Edinburgh Cancer Centre
Western General Hospital

Edinburgh Cancer Centre Malignant Spinal Cord Compression Guidance

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Contents

Background

Metastatic spinal cord compression (MSCC) is defined by NICE (ref) 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.

Malignant spinal cord compression (MSCC) is believed to occur in approximately 5-10% of patients with cancer. Affecting not only quality of life but also prognosis. Studies have highlighted that delays in diagnosis and referral are common and that the strongest predictor of response to treatment is the functional status of the patient at time of diagnosis. MSCC is a complication of cancer which is often diagnosed when there is irreversible neurological damage.

A prospective Scottish audit by the Clinical Research Audit Group (CRAG) of the diagnosis, management and outcome of MSCC reported that there were three key reasons for delay in diagnosis:

1. A lack of recognition in acute and primary care of the early symptoms of MSCC.
2. The absence of an efficient referral pathway for patients who are considered to be at risk of developing, or have developed, signs and symptoms suggestive of compression.
3. A lack of awareness of the most appropriate method of investigation.

The report recommended the development of a guideline for the early diagnosis of MSCC. In response to CRAG's recommendations Macmillan Cancer Support funded a project in the South East of Scotland Cancer Network (SCAN). The project strategy aimed to diagnose MSCC earlier, hypothesising that earlier diagnosis would ensure patients are placed on the correct treatment pathway sooner, therefore enhancing quality of life and reducing service costs. The strategy included:

1. MSCC education for acute and primary care staff.
2. Effective referral guidelines and management guidance.
3. A minimum data set and development of quality standards.

The project used a collaborative multidisciplinary approach to ensure consistency and quality of care across SCAN where cancer services are provided for a population of approximately 1.4 million (NHS Borders, NHS Dumfries and Galloway, NHS Fife and NHS Lothian).

Aim

This guideline is to support the prompt investigation, diagnosis and onward referral to defined team for the management of patients with suspected and confirmed MSCC.Note the guidance trusts the user will use clinical judgement and common sense.

Guidance for the management of malignant spinal cord compression (MSCC)

Referral criteria: Patients who have cancer or whom there is a suspicion of cancer who have one of the following should be assessed for MRI investigation:

- Severe intractable vertebral pain (especially thoracic)
- New spinal nerve root pain (burning, numb, shooting)
- New difficulty walking
- Reduced power/altered sensation in limbs
- Bowel/bladder disturbance

Note: MRI should be carried out locally and not referred to oncology until reported positive. See Appendix 1-5 for SCAN local pathways. NHS Lothian have a protected early slot for suspected MSCC see Appendix 6.

Clinical assessment: The following information must be recorded during admission assessment:

- Duration of symptoms (as exactly as possible)
- Presence of above symptoms and relevant systemic enquiry (including back pain, sensory loss, limb weakness, bowel/bladder function)
- Neurological examination
- Previous and current functional status (including previous and current mobility)

Investigations:

- MRI within 24 hours of suspected MSCC– use TRAK system to order and ensure priority "URGENT". Ensure bleep number of ST who will be responsible is on order form. **(**See Appendix 7 – MRI Guidance)
- Routine admission bloods- including glucose, FBC/clotting if biopsy/surgery being considered.
- Review most recent staging CT, if considering surgical intervention may need up to date CT CAP. Consider time delay introduced with additional imaging requests.
- For diagnostic purposes if spinal biopsy required please discuss with on call Consultant for Neuroradiology. Of note biopsies performed at RIE as Neurosurgical support is on site.

Medication:

- Prescribe Dexamethasone 16mg daily (preferably AM) unless contra-indicated initially then reducing dose as per guidance (See Appendix 8)
- Consider PPI cover for duration of steroid use and review any NSAID prescription
- All patients should be assessed for VTE risk and prescribed appropriate prophylaxis (see guidance of OOQS), unless contraindicated
- Prescribe appropriate aperients (at least PRN) and re-assess daily
- Stop aspirin /clopidogrel if biopsy/surgery being considered

Monitoring:

- Observations/NEWS2 score (Temp,BP,P,R,SaO2) with escalation as appropriate
- Blood glucose monitoring if on steroids as per OOQS guidance (insert link)
- Daily neurological examination

