

Acute Oncology Group
Hull University Teaching Hospitals NHS Trust
Queen's Centre

**Guidelines for the Management
of Adult Patients with
or suspected of having
Metastatic/Malignant
Spinal Cord Compression
(MSCC)
2019**

Version Control

This is a controlled document please destroy all previous versions on receipt of a new version

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4.0			Update Document to HEY Acute Oncology Group	HEY Acute Oncology Group
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1. Introduction

This guideline sets out the Hull and East Yorkshire Hospitals NHS trust, NLAG and Scarborough District general Hospital pathway by which patients at risk of Metastatic Spinal Cord Compression (MSCC) can be identified, investigated and managed appropriately.

This guideline provides recommendations for the assessment and management of adult patients with suspected MSCC and is adapted for local use from the NICE clinical guideline on metastatic spinal cord compression. Please press control and click on the link below:

<http://www.nice.org.uk/CG75>

2. Metastatic Spinal Cord Compression

MSCC occurs when there is pathological vertebral body collapse or direct tumour growth causing compression of the spinal cord or cauda equina. Irreversible neurological damage ensues with resulting paraplegia. Early diagnosis and treatment is essential to prevent neurological damage and to achieve this, early recognition and reporting of symptoms, simple and rapid referral pathways, urgent and appropriate investigations and prompt treatment are needed.

The vertebral column is the most common site of skeletal metastasis and seventy percent of patients dying from cancer have spinal metastases at autopsy. Spinal cord compression occurs in 5% to 10% of all patients with malignancy, and approximately 25% of those presenting with MSCC do not have an established diagnosis of cancer. Lung, breast and prostate cancers account for over 50% of cases; lymphoma and myeloma account for 20%. In 7% of cases, a primary cancer may not be identified.

The distribution of metastases may be classified according to spinal level

- Thoracic spine is affected in 70% of cases
- Lumbosacral spine – 20%

- Multiple contiguous levels – 10% to 38%
- Cervical spine – 10%

In 85% of cases, haematogenous spread to the vertebrae results in bony collapse and spinal cord compression. Less commonly, MSCC is caused by direct tumour extension or deposition of tumour cells in the neural tissues or in the meninges. Compression results in oedema, venous congestion, demyelination and ultimately cord infarction. If the onset of compression is gradual, with gradually developing symptoms and signs, there is a chance of reversal of the process and recovery of function but once the cord is infarcted, there is little chance of recovery.

3. Management of Metastatic Spinal Cord Compression

3.1 Assessment of the patient with suspicious symptoms / signs Symptoms

3.1.1 Pain

Pain is the presenting symptom in 90 to 95% of patients though absence of pain does not exclude MSCC. Pain may be subdivided into local, radicular or referred pain although many patients will have a combination.

Local pain arises from the direct effect of the vertebral metastasis. In some patients, the pain is caused by expansion of the vertebral body without physical disruption. This is described as non-mechanical pain and is usually constant, affecting the midline or paravertebral regions and is not affected by posture or movement. In others, weakening or disruption of the architecture of the bone results in mechanical pain which is usually aggravated by moving, lifting weights or by any increase in intrathoracic pressure e.g. sneeze, cough, Valsalva manoeuvre or straining at stool.

Radicular pain arises from spinal nerve root compression and is

- Characterised by a band or girdle of pain or tightness radiating from back to front.
- In the limbs, radicular pain is usually unilateral
- Exacerbated by lying down, movement, coughing, sneezing or Valsalva manoeuvre and improved by sitting or standing
- Usually worse at night

Radicular pain usually radiates in a dermatomal pattern and may be associated with numbness and tingling

- It may resemble pain from intervertebral disc disease, pleurisy, cholecystitis or pancreatitis.
- It should be distinguished from brachial or lumbosacral plexus involvement and may help to localise the lesion within one or two vertebral segments.

The above points in the history may be the only clue to impending spinal cord compression.

3.12 Limb weakness

If MSCC progresses, weakness in the legs is common and is usually experienced as stiffness, dragging of a limb or unsteadiness.

3.13 Sensory disturbances

Numbness often affects the distal limb first and may extend to the level of the compression. A sensation of coldness or paresthesias may occur and sensory loss may progress to ataxia.

