Lancashire & South Cumbria

Guidelines for the Management

Of

Malignant Spinal Cord Compression (MSCC)

Final Guidelines

Updated: April 2024
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CONTENTS

1. SUMMARY

This pathway is for all patients who have suspected or confirmed impending metastatic spinal cord compression (IMSCC) or established metastatic spinal cord compression (MSCC)

MSCC is defined 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.

Impending Metastatic Spinal Cord Compression (IMSCC): occurs where the spinal cord is threatened but not yet compressed and should be managed with the same urgency as MSCC to prevent progression and onset of neurological deterioration. See appendix 2

Survival rates at one year for people with MSCC have been reported as being less than 20%. Because of this, MSCC should be regarded as a life-limiting disease, and attention needs to be paid to ensuring high quality, individualised support for people when they return home.

These guidelines offer best practice advice on the care of patients at risk of or with MSCC. Treatment and care should consider patients' needs and preferences. People with MSCC should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals. This guidance has been written considering NICE guidance NG234 Metastatic spinal cord compression: Diagnosis and management of adults at risk of and with metastatic spinal cord compression and NICE quality standard on MSCC (QS56).

Early intervention is vital to improve quality of life by reducing spinal cord damage and disability.

2. PURPOSE

- To support all health care providers in the early recognition, response, and management of all adult patients with suspected or confirmed metastatic spinal cord compression.

3. SCOPE

- Adults with suspected and diagnosed spinal cord and nerve root compression due to metastatic malignant disease.
- Adults with primary malignant tumours and direct infiltration that threatens spinal cord function.

Not covered:

- Adults with cord compression due to non-malignant causes
- Adults with nerve root tumours compressing the spinal cord
- Children.

4. GUIDELINES

Algorithms
Algorithms outlining the diagnostic and treatment pathways have been developed and agreed by the Lancashire and South Cumbria Cancer Network Metastatic Spinal Cord Compression Group.

The algorithms are shown in Appendix 1 (diagnostic algorithm) and Appendix 2 (treatment algorithm).

Investigation protocol for suspected MSCC

Physical Assessment
When a patient presents with signs or symptoms suggestive of MSCC, a comprehensive assessment of their immediate physical (including a full neurological assessment), psychosocial and emotional needs is required.

Radiological Investigation
Timing

Offer an MRI scan to guide treatment options for people with clinical suspicion of spinal metastases but without suspicion of MSCC within 1 week at their local hospital (NICE quality statement 2)

Offer an MRI scan to people with suspected MSCC to be performed: (NICE quality statement 3)

- **As soon as possible and always within 24hrs**
- **At the local hospital**

Offer overnight MRI only in clinical circumstances in which urgent diagnosis is needed to enable treatment to start immediately.

Imaging
MRI is contraindicated were cardiac pacemaker, intracranial aneurysm clips, Cochlear implant and intraorbital metallic foreign bodies are in situ. Discuss relative contraindications with radiographers. Perform a CT spine whole spine with contrast when an MRI is contraindicated

The Epidural Spinal Cord Compression (ESCC) grading scale should be used when reporting an MRI of the whole spine: (Appendix 7)

Grade 0, bone disease alone.
Grade 1, epidural impingement.
1a, epidural impingement without deformation of the thecal sac;
1b, deformation of the thecal sac without spinal cord abutment;
1c, deformation of the thecal sac with spinal cord abutment, but without cord compression.
Grade 2, spinal cord compression, but with cerebrospinal fluid (CSF) visible around the cord;
Grade 3, spinal cord compression, no CSF visible around the cord.

Documentation using this score to clearly state:

No cord compression	Grade 0 and 1a
Impending cord compression	Grade 1b and 1c
Confirmed cord compression	Grade 2 and 3

Staging CT Chest/Abdomen and Pelvis should be considered for patients with no known primary cancer and for patients with a good performance status being considered for surgery if they do not have recent assessment of disease. However, this should not delay initial investigations and treatment of the MSCC. Refer to NICE guidance CG104 and local network guidance for investigation of patients with cancer of unknown primary origin.

Treatment

Adults with metastatic spinal cord compression (MSCC), who present with neurological symptoms or signs, start radiotherapy treatment (if appropriate) within 24 hours of the confirmed diagnosis (NICE quality statement 6).