- Documented mobility advice (Appendix 11)
- Patient information – MacMillan MSCC leaflet can help support verbal explanation Daily pain score and analgesia review (Appendix 12)
- Monitoring bowel/bladder function
- Referral to physiotherapy ASAP following admission
- Reduction of steroid dose according to treatment plan, GP and patient letter available (appendix 9/10)

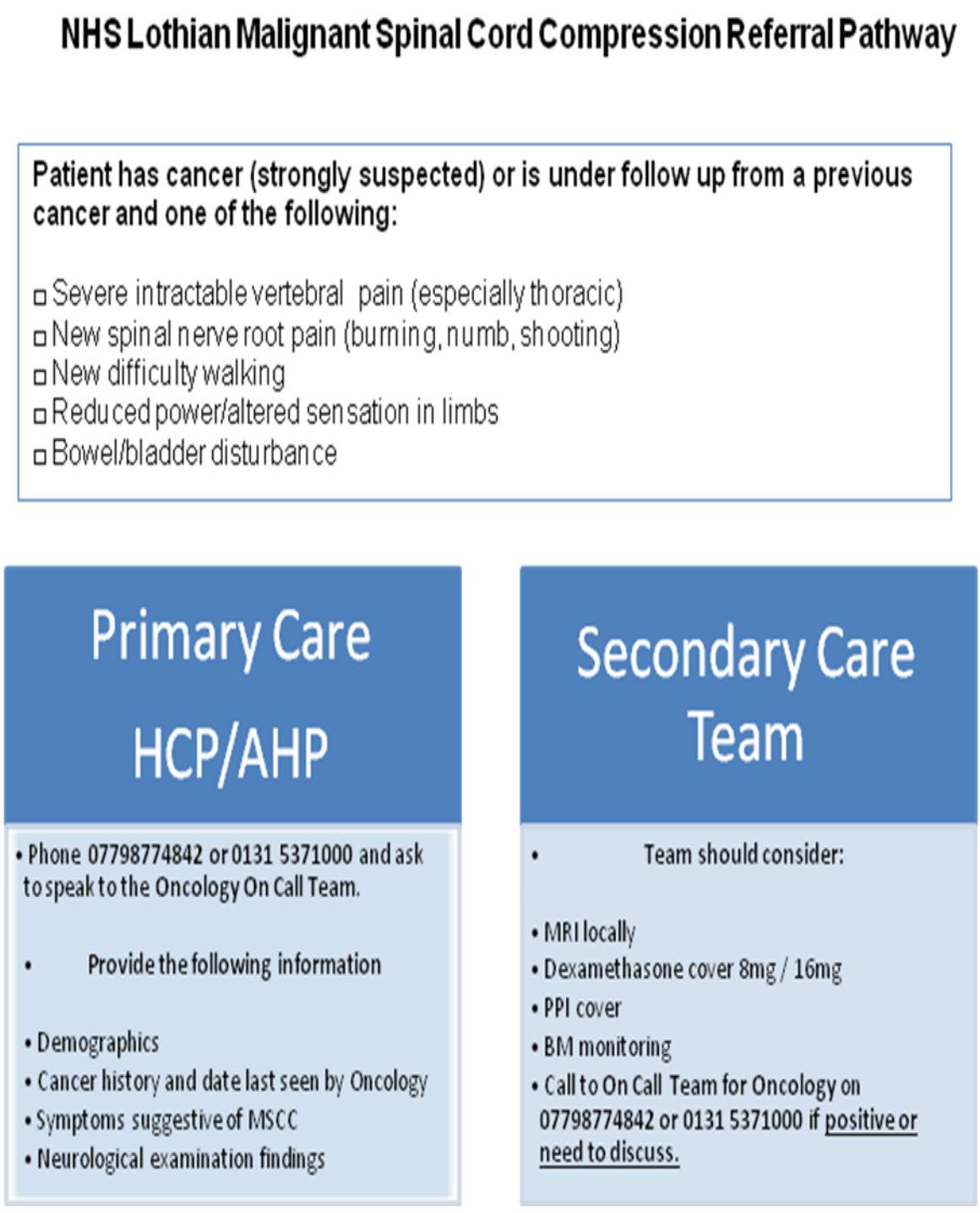
Radiotherapy Guidance:

- If neurosurgical felt appropriate please discuss with parent oncology team and follow "Neurosurgical Guidance" Appendix 12.
- Single 8 Gy Fraction appropriate in many patients (SCORAD trial).
- Weekday service: complete RT booking form and highlighted to RT Superintentant (Bleep 8416), Ensure it is clear who will be planning RT.
- Weekday Med Onc Consultant On-Call: it is the Consultant Clin Onc for the upcoming weekend who will be responsible for providing radiotherapy cover. If they are off site, they will have arranged cover ensuring the on call team (consultant, registrar and telephone triage team) is aware of arrangements.
- Weekend service: Oncall Clin Onc team should be made aware of any potential MSCC that may require input over weekend. Imaging as per MRI Guidance.
- Weekend handover: Due to no Sunday RT service currently, ensure any outstanding cases are communicated from weekend team to parent team and Monday On Call Team. Weekend team to leave RT booking form in tray at RT Reception to make use of the protected Monday 9am MSCC slots which are supported by prescribing radiographers.

Neurosurgical Guidance:

- In general patients who benefit from neurosurgical intervention have limited number of vertebrae involved and a good cancer prognosis.
- Information with regards to cancer, expected survival can be useful when using tools such as the Tokuhashi. However one need to understand their limitations – especially as established prior to TKI/immunotherapy. See Appendix 13
- Urgent "CT CAP" to assess systemic cancer burden and to assess spine integrity.
- Via switchboard facilitate discussions with Neurosurgical team based at RIE. Document discussion and names of clinicians involved, if accepted please ensure Consultant name is clearly documented.
- If patient accepted by Neurosurgical team, then arrange transfer to DCN, RIE under care of on-call consultant. Recommend If following their assessment that decision not to pursue surgery then they urgently discuss with on-call oncology team to facilitate transfer back to ECC for emergency RT.

Appendix 1 – NHS Lothian MSCC referral pathway



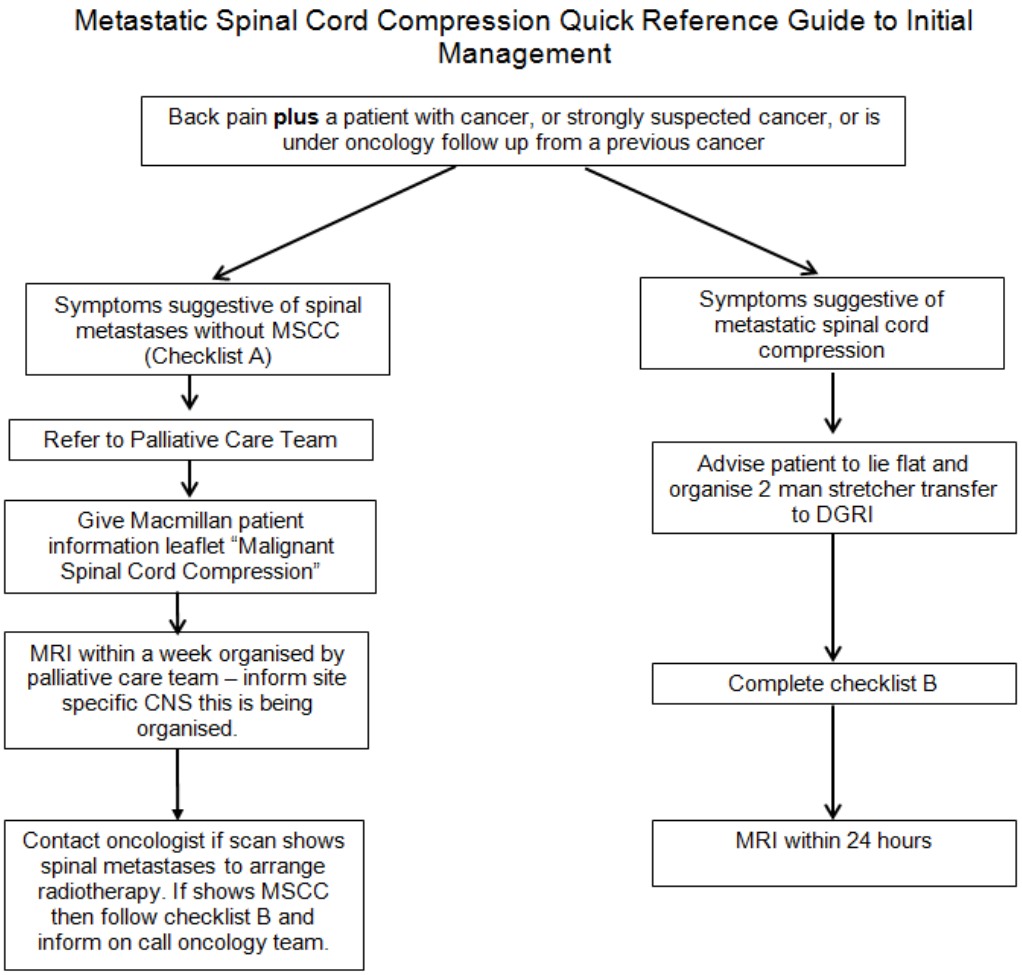
Appendix 2 – NHS Fife MSCC referral pathway (in progress)