3.14 Autonomic dysfunction

May affect up to 57% of patients but tends to be a late consequence of MSCC and is characterised by:

- Hesitancy, urgency or loss of bladder control
- Urinary retention, overflow incontinence
- Constipation, faecal incontinence

- Loss of perspiration below level of the lesion
- Sexual difficulties

3.15 Physical Signs

A full, thorough neurological examination is mandatory with a record of the following:

- General condition
- WHO performance status (See [Appendix i](#))
- Mobility
- Gait (if ambulant)
- Examination of the upper and lower limbs: motor and sensory, perianal sensation, anal tone and reflexes
- Please use ASIA tool.

Note that signs may be asymmetrical, incomplete, progressive and may be in evolution in the acute phase of spinal shock. Frequent repeat examination is essential if signs are progressing.

Please see the Referral Pathway for patients with suspected MSCC (See [Appendix ii](#))

3.2 Patients in the Community

When patients are at home and the possibility of SCC is raised, e.g. by their district nurse or specialist palliative care nurse, the G.P should be contacted in the first instance and asked to assess the situation urgently.

If SCC is the likely diagnosis, the MSCC coordinator at the local referral centre should be contacted as below.

If it is not possible to admit directly under the care of the specialist team, the patient may be admitted locally for initial investigation and early treatment and transferred as appropriate.

There may be occasional patients in whom admission to the hospice would be appropriate (e.g. end-stage disease, not fit for radiotherapy) but these should be discussed with the hospice medical staff on an individual basis.

All patients must have referral form (See [Appendix iii](#)) completed and faxed to MSCC coordinator.

3.3 Metastatic Spinal Cord Compression Coordinator

The MSCC coordinator will

- Provide the first point of contact for clinicians who suspect that a patient may be developing spinal metastases or MSCC
- Perform an initial telephone triage by assessing requirement for, and urgency of, investigations, transfer and treatment
- Advise on the immediate care of the spinal cord and spine and seek senior clinical advice
- Gather baseline information to aid decision-making and collate data for audit purposes
- Identify the appropriate place for timely investigations and admission, if required
- Liaise with the acute receiving team and organise admission and mode of transport.

A list of approved coordinators can be found in **Appendix iv**.

4. Diagnosis: confirmation of MSCC and primary cancer

The importance of early diagnosis in the management of MSCC cannot be over-emphasised. Symptoms are often present for some weeks before neurological signs develop and an emergency occurs. Identifying the underlying aetiology of the spinal cord compression is essential in determining the interventions required.

To assist in early diagnosis, patients and/or carers of patients at risk should be identified and given information about the signs and symptoms of spinal cord compression and the importance of reporting promptly. They should be issued with information leaflets and contact details of the MSCC coordinator so that they can report suspicious symptoms as soon as they occur.

(see **Appendix v**).

The extent of diagnostic workup indicated in any given case depends on the overall condition of the patient and the expected prognosis. These factors should be taken into account by a senior member of the medical team before requesting investigations.

4.1 Radiological Investigations

- MRI scan is more sensitive than CT scan and is the gold standard for the diagnosis of MSCC unless contraindicated.
- CT scan may be required to provide additional information on bone integrity, stability and help plan surgery
- Radioisotope bone scanning is very sensitive for the detection of bony metastases but does not show the extent of any soft tissue disease. It is not reliable in detecting the level of cord compression
- CT myelography may rarely be required for patients in whom there is a specific contraindication to MRI
- Plain radiology is not as sensitive for detecting metastatic bone disease as MRI or isotope bone scan and does not readily show soft tissue abnormalities. Plain films cannot make or exclude the diagnosis of MSCC
- Routine 'screening' imaging of the spine is not indicated in asymptomatic patients with a prior diagnosis of malignancy

4.2 Timing of investigations

- MRI of the whole spine should be carried out in time to allow definitive treatment within 1 week of the suspected diagnosis in patients with pain suggestive of spinal metastases
- MRI of the whole spine should be carried out in time to allow definitive treatment within 24 hours (or sooner if an urgent clinical need) in patients with pain suggestive of spinal metastases and with neurological symptoms or signs suggestive of MSCC
- Out of hours MRI should only be performed where there is an emergency need and an intention to proceed immediately to treatment

Urgent referral for MRI improves early detection. If MRI is not available at the referring hospital, transfer patients with suspected MSCC to a centre with 24-hour MRI and treatment capability.