For both MSCC and IMSCC, if treatment is delayed beyond 24hrs, rationale for this must be clearly documented and the responsibility for treatment remains with the on-call team.

Metastatic spinal disease and MSCC symptoms overlap, as do the treatments for them. Their management should aim to improve symptoms, quality of life and survival:

Treatment planning must take account of:

1. The degree of neurological disability
2. The general health of the patient
3. The primary site of tumour
4. The presence of other spinal and extra-spinal metastases
5. The likely response of the tumour to radiotherapy or other therapy.

Patients with severe mechanical pain suggestive of spinal instability, or any neurological symptoms or signs suggestive of MSCC, should be nursed flat with neutral spine alignment until bony and neurological stability are ensured, and cautious remobilisation may begin.

Immobilisation

- Start immobilisation for suspected or confirmed MSCC AND neurological symptoms or signs
- Consider immobilisation of suspected or confirmed MSCC AND moderate to severe pain associated with movement.

Analgesia

Offer conventional analgesia (including NSAIDs, non-opiate and opiate medication) as required to patients with painful spinal metastases in escalating doses

Consider referral for specialist pain care for patients with intractable or difficult to manage pain from spinal metastases or MSCC.

Steroid administration

Corticosteroids reduce tumour bulk and spinal cord swelling-relieving pressure. They can improve symptoms and treatment outcomes. Dose reduction is vital as high-dose, long-duration can be debilitating.

In the absence of contraindications patients with neurological symptoms or signs of MSCC should be commenced on dexamethasone 8mg bd (oral or iv) with PPI cover. Consider giving steroids to people with spinal metastases or MSCC who do not have neurological symptoms or signs if they have severe pain or a haematological malignancy.

Do not routinely offer steroids as part of initial management for people with spinal metastases or MSCC who do not have neurological symptoms or signs except where this is part of a radiotherapy regimen.

Monitor for hyperglycaemia.

If no MSCC on MRI scan or IMSCC and no neurological deficit, stop Dexamethasone immediately. If steroid commenced >3 days, see reduction regime (Appendix 3)

Radiotherapy

External beam radiotherapy may be effective in treating pain for up to 12 months. Radiotherapy helps control pain if there is vertebral involvement but does not reduce mechanical pain which may progress to bony instability, vertebral collapse and MSCC.

The aims of radiotherapy are to reduce pressure on the spinal cord through tumour shrinkage and achieve local tumour control at the site of cord compression. This can lead to some or complete resolution of neurological symptoms and signs and prevent further neurological deterioration. It may also help to relieve spinal and radicular pain.

Chemotherapy

The role of chemotherapy in MSCC is limited to those patients who have chemo-sensitive tumours where treatment with appropriate cytotoxic drugs may be considered. It is the primary treatment of choice for localised non-Hodgkin's lymphoma of the spine and germ cell tumours. In instances where patients are already receiving chemotherapy for their primary cancer diagnosis, the oncologist will advise on whether this treatment should be continued/discontinued/delayed.

Surgery

Surgery may provide the best clinical outcome and is the treatment of choice for bony instability and/or neurological disability.

Patients with spinal metastases and imaging evidence of structural spinal failure with spinal instability should be considered for surgery to stabilise the spine and prevent MSCC.

Consider patients with spinal metastases and mechanical pain resistant to conventional analgesia for spinal stabilisation surgery even if completely paralysed. Surgery will not reverse paralysis

External spinal support: patients with MSCC who have severe mechanical pain and/or imaging evidence of spinal instability, but who are unsuitable for surgery, should be offered external spinal support (brace).

Surgery is also indicated if there no tissue diagnosis, worsening of symptoms/disease progression during/after radiotherapy or in situations where there is no scope for further radiotherapy to involved spinal site.

Postoperative fractionated radiotherapy should be offered routinely to all patients with a satisfactory surgical outcome once the wound has healed. (NICE CG75) All post op patients will be discussed at the complex spine MDT. (See Appendix 6)

Assessing Prognosis
In general patients with a good prognosis and more likely to benefit from surgery and or radiotherapy but there is no absolute. Patients with a poor prognosis may still benefit from active treatment to optimise symptoms.