Appendix 3- NHS Borders MSCC referral pathway (in progress)

Appendix 4 – NHS Dumfries and Galloway MSCC referral pathway

Malignant Spinal Cord Compression referral pathway

– **NHS Dumfries and Galloway**



Appendix 5- West Lothian MSCC referral pathway (in progress)

Appendix 6 – NHS Lothian – MRI outpatient process

MSCC ONCOLOGICAL EMERGENCY – Out patient process

Suspected Malignant Spinal Cord Compression (MSCC)

Definition – Symptoms of spinal cord or cauda equina compression due to bone metastases (And/or vertebral collapse) or direct extension of malignancy.

Process

Complete SBAR assessment and if recommendation would be to consider early MSCC slot discuss case with on call Consultant/ST via on call team on 07798774842. If in agreement team will book as per early MSCC checklist below:

- +/- dexamethasone/PPI – Y/N if Y arrange via GP. Counsel patient with cautionary advice re side effect of high dose steroids with reference to in rare cases mania - call 537 1000 and asks to speak to on call team for oncology
- MRI contraindication check list – metal Y/N/UK, glass Y/N/UK, cochlear or pacemaker implant Y/N/UK
- MRI booked
- Advise patient time to attend main MRI department at 11:00, provide parking and directions to main XRAY
- Assess if a chair may be required and organise for this to happen – Y/N/Unknown
- Assess if the pt needs contact details on the day and provide these (often get lost or forget)
- IF to return home after MRI advise re process for on call team call later that day with results
- IF to attend for review after MRI advise on where CAU is and that they should come back at 1.30 with cautionary note may have to wait for results if busy/not back
- Assess if lunch will be required or if they will see to this themselves and advise where to go
- Counsel on how to get advice if there is a deterioration in their symptoms before MRI - call 537 1000 and asks to speak to on call team for oncology
- Book patient with patient flow and on TRAK (including if outpatient)
- Add to on call team radar

Appendix 7 – MRI guidance

MRI Guidance

- "MRI Whole Spine" within 24 hours of suspected MSCC. Where possible MRI spine should be performed in local hospital.

- Where local hospital is unable to offer seven day MRI service, patient may have to be transferred to CAU for assessment and scan.

- At WGH, main radiology dept performs MRIs between 9.00-17.00. Request on TRAK as URGENT and discuss with on-call radiology registrar (ext 32315 or via switch).

- A daily dedicated MRI slot for patients with early symptoms of MSCC is available Mon-Fri at 11am (book via on call team on 07798774842 and must be booked by 10am of the day) and done as an outpatient following agreed local pathway (insert guidance pg).

- Weekend: To assist with RT, try and obtain scans Friday afternoon / prior to 11am Saturday. Discuss with on-call radiology registrar need to get prompt reporting to facilitate ongoing management.

