Investigation and Management of Patients with Suspected Metastatic Spinal Cord Compression (MSCC) Clinical Guideline

V1.0

August 2019
Summary
Royal Cornwall Hospital Metastatic Spinal Cord Compression

Suspected MSCC is a medical emergency and patients should be investigated urgently

Suspect MSCC in any cancer patients with the following:
• New or increasing severe back pain
• Neuropathic pain
• New limb weakness
• Any new sensory loss
• Bladder/bowel dysfunction

Patient presents with symptoms suspicious of MSCC
- Initiate steroid therapy (16mg STAT Dexamethasone PO/IV then 8mg BD. Add PPI cover
- If any suspicion of lymphoma discuss immediately with haematology team before steroids
- Inform Acute oncology team via MAXIMS
- Protect vulnerable spinal alignment through rest and appropriate immobilisation

Urgent Whole spine MRI & reporting by a senior radiologist within 24 hrs

MRI confirms MSCC
- Continue steroids until definitive treatment. 8mg BD dexamethasone
- Discuss with first-on-call for oncology via switchboard

Patient is surgical candidate
- Contact Royal Devon & Exeter Spinal orthopaedic surgery team: 01392 411611
- Electronic referral www.spinalreferback.co.uk
- Transfer for specialist spinal surgery as appropriate

MRI negative for MSCC.
- Manage as appropriate: stop / wean steroids.
- If MRI shows impending cord compression manage as

Patient is not surgical candidate

Acute Oncology / Oncology consultant to consider appropriate management plan
(Radiotherapy, chemotherapy, immunotherapy, palliative care)

In all cases of symptomatic spinal metastatic pain consider early input from palliative care

Investigation and Management of Patients with Suspected Metastatic Spinal Cord Compression (MSCC) Clinical Guideline V1.0
1. Aim/Purpose of this Guideline

1.1. This guideline applies to clinical staff managing patients with metastatic spinal cord compression. Its aim is to help improve the timely diagnosis and initial treatment of metastatic spinal cord compression in adult patients at RCHT.

1.2. This version supersedes any previous versions of this document.

1.3. Data Protection Act 2018 (General Data Protection Regulation – GDPR) Legislation

The Trust has a duty under the DPA18 to ensure that there is a valid legal basis to process personal and sensitive data. The legal basis for processing must be identified and documented before the processing begins. In many cases we may need consent; this must be explicit, informed and documented. We can't rely on Opt out, it must be Opt in.

DPA18 is applicable to all staff; this includes those working as contractors and providers of services.

For more information about your obligations under the DPA18 please see the ‘information use framework policy’, or contact the Information Governance Team rch-tr.infogov@nhs.net

2. The Guidance

2.1. Background

2.1.1. Metastatic spinal cord compression is an oncology emergency. It is more common among patients with advanced prostate, lung, breast, renal cancer and myeloma – but can occur in any malignancy. It may be the first presentation of cancer up 15% of cases so low index for suspicion is important.

2.1.2. The clinical presentation of MSCC can be variable but include

- thoracic or cervical pain, progressive lumbar spinal pain in the majority of cases as early symptom
- severe unremitting lower spinal pain, spinal pain aggravated by straining, localized tenderness
- nocturnal spinal pain preventing sleep
- limb weakness
- difficulty in walking
- sensory disturbance
- loss of bladder or bowel function.

2.1.3. Early diagnosis and treatment are essential to prevent permanent neurological damage, so early recognition by non-specialists coupled with rapid referral pathways and treatment are required. Delay in treatment results in paraplegia as early as 48 hours post MSCC.
2.2. Initial Management

2.2.1. Assessment History:
- Details of presenting symptom (for pain, this includes anatomical level of localized pain in spine and/or anatomical level of radicular pain)
- Confirmed history of malignancy, staging and previous treatment (including whether the patient previously had radiotherapy to the spine)
- Medical comorbidities
- Full neurological examination

In patients with suspected metastatic spinal cord compression the following should be done immediately.

