outcome	Tick appropriate box	Date done	Print name	Outcome
Refer to Spinal surgery team @ Royal Orthopedic hospital				
Radiotherapy (NB reconsider if not for surgery)				
Best supportive care only				