Appendix 8 – Steroid guidance

Steroid Algorithm for MSCC

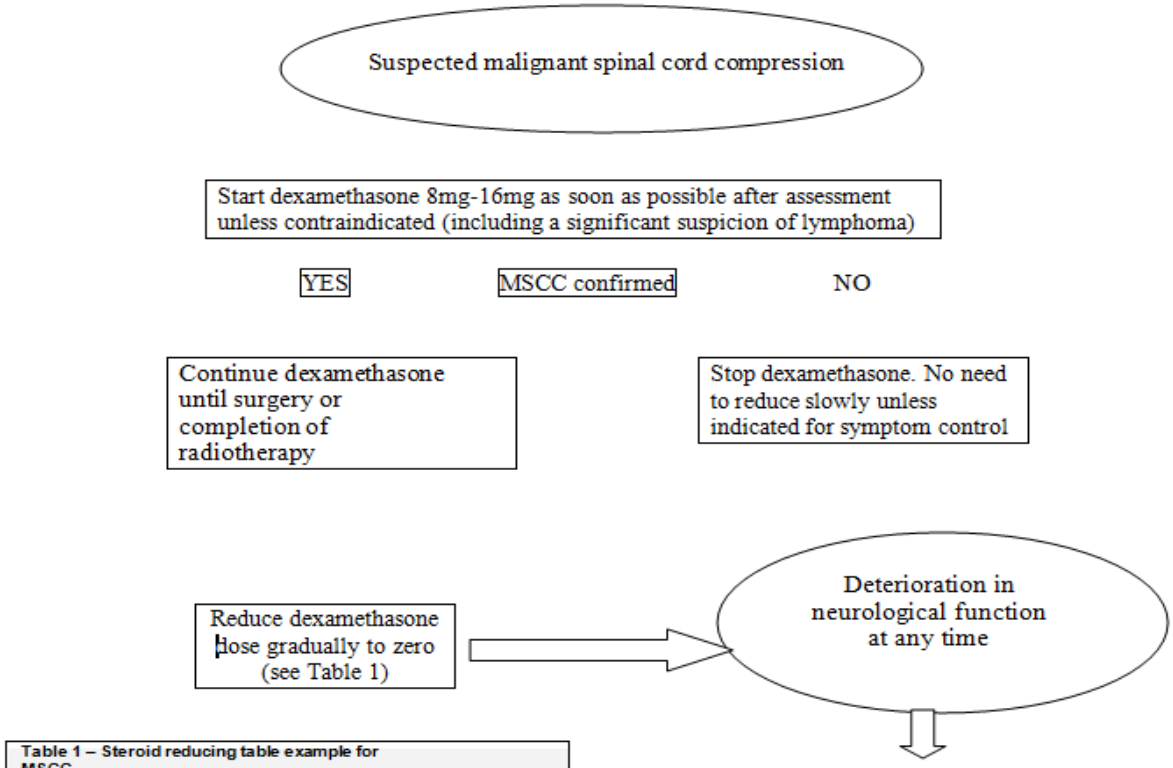


Table 1 – Steroid reducing table example for MSCC

Day	Dexamethasone daily dose (milligram = mg)	Administration
Day 1-4 (4 days)	16mg	8mg B.D*
Day 5-8 (4 days)	12mg	6mg B.D*
Day 9-12 (4 days)	8mg	8mg O.D**
Day 13-16 (4 days)	4mg	4mg O.D**
Day 17-20 (4 days)	2mg	2mg O.D**

*B.D. = Twice Daily (8am & 2pm) **O.D. = Once Daily (8am)

Table 2 - Good Prescribing Practice for Corticosteroids

1	Document indication for the corticosteroid on the patient's kardex
2	Indicate length of steroid course required on kardex and in notes
3	Consider prophylaxis with ranitidine/ PPI with high dose corticosteroids. Ensure this is stopped with steroids if no ongoing GI symptoms.
4	Ensure appropriate patient information regarding corticosteroids and dose reduction regimen on discharge. Counsel if necessary.
5	Monitor all patients on high dose steroids for: • Diabetes (BMs at least twice weekly) • Dyspepsia/ epigastric pain • Mania/hypomania/psychosis

Appendix 9 – GP steroid guidance

GP Information for patients being discharged home with dexamethasone for malignant spinal cord compression (MSCC)

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Insert patient label

Your patient above has been discharged home on dexamethasone, after treatment for malignant spinal cord compression (MSCC). The intention is that the dose is slowly reduced over a number of days as indicated in the table below. However, if there is a deterioration of neurological function at any time, the dose may need to be temporarily increased before re-starting the dose reduction schedule. Please feel free to phone and discuss further with the on call oncology registrar or patient's own oncology team if uncertain.