Good prognosis

- Single Level or limited level disease
- Performance status 0-2
- Life expectancy >6/12
- Neurological deficit <24hrs

Poor prognosis

- Multiple level disease
- Poor performance status 3-4
- Life expectancy <6/12
- Severe neurological deficit >24hrs

Best supportive Care
Some of these patients with MSCC will, for oncological and general medical reasons, be unsuitable for active treatment of MSCC. The NICE guidance on 'Improving supportive and palliative care for adults with cancer' recommends the provision of holistic, client centred rehabilitation and care through well organised, multi-professional team working.
Suspected MSCC with paralysis >24hrs- discuss with MSCC Coordinator before imaging or hospital transfer. Patients who are too frail or unfit for specialist treatment for MSCC should not be transferred unnecessarily.

If the patient has an unstable spine and not fit for surgery or R/T:

- Discuss mobilisation risks
- Help patient position themselves and mobilise as symptoms permit
- Consider appliances and orthotics advice

Thromboprophylaxis.
All patients with suspected MSCC should be offered compression stockings unless contraindicated, and/or intermittent pneumatic compression or foot impulse devices.

Offer patients with MSCC who are at high risk of venous thromboembolism (including those treated surgically and judged safe for anti-coagulation) subcutaneous thromboprophylactic low molecular weight heparin in addition to mechanical thromboprophylaxis

Management of pressure sores

The amount of mobilisation for a patient with MSCC is dependent on the spinal stability. This will be determined by the treating clinical team. While patients with MSCC are on bed rest, turn them using a log rolling technique at least every 2–3 hours. 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.

Promptly provide pressure relieving devices to patients with MSCC appropriate to their pressure risk assessment score.

Pressure sore assessment, prevention and healing protocols can be found in 'The use of pressure-relieving devices for prevention of pressure ulcers' (NICE clinical guideline 7) and 'the management of pressure ulcers in primary and secondary care' (NICE clinical guideline 29).

Bladder and bowel continence management

Assess bowel and bladder function in all patients with MSCC on initial presentation and monitor patients with MSCC daily for changes in bladder and bowel function.

Manage bladder dysfunction in patients with MSCC by a urinary catheter

Offer a neurological bowel management programme to patients with MSCC and disturbed bowel habit as recommended in 'Faecal incontinence' (NICE clinical guideline 49).

Rehabilitation

Adults with metastatic spinal cord compression (MSCC) should have a management plan that includes an assessment of ongoing care and rehabilitation needs (NICE Quality Statement 7).

Referrals should be considered to the following multi-professional staff as appropriate:

- Physiotherapist (within 24 hours of admission)
- Occupational Therapist (OT) (within 24/48 hours of admission).
- Social Worker.
- Specialist Palliative Care Team.
- Dietitian.
- Speech & Language Therapist.
- Clinical Psychologist or Counsellor.
- Hospital Chaplain.

Patient Information and Education

Adults with known spinal metastasis, and their families or carers (as appropriate) should be given information that describes the symptoms of MSCC and what to do if they develop symptoms (NICE quality statement 1)**.** See Appendix 5. The Lancashire and South Cumbria Cancer Network booklet "Metastatic Spinal Cord Compression – Information for Patients"

Discharge Planning

A nominated key worker should be identified as early in the patient's journey as possible to enable a co-ordinated and collaborative discharge plan whilst ensuring the input of all the relevant disciplines involved. Discharge planning and ongoing care, including rehabilitation for patients with MSCC, should start on admission and be led by a named individual from within the responsible clinical team. It should involve the patient and their families and carers, their primary oncology site team, rehabilitation team and community support, including primary care and specialist palliative care, as required.

5. AUDIT AND MONITORING

Aspect of compliance or effectiveness being monitored	Monitoring method	Individual responsible for the monitoring	Frequency of the monitoring activity	Group / committee which will receive the findings / monitoring report and act on findings.	Group / committee / individual responsible for ensuring that the actions are completed
Time taken form request to imaging being performed	Annual Audit	MSCC Coordinator	Annually	MSCC Network group	MSCC Network group
Time from completion of imaging to start of definitive treatment	Annual Audit	MSCC Coordinator	Annually	MSCC Network group	MSCC Network group
Mortality and Functional outcome following treatment	Annual Audit	MSCC Coordinator	Annually	MSCC Network group	MSCC Network group