4.3 Diagnosis of primary cancer

If a patient with MSCC is not known to have a prior malignancy, every effort should be made to make a diagnosis. A CXR combined with a CT scan of the chest, plus abdomen and pelvis if appropriate, will find many primary cancers. A serum PSA is helpful in men and occasionally germ cell tumour markers in the younger age group but other tumour markers are not specific enough to allow a precise diagnosis. Paraproteinaemias will usually be associated with myeloma or plasmacytomas which can cause spinal cord compression through the development of paraspinal masses.

A biopsy may be required to make a definitive diagnosis and can be critical in cases where curative treatment may be possible e.g. suspected plasmacytoma / lymphoma. The biopsy site may be the suspected primary cancer, a distant metastatic site or, if neurosurgical intervention is appropriate, the metastatic lesion causing the MSCC. The site and timing of an attempt to gain a histological diagnosis should be discussed between the neurosurgical and oncological teams, pathologist and others e.g. chest physician, breast surgeon or haematologist. In most cases, gaining a histological diagnosis should not delay the start of treatment of the MSCC.

5 Prognosis

The degree of neurological function at diagnosis and the start of treatment is the most significant factor in determining the recovery of function.

Recent onset (less than 48 hours) and rapid progression of symptoms are poor prognostic indicators.

Patients who are able to walk at presentation have a better chance of walking after early treatment than those who are paraplegic at presentation.

If the patient has been paralysed for more than 48 hours, the chance of significant neurological recovery is poor. "Emergency" treatment at this point may not be indicated but palliative radiation for pain management may be beneficial.

6. Treatment

6.1 Case Discussion Policy

All patients with MSCC should, prior to definitive treatment be the subject of a case discussion. The discussion should include as a minimum senior clinical advisors for spinal surgery and clinical oncology. Where necessary a senior clinical advisor of radiology should also be included.

The Senior Clinical Advisor Specification is available on the MSCC website. Press control and click on the link below:

<http://intranet.hey.nhs.uk/MSCC>

This discussion should take place whenever required and decision making should not be delayed by deferring until the next preset meeting e.g. MDT

It is anticipated that staff apart from the MSCC clinical advisors who are involved in the patients care make the decision that an individual patient is unfit for any form of definitive treatment in which case the need for case discussion as set out above is not required. It is recommended, however, that the majority of cases will be at least discussed with the MSCC coordinator.

All discussions should be documented in the patients' case notes. Responsibility for documentation lies with the MSCC senior clinical advisor initiating the case discussion.

6.2 Treatments

The treatment of MSCC should be individualised and should take into consideration pre-treatment ambulatory status, previous treatment, co-morbidities, technical surgical factors, the presence of bony compression and spinal instability, potential surgical complications, potential radiotherapy toxicity and patient preference.

Patients with suspected MSCC should be nursed flat until a definitive diagnosis is made and a decision reached on spinal stability.

All treatments offered to patients with painful spinal metastases should aim to improve symptoms and quality of life. If there is threatened or established MSCC, treatments will also have the additional aims of preserving neurological function and preventing neurological deterioration while, if possible, attaining spinal stability.

It is useful to consider the treatments for threatened or established MSCC according to their aims under the following headings

- Interventions designed to relieve pain
- Interventions designed to prevent vertebral collapse and spinal cord compression
- Treatment of bony instability
- Reversal of neurological disability

6.3 Early treatment with steroids

High dose steroids given early have been shown to improve neurological function and relieve pain, reduce cord oedema and have a direct oncolytic effect in patients with MSCC. The use of high dose dexamethasone may also temporarily prevent the onset of cord ischemia.

Unless contraindicated, all patients with MSCC should receive a loading dose of 16 mg of dexamethasone as soon as possible after assessment, followed by a short course of 16 mg dexamethasone daily given as 2 doses of 8mg given with a PPI to prevent gastric complications. The second dose should be given no later than 2pm to avoid sleep disturbance. The steroids should be continued at 16mg daily while surgery or radiotherapy is being planned.

If there is a strong suspicion that the diagnosis could be lymphoma then high dose steroids are not recommended and the case should be discussed with a haematologist.

After surgery or the start of radiotherapy, the dose should be reduced gradually over 5–7 days and stopped. If neurological function deteriorates at any time the dose should be increased temporarily.