Many patients will be prescribed a PPI to be taken along with their steroids. This should be stopped 7 days after the steroids are stopped, assuming no persistent symptoms of dyspepsia.

All patients are advised to watch out for the symptoms of diabetes whilst on steroids. We recommend checking BMs twice a week whilst patients are on the higher doses of dexamethasone and would be grateful if you could arrange this, as you see appropriate.

Date steroids started …… Patient's oncology consultant ……

Steroid reducing table for MSCC		
Day	**Dexamethasone daily dose (milligram = mg)**	**Administration**
Day 1-4 (4 days)	16mg	8mg B.D*
Day 5-8 (4 days)	12mg	6mg B.D*
Day 9-12 (4 days)	8mg	8mg O.D**
Day 13-16 (4 days)	4mg	4mg O.D**
Day 17-20 (4 days)	2mg	2mg O.D**
THEN STOP - COURSE COMPLETE		
*B.D. = Twice Daily (8am & 2pm) **O.D. = Once Daily (8am)		

Appendix 10 – Patient steroid guidance

Patient Information for patients being discharged home with

dexamethasone for cord compression

You are going home on dexamethasone (a type of steroid), for treatment of your spinal cord compression. The intention is for you to slowly reduce the dose that you are taking over a number of days as indicated in the table below. However, if your symptoms return or get worse when reducing your steroids, you must contact your doctor urgently as your steroid dose may need to go back up for a while.

You will continue to be monitored by your doctor whilst reducing your steroid dose, and changes in your treatment schedule might be made based on your response to treatment.

Side effects of treatment

Dexamethasone can cause a number of side effects including **indigestion**. For this reason you may also have been prescribed another tablet e.g. omeprazole or lansoprazole, to try and prevent this problem whilst taking dexamethasone. You should only need to continue taking this whilst you are on dexamethasone treatment and for 7 days afterwards or until your indigestion improves.

In some people a side-effect of dexamethasone can be **diabetes** and we often recommend finger-prick blood tests to check for this whilst you are on steroids. This is rare in patients taking short courses of dexamethasone but if you develop the following symptoms please contact your GP for advice:

- Excessive thirst
- Increased frequency of going to the toilet to urinate.