2.2.2. High dose steroids should be commenced as soon as possible when there is clinical suspicion (Dexamethasone 16 mgs. i.v/p.o loading dose then 8 mg BD + gastric protection):
- In frail patients or patients with concern for 16mg dexamethasone stat dose then consider 8mg stat dose.
- In patients with suspected lymphoma please discuss with haematology team urgently before starting steroids.
- Whilst patients are on high dose steroids ensure daily BM blood sugar test done to exclude steroid induced diabetes.

Steroids should continue at Dexamethasone 8mg BD until surgery or radiotherapy course completed. Thereafter steroids can be weaned gradually eg by 4mg/day every 3-5 days.

2.2.3. General principles for management
- MAXIMS referral to acute oncology service
- Adequate analgesia for pain – in severe cases early involvement of palliative care
- DVT prophylaxis – these patients are high risk for DVT so should have LMWH prophylaxis
- If bladder not functioning and patient in urinary retention then will need urinary catheter
- Bowel management – if bowels not opening then will need enema to ensure bowel opening at least every other day

2.2.4. MRI scan of the whole spine is the investigation of choice.
- 25% of patients with cord compression have multi-level disease so it is important to include the whole spine.
- It should be requested urgently, completed (and reported) within 24 hours of clinical suspicion.
- CT scan should be requested if MRI scan is not possible (e.g. cardiac pacemaker, metal implants, severe claustrophobia).

2.3. Confirmation of MSCC

2.3.1. When imaging confirms clinical diagnosis of cord compression, please contact the 1st-on-call for oncology via switchboard who will act as the MSCC co-ordinator.
2.3.2. Patients who are 1st presentation or who have not had cross-sectional imaging within 3 months will require an urgent up-to-date CT scan of Thorax, abdomen and pelvis.

- Patients will be triaged for surgical opinion and surgery if appropriate, radiotherapy or best supportive care.
- In all cases where an oncologist has already been involved in the management of a patient’s malignant disease, the MSCC Coordinator will contact the disease specific team to discuss the plan of action.

2.3.3. All patients should be referred to the Physiotherapy and OT departments on admission for immediate input and rehabilitation.

2.3.4. Patients for surgery - Discuss with Exeter neurosurgery

2.3.4.1. Contact the Royal Devon and Exeter hospital Spinal orthopaedic registrar or consultant via switch board (01392 411 611).

2.3.4.2. Referral to spinal surgery team is completed online via www.spinalreferback.co.uk

2.3.4.3. Surgery followed by post-operative radiotherapy has been shown to provide the best clinical and functional outcome in some patients with MSCC.

2.3.5. Surgery should be considered where:
- No underlying diagnosis has been made
- The general condition of the patient is suitable for general anaesthesia and surgery
- Estimated life expectancy of at least six months
- Limited levels of cord compression on imaging
- Some useful neurological function is preserved (MRC grade 3 and above)
- Previous radiotherapy has already been given to this level
- Radio-resistant tumours – melanoma, renal cancers.

2.3.6. Radiotherapy
Radiotherapy is also an effective treatment for MSCC and will be organised by the oncology team. It will consist if a single radiotherapy treatment or a course of treatments based on clinical picture. Radiotherapy helps to prevent further neurological damage, potentially improve neurological function and provide pain relief. However radiotherapy will not repair a defect in spinal alignment.

2.3.7. Systemic anti-cancer treatments.
In some situations systemic anticancer treatment (SACT) may be the initial treatment under direction by the oncologist. If prostate cancer suspected then start anti-testosterone therapy e.g. Degeralix 120mg sc.

2.4. Patient positioning / mobility
The main targets of care are to protect neurological function and maintain mobility.

2.4.1. Unstable spine
True spinal instability in MSCC is quite rare. Immobilisation should be considered if spinal instability is suspected.
Features to suggest spinal instability

- Pain exacerbated by movement
- MRI showing misalignment of the spinal cord
- Extensive vertebral collapse
- Posterior involvement of spinal elements

If there are concerns then Spinal Instability Neoplastic Score (SINS) may help assess instability risk (see appendix). If patients have medium or high risk (score 7 or more SINS) then they should be immobilised until discussed with orthopaedic team / physio team for advice on appropriate immobilisation.