In patients with MSCC who do not proceed to surgery or radiotherapy, the dose of dexamethasone should be gradually reduced over 7 days and stopped. If neurological function deteriorates at any time the dose should be reconsidered.

Blood glucose levels should be monitored in all patients receiving corticosteroids.

6.4 Management of pain

Pain is almost always present in patients with MSCC and is often severe, requiring rapid titration of a strong opioid to achieve analgesia with the addition of non-opioids such as paracetamol and NSAIDs where appropriate. As immobility and autonomic dysfunction will add to the opioid induced constipation, laxatives and close attention to bowel care are mandatory.

Neurosurgical intervention (see below) or referral for invasive procedures such as epidural or intrathecal analgesia may be required for intractable pain.

Patients with breast cancer or myeloma should be offered bisphosphonates to reduce pain and the risk of vertebral fracture. Patients with prostate cancer may be offered bisphosphonates if pain is refractory. Bisphosphonates should only be given to patients with other cancer types to reduce pain or prevent progression in the context of a clinical trial.

If a patient is unfit for surgical intervention and has mechanical pain, some stabilisation and therefore improvement in pain may be achieved by the use of collars and braces.

6.5 Role of Percutaneous vertebroplasty and balloon kyphoplasty

Vertebroplasty and balloon kyphoplasty are minimally invasive percutaneous procedures which can achieve rapid pain relief and stabilization of vertebral compression fractures associated with neoplasia. Both procedures are NICE approved and are available for patients in our region. These procedures are suitable for patients who have painful vertebral compression fractures with out evidence of cord or cauda equina compression. An MRI scan with STIR sequence is required to assess suitability. Referrals should be made to the spinal neurosurgical team or the interventional radiology teams.

6.6 Surgery

All confirmed cases of MSCC should be discussed with the spinal surgery senior clinical advisor.

Surgery is the definitive treatment of first choice where there is spinal instability or vertebral displacement.

Surgery should be considered when

- There is recent onset of neurological deterioration
- The site of the primary tumour is unknown
- There is relapse after radiation treatment

It should also be considered when neurological symptoms progress during radiotherapy, or in the treatment of radio-insensitive cancers.

The mechanical pain from an unstable spine caused by malignant disease can be improved with stabilisation surgery. Surgical intervention may occasionally be considered even if the patient is paraplegic if their pain does not respond to maximal intervention with radiotherapy and conventional analgesia.

Patients with spinal metastases and imaging evidence of spinal instability without compression of the cord should be urgently considered for surgery to stabilise the spine and **prevent** MSCC.

The prime purpose of spinal surgery in the patient with established MSCC is to preserve or recover neurological function in the hope of maintaining functional independence and highest possible quality of remaining life.

If not previously given to the same area, postoperative radiotherapy would usually be considered.

6.7 Case selection for spinal surgery

Several variables have been defined which function as prognostic factors for survival in patients with MSCC: The following factors have been combined into a combined scoring system Tokuhashi score – see [Appendix vi](#)

- Primary site
- Number of vertebral metastases
- Number of foci of extraspinal metastases
- Performance status
- Presence of unresectable metastases to major internal organs
- Extent of neurological disability

The total Tokuhashi score (TS) gives a recommendation re the potential surgical treatment options.

Several variables also act as predictive factors for a successful surgical outcome:

- Speed of onset of neurological symptoms and signs – patients with a more rapid onset tend to have a poorer outlook as the rapid onset may indicate cord infarction.
- Duration and degree of neurological impairment – the longer the duration and more dense the neurological deficit, the lower the chance of recovery
- General fitness for surgery – serious co-morbidities are common in this group of patients

All patients with MSCC **with** a neurological deficit who are potentially fit for spinal surgery should be discussed as a matter of urgency with their oncologist or the acute oncology team and the senior spinal clinical advisor to allow for definitive treatment within 24 hours of a diagnosis being made.

All patients with radiological MSCC **without** any neurological deficit who are potentially fit for spinal surgery should be discussed with their oncologist or the acute oncology team and the senior spinal clinical advisor to allow for definitive treatment within 7 days of a diagnosis being made. Such patients should be reassessed with a full neurological examination at least daily and if a neurological deficit develops, they should be managed urgently.