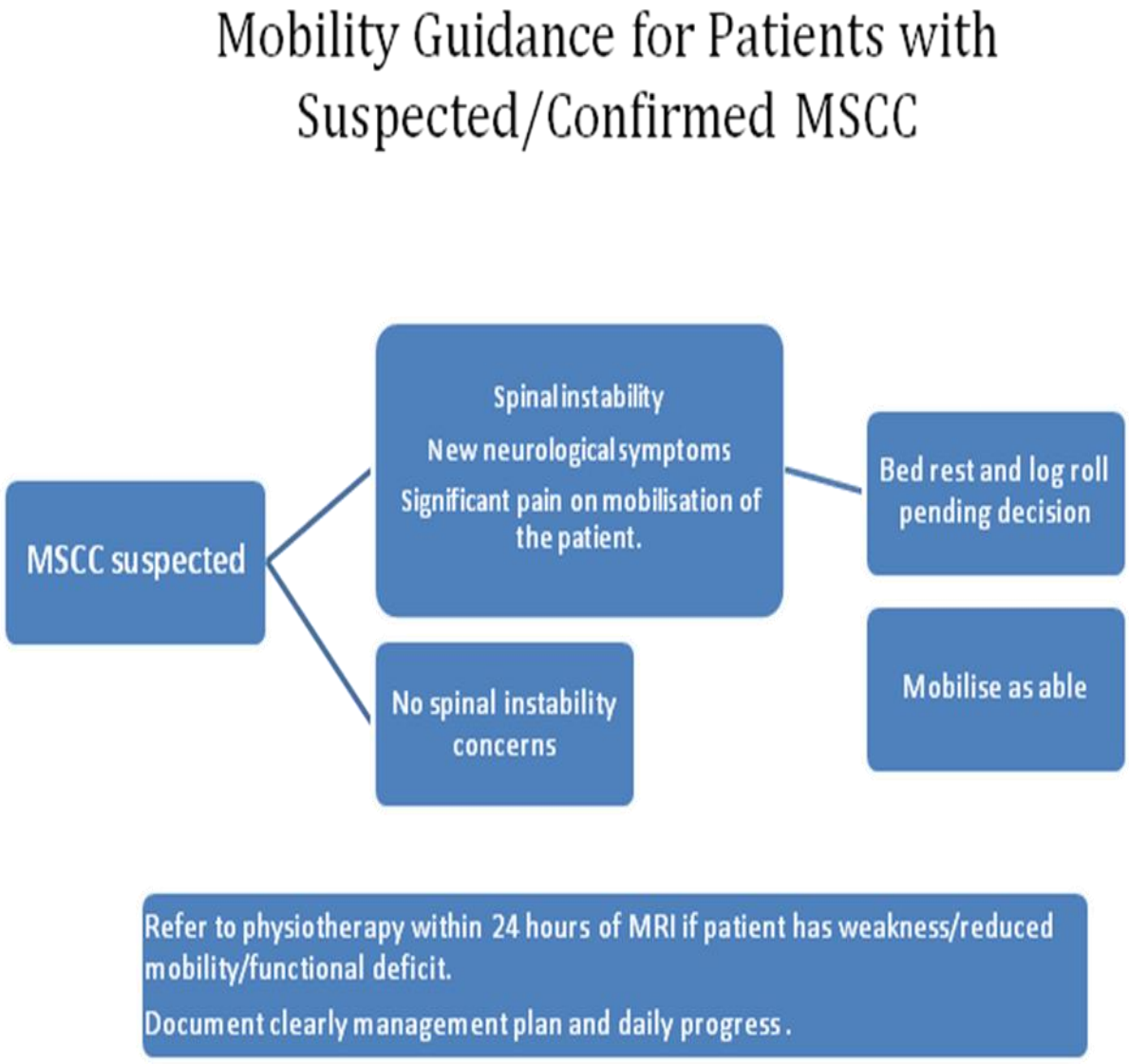
If you already have diabetes, dexamethasone may increase your blood sugar level. If you monitor your blood sugar (glucose) at home, test your blood more frequently than usual. Call your GP/diabetic nurse if your blood sugar is high; your dose of diabetes medication and your diet may need to be changed for a while.

Please read the dexamethasone patient information leaflet you receive with your tablets, detailing other potential side effects of treatment, along with this information leaflet.

Steroid reducing table for MSCC		
Day	**Dexamethasone daily dose (milligram = mg)**	**Administration**

Day 1-4 (4 days)	16mg	8mg B.D*
Day 5-8 (4 days)	12mg	6mg B.D*
Day 9-12 (4 days)	8mg	8mg O.D**
Day 13-16 (4 days)	4mg	4mg O.D**
Day 17-20 (4 days)	2mg	2mg O.D**
THEN STOP - COURSE COMPLETE		
*B.D. = Twice Daily (8am & 2pm) **O.D. = Once Daily (8am)		

Appendix 11 – Mobility guidance



Appendix 12 – Information for patients

Supply in ward area or in outpatient clinic and via MacMillan link
https://be.macmillan.org.uk/be/p-22794-mscc-leaflet.aspx

You have been given this leaflet because you have cancer and are at risk of developing malignant spinal cord compression (MSCC). The leaflet explains what MSCC is and what symptoms to look out for. It also tells you what to do if you develop symptoms.

MSCC is a rare condition but it is potentially serious. It is important that you know the symptoms so you can get medical advice as soon as possible. The earlier that treatment starts the more likely it is to be effective.

Any type of cancer can spread to the bones of the spine, but MSCC is more common in people with breast, lung or prostate cancers, lymphoma, or myeloma.

This leaflet is not intended to scare you, but to help you recognise the symptoms and know what to do if you develop them.

What is MSCC?

The spinal cord is a bundle of nerves that run from the brain down the back. It plays a vital role in many body functions including movement, bowel and bladder function and the sensations of touch, pain and temperature. The spinal cord is surrounded by the bones of the spine, which protect it.

MSCC can happen when cancer grows in the bones of the spine or in the tissues around the spinal cord. The cancer can cause pressure (compression) on the spinal cord.

What should I look out for?