2.4.2. Stable spine
Patient can be allowed to sit up gradually over 3-4 hours. Monitor patient’s symptoms.

- If increase in pain or neurological symptoms return to position where these changes reverse.
- If no deterioration then continue physiotherapy and mobilise as appropriate.

Encourage patients who are not on bed rest to mobilise regularly (every few hours). Encourage and assist those who are unable to stand or walk to perform pressure relieving activities such as forward/sideways leaning at least hourly when they are sitting out.

2.5. Ongoing Management and monitoring.
Once the diagnosis of metastatic spinal cord compression is confirmed, then the following should be considered.

2.5.1. Rehabilitation
- All patients should be referred to the Physiotherapy and Occupational Therapy (OT) department on admission and be assessed within 24 hours (physiotherapy) and 48 hours (OT).
- Rehabilitation is essential to enable patient to maximise function, independence and improve their quality of life. Rehabilitation must start on admission and continue after discharge if necessary until the rehabilitation goals have been met.

2.5.2. Maintaining circulatory and respiratory function.
- Symptomatic postural hypotension in patients with MSCC should be managed initially by patient positioning and devices to improve venous return (such as foot pumps and graduated compression/anti-embolism stockings).
- Avoid over hydration which can provoke pulmonary oedema.
- For patients with MSCC, individually assess the duration of thromboprophylactic treatment, based on the presence of ongoing risk factors, overall clinical condition and return to mobility.
- Include clearing of lung secretions by breathing exercises, assisted coughing and suctioning as needed in the prophylactic respiratory management of patients with MSCC. Treat retained secretions and the consequences by deep breathing and positioning supplemented by bi-phasic positive airway pressure and intermittent positive pressure ventilation if necessary.
2.5.3. Managing bladder and bowel continence.
- Assess bowel function in all patients with MSCC on presentation and start a plan of care. Monitor daily.
- Manage bladder dysfunction in patients with MSCC initially by a urinary catheter on free drainage. If long-term catheterisation is required, consider intermittent catheterisation or suprapubic catheters.

2.5.4. Managing pressure ulcers.
- Undertake and document a risk assessment for pressure ulcers (using a recognised assessment tool) at the beginning of an episode of care for patients with MSCC.
- Repeat this assessment every time the patient is turned while on bed rest and at least daily thereafter. While patients with MSCC are on bed rest, turn them using a log rolling technique at least every 2–3 hours.
- Promptly provide pressure relieving devices to patients with MSCC appropriate to their pressure risk assessment score.
- Offer patients with restricted mobility or reduced sensation cushions and/or mattresses with very high-grade pressure-relieving properties.
3. Monitoring compliance and effectiveness

<table>
<thead>
<tr>
<th>Elements to be monitored</th>
<th>Diagnosis and management of each patient with Metastatic spinal cord compression,</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>Dr John McGrane</td>
</tr>
<tr>
<td>Tool</td>
<td>Notes documentation and rolling MSCC Audit undertaken by Acute Oncology</td>
</tr>
<tr>
<td>Frequency</td>
<td>Quarterly review of all patients coded with discitis</td>
</tr>
<tr>
<td>Reporting arrangements</td>
<td>Noncompliance will be reported to the responsible medical team. Noncompliance resulting in adverse patient outcome will be reported via DATIX</td>
</tr>
</tbody>
</table>
| Acting on recommendations and Lead(s) | Dr John McGrane – Oncology radiotherapy service lead  
Dr Grant Stewart – Oncology Specialty Lead |
| Change in practice and lessons to be shared | Required changes to practice will be identified and actioned within each quarter review. A lead member of the team will be identified to take each change forward where appropriate. Lessons will be shared with all the relevant stakeholders |

4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the ‘Equality, Inclusion & Human Rights Policy’ or the Equality and Diversity website.