6. DOCUMENT INFORMATION

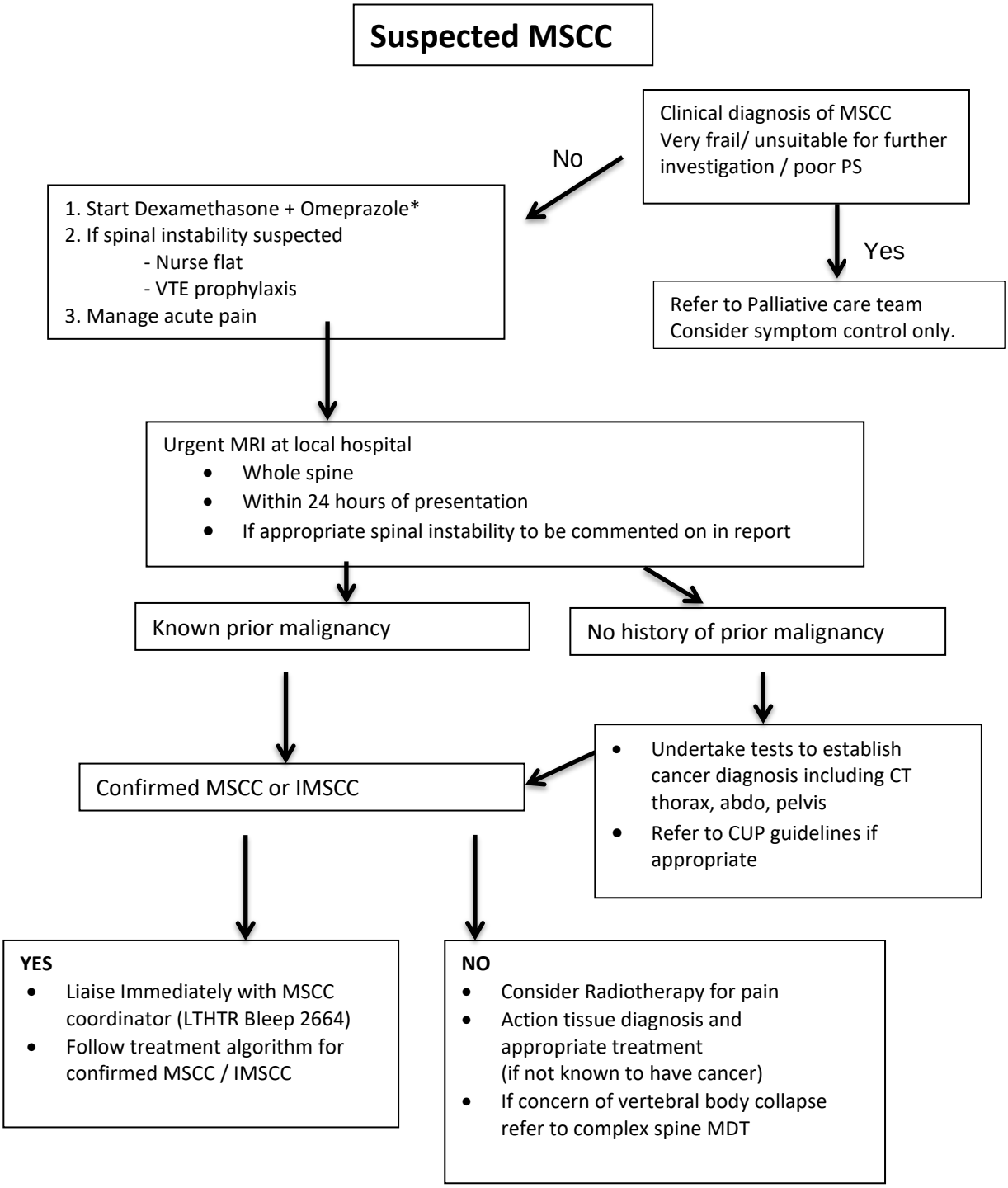
SUPPORTING REFERENCES / EVIDENCE BASED DOCUMENTS **References in full**	
Number	References
1	National Institute for Health and Care Excellence. (2008) *Metastatic spinal cord compression in adults: risk assessment, diagnosis and management* (NICE Clinical guideline [CG75])
2	Patchell RA, Tibbs PA, Regine WF, et al. Direct decompressive surgical resection in the treatment of spinal cord compression caused by metastatic cancer: a randomised trial. Lancet 2005;366:
3	Uei, H., Tokuhashi, Y., & Maseda, M. (2018). Analysis of the Relationship Between the Epidural Spinal Cord Compression (ESCC) Scale and Paralysis Caused by Metastatic Spine Tumors. *Spine*, *43*(8), E448–E455.
4	**National institute for Health and care Excellence. (2023) Spinal metastases and metastatic spinal cord compression [NG234]**