It depends on which part of the spine is affected but the warning signs could be any one or more of the following:

Unexplained new back or neck pain
- The pain may be mild to start with but becomes more severe.
- It may feel like a 'band' around your chest or abdomen.
- The pain may spread down your leg or arm, or into your lower back and buttocks.
- Movement may make the pain worse.
- The pain may get worse when you strain – for example, if you lift something heavy, cough or sneeze.
- The pain may keep you awake at night.

Numbness or pins and needles in a part of your body, such as your toes, fingers or over the buttocks.

Feeling unsteady on your feet – having difficulty walking, leg weakness or your legs giving way.

Problems passing urine
- You may have difficulty controlling your bladder (incontinence).
- You may only pass small amounts of urine or none at all.
- You may be constipated or have problems controlling your bowels.

These symptoms can also be caused by a number of other conditions.

What should I do if I develop symptoms?

If you develop any of these symptoms, get medical advice **immediately**.

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

You should contact the hospital team where you usually go for cancer treatment and follow-up appointments.

Ask them to write down their phone number:

If you are unable to get in touch with anyone, go to the nearest A&E department or contact your GP.

When you speak to a health professional:
- Describe your symptoms.
- Tell them you have cancer and are worried you have spinal cord compression.
- Tell them that you need to be seen immediately.
- Show them this information leaflet or your alert card.

Do not wait for further symptoms to develop. The sooner MSCC is diagnosed, the sooner treatment can begin. If left untreated, MSCC will cause permanent problems.

What happens next?

The doctor needs to examine you. If they suspect MSCC, they may tell you to lie flat. The doctor will also arrange an urgent scan of your spine. This is usually an MRI scan, but may be a CT scan if you can't have an MRI.

The doctor will prescribe some steroids. These help reduce swelling and pressure on the nerves. Tell the doctor if you are diabetic or have had problems with steroids before.

If you have MSCC, the doctor will talk to you about the best treatment options. This will depend on the type of cancer you have, which part of the spine is affected and your general health. For the best result, treatment should start as soon as possible.

We're here

At Macmillan, we know how a cancer diagnosis can affect everything and we're here to support you through. From help with money worries and advice about work, to someone who'll listen if you just want to talk, we'll be there. We'll help you make the choices you need to take back control, so you can start to feel like yourself again.

No one should face cancer alone. For support, information or if you just want to chat, call us free on 0808 808 00 00 (Monday to Friday, 9am–8pm) or visit macmillan.org.uk

WE ARE MACMILLAN. CANCER SUPPORT

Health & care information you can trust

Appendix 13 – Neurosurgical Guidance

Neurosurgical Guidance

- In general patients who benefit from neurosurgical intervention have limited number of vertebrae involved and a good cancer prognosis.

- Information with regards to cancer expected survival (tools such as Tokuhashi see Appendix 1 can be useful, but need to understand their limitations – especially as established prior to TKI/immunotherapy.

- Urgent "CT CAP" to assess systemic cancer burden and to assess spine integrity.

- Via switchboard facilitate discussions with Neurosurgical team based at RIE. Document discussion and names of clinicians involved, if accepted please ensure Consultant name is clearly documented.

- If patient accepted by Neurosurgical team, then arrange transfer to DCN, RIE under care of on-call consultant. Recommend If following their assessment that decision not to pursue surgery then they urgently discuss with on-call oncology team to facilitate transfer back to ECC for emergency RT

Characteristic	Score
General condition	
Poor (PS 10% to 40%)	0
Moderate (PS 50% to 70%)	1
Good (PS 80% to 100%)	2
Number of extraspinal metastatic foci	
≥3	0
1-2	1
0	2
Number of metastases in vertebral body	
≥3	0
2	1
1	2
Metastases to other internal organs	
Unresectable	0
Resectable	1
Absent	2
Primary site of malignancy	
Lung, osteosarcoma, stomach, bladder, esophagus, or pancreas	0
Liver, gallbladder, unidentified	1
Others	3
Kidney, uterus	4
Thyroid, breast, prostate, carcinoid	5
Palsy	
Complete (Frankel A, B)	0
Incomplete (Frankel C, D)	1
Non (Frankel E)	2
Total Score	**Months**
0-8	>6
9-11	≥6
12-15	≥12