4.2. Equality Impact Assessment
The Initial Equality Impact Assessment Screening Form is at Appendix 2.
### Appendix 1. Governance Information

<table>
<thead>
<tr>
<th>Document Title</th>
<th>Investigation and Management of Patients with Suspected Metastatic Spinal Cord Compression (MSCC) Clinical Guideline V1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Issued/Approved:</td>
<td>April 2019</td>
</tr>
<tr>
<td>Date Valid From:</td>
<td>August 2019</td>
</tr>
<tr>
<td>Date Valid To:</td>
<td>August 2022</td>
</tr>
<tr>
<td>Directorate / Department responsible (author/owner):</td>
<td>Dr John McGrane (Radiotherapy Lead)</td>
</tr>
<tr>
<td>Contact details:</td>
<td>01872 256347</td>
</tr>
<tr>
<td>Brief summary of contents</td>
<td>How to assess and manage patients with suspected malignant spinal cord compression</td>
</tr>
<tr>
<td>Suggested Keywords:</td>
<td>Spinal Cord Compression, MSCC, Oncology, Cancer</td>
</tr>
<tr>
<td>Target Audience</td>
<td>RCHT</td>
</tr>
<tr>
<td>Executive Director responsible for Policy:</td>
<td>Medical Director</td>
</tr>
<tr>
<td>Date revised:</td>
<td>April 2019</td>
</tr>
<tr>
<td>This document replaces (exact title of previous version):</td>
<td>New Document</td>
</tr>
<tr>
<td>Approval route (names of committees)/consultation:</td>
<td>Oncology Specialty Governance Group General Surgery and Cancer Quality and Safety Group</td>
</tr>
<tr>
<td>Care Group General Manager confirming approval processes</td>
<td>Charlotte Timmins</td>
</tr>
<tr>
<td>Name and Post Title of additional signatories</td>
<td>Not Required</td>
</tr>
<tr>
<td>Name and Signature of Care Group/Directorate Governance Lead confirming approval by specialty and care group management meetings</td>
<td>{Original Copy Signed} Name: Suzanne Atkinson</td>
</tr>
<tr>
<td>Signature of Executive Director giving approval</td>
<td>{Original Copy Signed}</td>
</tr>
<tr>
<td>Publication Location (refer to Policy on Policies – Approvals and Ratification):</td>
<td>Internet &amp; Intranet</td>
</tr>
</tbody>
</table>
Investigation and Management of Patients with Suspected Metastatic Spinal Cord Compression (MSCC)

Clinical Guideline V1.0

Document Library Folder/Sub Folder: Clinical / Cancer services

Links to key external standards:
Metastatic spinal cord compression in adults
NICE Quality standard [QS56] Published date: February 2014

Related Documents: None

Training Need Identified? No

Version Control Table

<table>
<thead>
<tr>
<th>Date</th>
<th>Version No</th>
<th>Summary of Changes</th>
<th>Changes Made by (Name and Job Title)</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2019</td>
<td>V1.0</td>
<td>Initial version</td>
<td>Dr John McGrane (Radiotherapy Lead)</td>
</tr>
</tbody>
</table>

All or part of this document can be released under the Freedom of Information Act 2000

This document is to be retained for 10 years from the date of expiry.
This document is only valid on the day of printing

Controlled Document
This document has been created following the Royal Cornwall Hospitals NHS Trust Policy for the Development and Management of Knowledge, Procedural and Web Documents (The Policy on Policies). It should not be altered in any way without the express permission of the author or their Line Manager.
Appendix 2. Initial Equality Impact Assessment Form

<table>
<thead>
<tr>
<th>Name of the strategy / policy / proposal / service function to be assessed</th>
<th>Investigation and Management of Patients with Suspected Metastatic Spinal Cord Compression (MSCC) Clinical Guideline V1.0</th>
</tr>
</thead>
</table>

| Directorate and service area: | Cancer Services |
| New or existing document: | New |
| Name of individual completing assessment: | Grant Stewart |
| Telephone: | 01872 258301 |

1. **Policy Aim***

Who is the strategy / policy / proposal / service function aimed at?

Provide guidance in the recognition and treatment of malignant spinal cord compression.

2. **Policy Objectives***

Provide guidance in the recognition and treatment of malignant spinal cord compression

3. **Policy – intended Outcomes***

Provide guidance in the recognition and treatment of malignant spinal cord compression

4. **How will you measure the outcome?**

Rolling Acute Oncology audit of the management of patients with suspected malignant spinal cord compression.