DEFINITIONS / GLOSSARY OF TERMS	
Abbreviation or Term	**Definition**
CUP	Cancer of Unknown Primary
IMSCC	Impending Metastatic Spinal Cord Compression.
MRI	Magnetic Resonance Imaging
MSCC	Metastatic Spinal Cord Compression
PS	Performance Status
PPI	Proton pump inhibitor

DISTRIBUTION PLAN	
Dissemination lead:	MSCC Network Group
Previous document already being used?	Yes
If yes, in what format and where?	Electronic LSCCN guidelines. Network trust internet sites
Proposed action to retrieve out-of-date copies of the document:	Replacement
To be disseminated to:	Network wide
Document Library	
Proposed actions to communicate the document contents to staff:	Via Network Acute Oncology teams.

Appendix 1

Diagnostic Algorithm for Suspected Metastatic Spinal Cord Compression (MSCC)

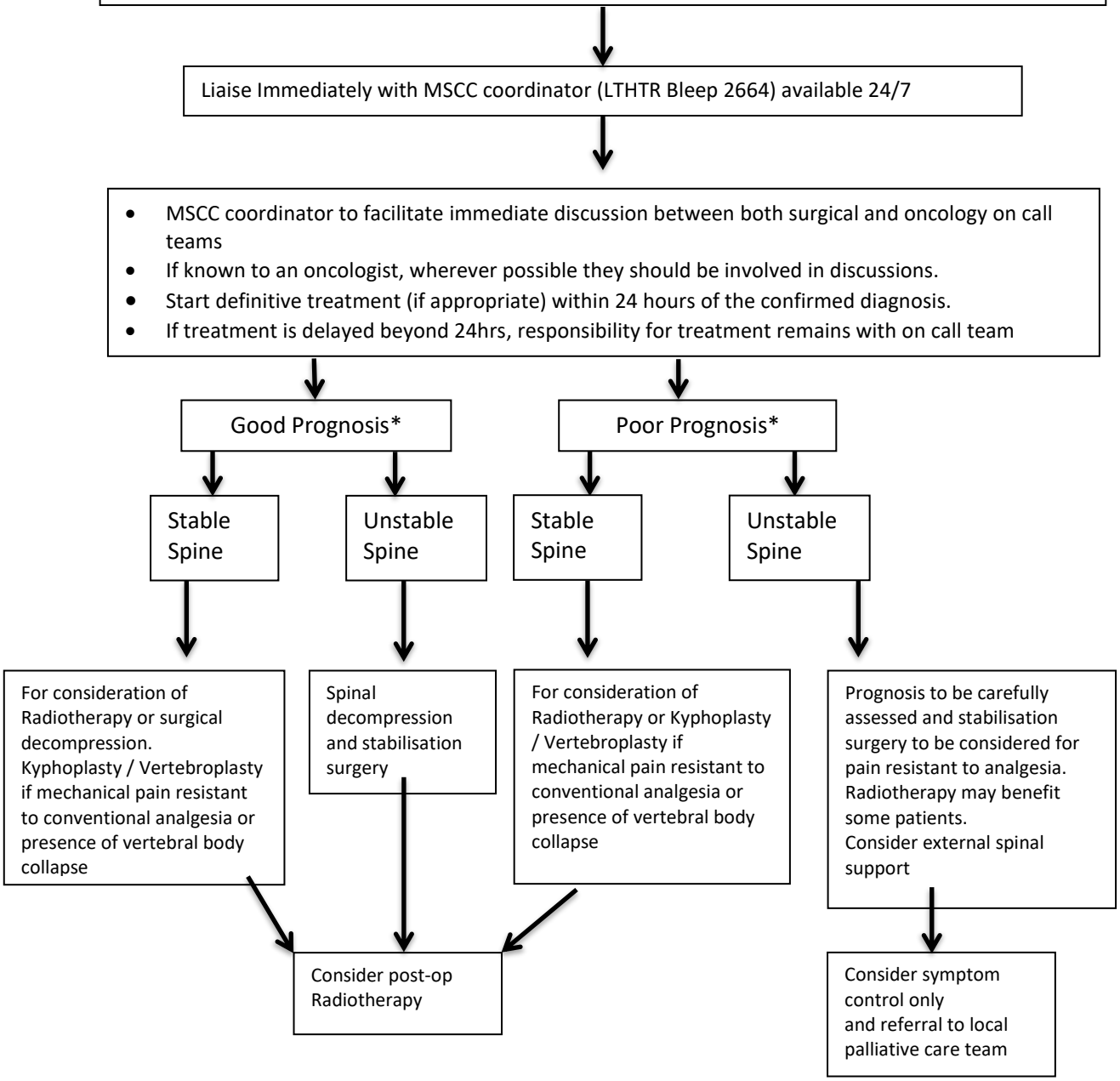


Lancashire Teaching Hospitals main switchboard: 01772 716565

*For patients with neurological symptoms or signs of MSCC, otherwise see steroids guidance

Appendix 2

Treatment Algorithm for Metastatic Spinal Cord Compression (MSCC) and Impending (IMSCC)



**See body of guidance*

MSCC is an acute oncology emergency and local acute oncology team are available for advice particularly where further information regarding symptoms and/or further investigation is required to make treatment decisions.

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Appendix 3

Dexamethasone Reduction Following Radiotherapy or Surgery

If pain or neurological status progresses return to dose that previously maintained clinical situation.

Aim to discontinue steroids unless previously on long term steroids.

Ensure steroid card is given to patient.

Day post 1st surgery / radiotherapy.	Dexamethasone dose
1-2	8mg morning, lunch
3-4	4mg morning, lunch
5-6	2mg morning, lunch
7-8	2mg morning.
9	Stop (as appropriate)

Appendix 4

Role of the MSCC co-ordinator

Adults with suspected metastatic spinal cord compression (MSCC) who present with neurological symptoms or signs have their diagnostic investigations coordinated by an MSCC coordinator (NICE Quality statement 4).

Adults with metastatic spinal cord compression (MSCC) have their ongoing care coordinated by an MSCC coordinator (NICE Quality statement 5).

The MSCC coordinator for Lancashire and South Cumbria is based at the cancer centre (Preston Royal Hospital) and is the first point of contact for clinicians who suspect that a patient may be developing spinal metastases or MSCC. The coordinator role is delivered by acute oncology support team based in RPH from 0830-1630. Outside these hours, this is carried out by the on-call spinal/neurosurgical SpR. A single telephone contact number ensures that the system is as simple as possible to access (Bleep 2664, via LTH switchboard) and is available 24 hours, 7 days a week.

The MSCC coordinator:

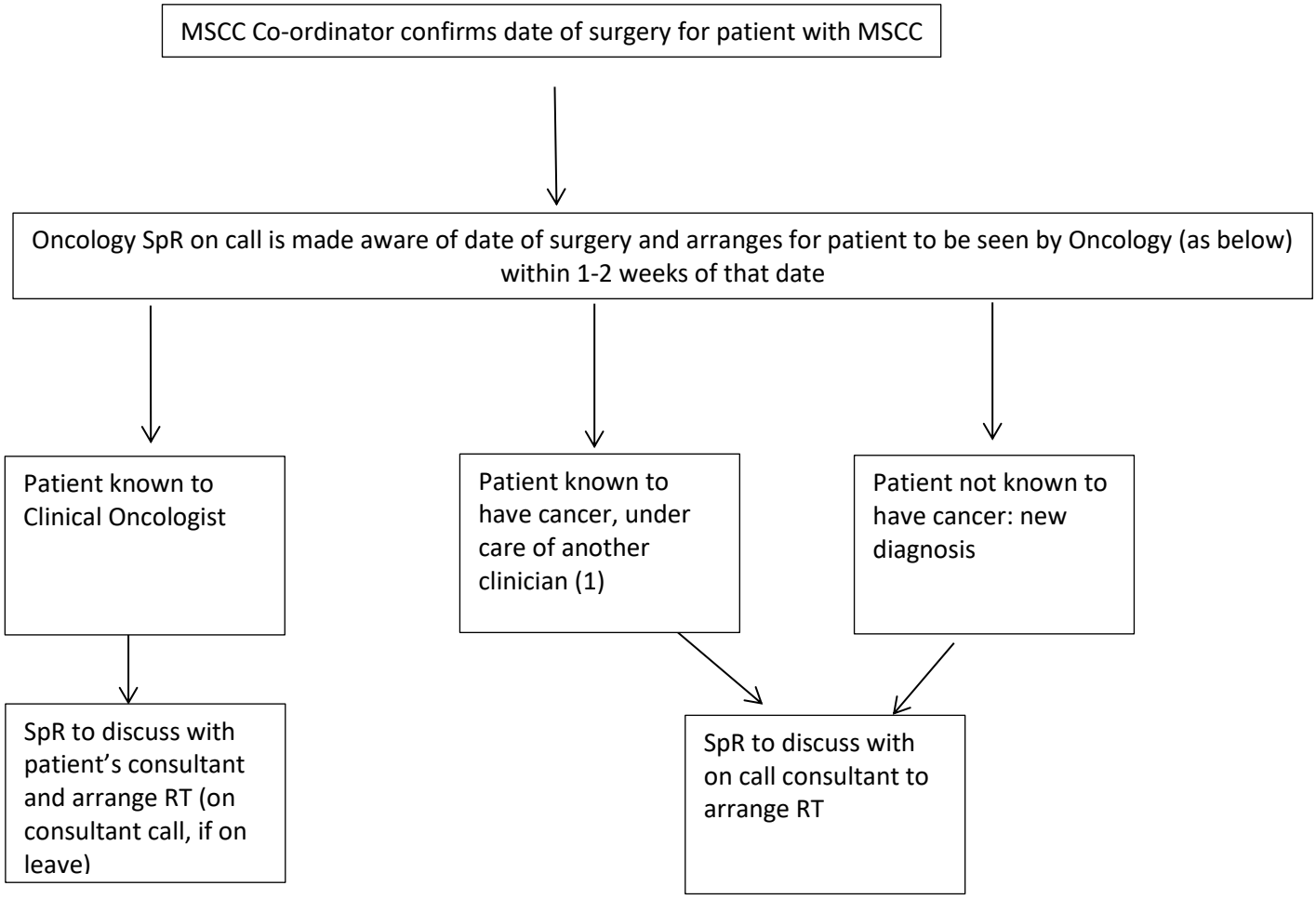
- Provides the first point of contact for clinicians who suspect that a patient maybe developing MSCC.
- Gathers baseline information to aid decision-making
- Performs an initial telephone triage by assessing requirement for and urgency of, investigations
- Advises on the immediate care of the spinal cord and spine
- Discusses with on call oncologist and Surgeon
- Identifies the appropriate place for timely investigations and admission if required
- Liaises with the clinical teams to facilitate the patient's transport and admission if required
- Liaises with the clinical teams to determine best treatment options for patients with confirmed MSCC / Impending MSCC.
- Ensures good communication and documentation of treatment plan at each step
- Collates data for audit purposes.

Appendix 5

Radiotherapy treatment for patients who have had surgery for MSCC

Aim: to ensure all patients are assessed for post-op RT and, if appropriate, treated within 3 weeks of surgery (ideally within 14 days) to preserve neurological function.

- RT may not always be appropriate: e.g. wound not healed, tumour specific factors requiring urgent systemic treatment
- Patients who do not have a histological diagnosis will need to be discussed with consultant to determine whether to proceed with RT without histology or wait until histology available



(1) e.g. Medical Oncologist, Haematologist, metastatic prostate cancer on hormones under Urologists.
Note: Radiotherapy to be booked prospectively where possible.