5. **Who is intended to benefit from the policy?**

All patients with cancer and all patients presenting with the features of malignant spinal cord compression

6a. **Who did you consult with**

<table>
<thead>
<tr>
<th>Workforce</th>
<th>Patients</th>
<th>Local groups</th>
<th>External organisations</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b). Please identify the groups who have been consulted about this procedure.

**Please record specific names of groups**

Acute Oncology Governance Group comprising acute physicians, oncologists, radiotherapists and physiotherapists

What was the outcome of the consultation?

Agreed.
7. The Impact
Please complete the following table. **If you are unsure/don’t know if there is a negative impact you need to repeat the consultation step.**

Are there concerns that the policy **could** have differential impact on:

<table>
<thead>
<tr>
<th>Equality Strands:</th>
<th>Yes</th>
<th>No</th>
<th>Unsure</th>
<th>Rationale for Assessment / Existing Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex (male, female, trans-gender / gender reassignment)</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race / Ethnic communities /groups</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disability - Learning disability, physical impairment, sensory impairment, mental health conditions and some long term health conditions.</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion / other beliefs</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marriage and Civil partnership</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pregnancy and maternity</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual Orientation, Bisexual, Gay, heterosexual, Lesbian</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

You will need to continue to a full Equality Impact Assessment if the following have been highlighted:

- You have ticked “Yes” in any column above and
- No consultation or evidence of there being consultation- this **excludes** any policies which have been identified as not requiring consultation. or
- Major this relates to service redesign or development

8. Please indicate if a full equality analysis is recommended.  
   **Yes**   **No**   **X**

9. If you are **not** recommending a Full Impact assessment please explain why.

Not indicated
This EIA will not be uploaded to the Trust website without the approval of the Policy Review Group.

A summary of the results will be published on the Trust’s web site.
### Appendix 3. Spinal Instability Neoplasm Score

<table>
<thead>
<tr>
<th>Component</th>
<th>Definition</th>
<th>Score</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
<td>Junctional (occiput to C2, C7-T2, T11-L1,L5-S1)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mobile Spine C3-C6, L2-L4</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Semi-Rigid T3-T10</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rigid S2-S5</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Pain</strong></td>
<td>Yes (at rest +/-or movement)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Occasional but not mechanical</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pain Free</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Lesion</strong></td>
<td>Lytic</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mixed</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sclerotic</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Spine Alignment</strong></td>
<td>Subluxation / Translocation</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>New kyphosis/scoliosis</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Normal</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Vertebral collapse</strong></td>
<td>&gt;50%</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;50%</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No collapse, &gt;50% vertebral involved</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None of the above</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Posterolateral involved</strong></td>
<td>Bilateral</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unilateral</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None of the above</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

#### Score

- **Stable**: 0-6
- **Potentially Unstable**: 7-12
- **Unstable**: 13-18

#### Spinal Surgery
- Indicated for diagnosis
- Indicated for decompression
- Indicated for instability
- Not indicated

#### Radiotherapy
- Indicated for primary treatment, surgery not indicated
- Indicated post-operatively
- Indicated for pain relief
- Not indicated
Metastatic Spinal Cord Compression

This is a medical emergency. Seek senior help early and refer to Acute oncology team. If you suspect MSCC investigate urgently.

Suspect MSCC in any cancer patients with the following:

- New or increasing severe back pain
- Neuropathic pain
- New limb weakness
- Any new sensory loss
- Bladder/bowel dysfunction

1. Start Dexamethasone 16mg STAT then 8mg BD (0800 + 1200hrs)
2. Whole spine MRI (to be completed within 24 hours)
3. Involve acute oncology team/MSCC coordinator

ALWAYS discuss with on-call oncologist (via switch) if MRI results are positive for MSCC

If appropriate then discuss with Royal Devon & Exeter spinal surgery team via RD&E switch on 01392 411611

Referral then made through website spinalreferback.co.uk

Consider neutral alignment and bed rest if signs of unstable pathological fracture (see guideline)

On steroids ensure gastric protection and daily blood sugar check