Appendix 6

Metastatic spinal Cord compression Information for Patients

https://intranet.lthtr.nhs.uk/download.cfm?doc=docm93jijm4n1810.pdf&ver=3517

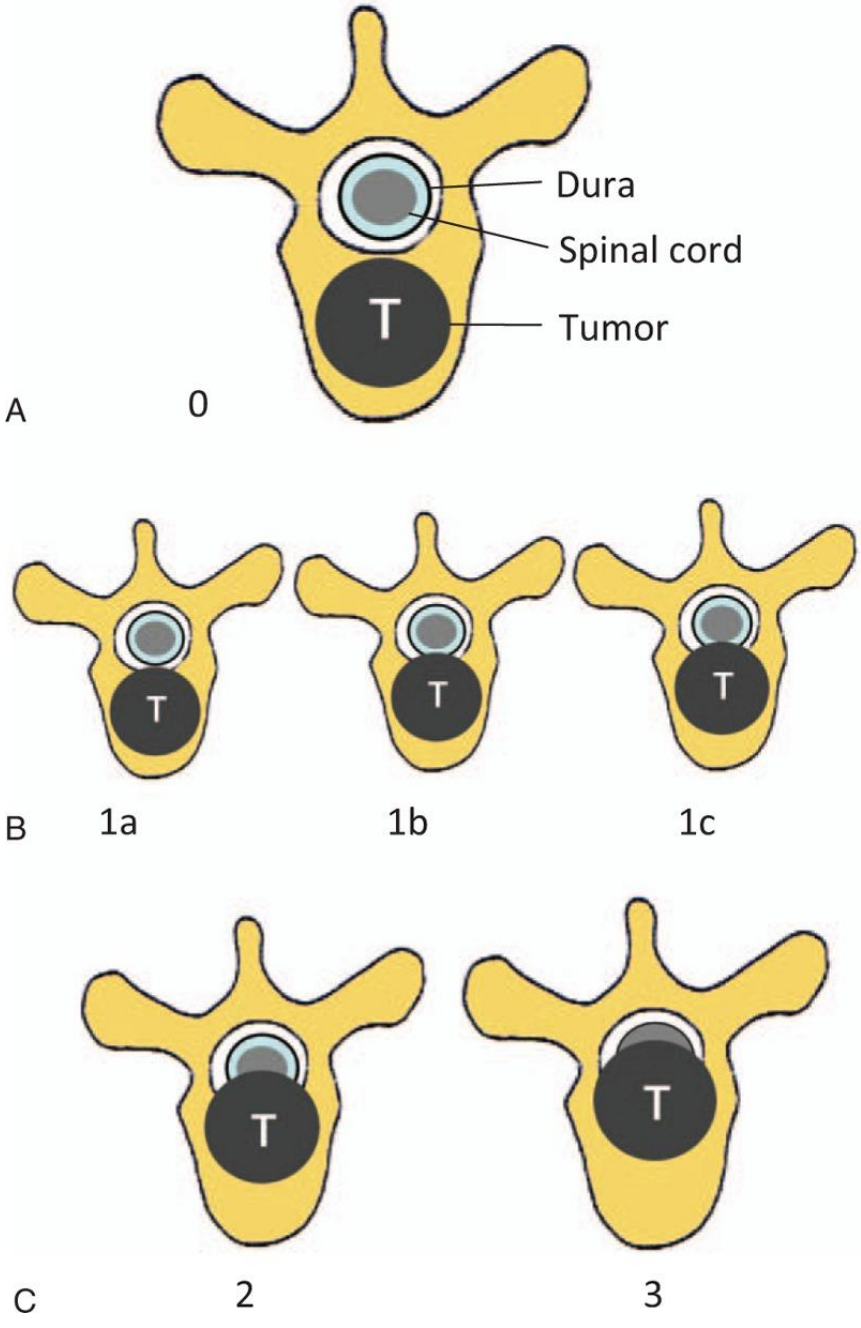
Appendix 7

Radiology Epidural spinal cord compression (ESCC) grading

Schematic representation of the six-point ESCC grading scale.
A, Grade 0, bone disease alone.

B, Grade 1, epidural impingement. 1a, epidural impingement without deformation of the thecal sac; 1b, deformation of the thecal sac without spinal cord abutment; 1c, deformation of the thecal sac with spinal cord abutment, but without cord compression.

C, Grade 2, spinal cord compression, but with cerebrospinal fluid (CSF) visible around the cord;
Grade 3, spinal cord compression, no CSF visible around the cord.



No cord compression:
Grade 0 and 1a

Impending cord compression:
*Grade 1b and 1c
* Inform / ask clinical team to refer MSCC co-ordinator bleep 2664

Confirmed cord compression:
*Grade 2 and 3
*Inform/ask clinical team to refer MSCC co-ordinator bleep 2664

No cord compression, but extensive disease with evidence of / concern of vertebral body collapse → inform/ask clinical team to refer MSCC co-ordinator bleep 2664

- Bilsky et al. Reliability analysis of the epidural spinal cord compression scale. J Neurosurg Spine 13:324-328, 2010.
- Uei etal. Analysis of the Relationship between the epidural spinal cord compression (ESCC) scale and paralysis caused by metastatic spine tumours. Spine Volume 43, Number 8, pp E448-455