Patients with a poor performance status, widespread metastatic disease or who have been completely paraplegic or tetraplegic for more than 24 hours should be discussed with their oncologist or the acute oncology team and the senior spinal clinical advisor prior to arranging hospital transfer or imaging.

Frail patients who are not fit for any definitive treatment should not be investigated or transferred unnecessarily.

6.8 Radiotherapy

6.81 Patients without MSCC

Radiotherapy is widely used for the treatment of pain arising from bone metastases but it does not have any effect if the pain arises from bony instability. There is no evidence that radiotherapy can prevent progression to MSCC in patients with imaging evidence of spinal metastases but no pain. When given as a single fraction of 8Gy, radiotherapy is effective in many patients with non-mechanical pain from vertebral metastases.

6.82 Radiotherapy for patients with threatened or established MSCC

In association with surgery

- Surgery is the initial treatment of choice for patients with MSCC and bony instability who are suitable for surgery
- Radiotherapy will not treat structural failure and so decompression and/or stabilisation is needed to prevent further neurological damage
- Pre-operative radiotherapy may increase the risk of problems with wound healing and is not recommended
- Following surgery, adjuvant radiotherapy is usually given
- Patients who experience progressive neurological deficits despite receiving radiotherapy should be considered candidates for urgent surgical decompression and/or stabilization where possible

As sole treatment

- In the absence of mechanical pain or instability, radiotherapy may produce significant improvements in pain control and neurological function
- Even when paraplegia is complete, radiotherapy may improve pain control
- Patients who are ambulatory at the time of the diagnosis have a higher probability of obtaining good response to treatment

- It is unlikely that patients who have been paraplegic for more than 24 hours will recover neurological function after radiotherapy
- Careful case selection is therefore very important

Radiotherapy should be started immediately after diagnosis unless surgery indicated.

Dose / fractionation

- Fractionated radiotherapy is the definitive treatment of choice for patients with epidural tumour without neurological impairment, mechanical pain or spinal instability
- A single fraction of radiotherapy is sufficient if the patient is already paraplegic and treatment is for pain alone
- 20 Gy in 5 fractions given on consecutive days is frequently the regimen of choice
- Less commonly, 30Gy in 10 fractions or another combination may be chosen, especially in patients who are expected to have a relatively good prognosis or if the radiotherapy is postoperative
- Radiotherapy should be delivered to the spinal cord depth as measured on the MRI
- This may require a parallel pair of opposed fields if the cord is deep
- If there has been prior radiotherapy to the same area, spinal cord dose should not exceed 50Gy in 2 Gy per fraction in total for the same area

6.9 Prophylactic anticoagulation

Immobility leads to an increased risk of venous thromboembolism (VTE). Patients with MSCC are at particular risk because they have advanced malignancy.

All patients on bed rest should be fitted with anti-embolic stockings and considered for prophylactic LMW heparin.

6.10 Care of the patient with newly diagnosed MSCC

In the early stages of compression of the cord, undue movement may cause further damage by changes in spinal alignment or perfusion. Careful positioning and the use of steroids may help to maintain spinal function while definitive treatment is started.

6.11 Rehabilitation

Many patients will have a dramatic change in their functional ability and independence. The multi-professional team including physiotherapist, occupational therapist, social worker and community palliative care services play an important part in helping the patient and their carers achieve their maximum potential.

Rehabilitation must commence at diagnosis and should take into account the expressed wishes, individual circumstances and goals of the patient and their carers.

The following may need to be taken into account

- The management of incontinence
- Mobility aids
- Adaptations to the home
- An alternative place of care
- A package of social and health care
- Psychological support for patient and family

Rehabilitation Pathway – [See Appendix vii](#)

7. Appendices

Appendix (i) WHO Performance status scoring system

- **0** – Asymptomatic (Fully active, able to carry on all predisease activities without restriction)
- **1** – Symptomatic but completely ambulatory (Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature. For example, light housework, office work)
- **2** – Symptomatic, <50% in bed during the day (Ambulatory and capable of all self care but unable to carry out any work activities. Up and about more than 50% of waking hours)
- **3** – Symptomatic, >50% in bed, but not bedbound (Capable of only limited self-care, confined to bed or chair 50% or more of waking hours)
- **4** – Bedbound (Completely disabled. Cannot carry on any self-care. Totally confined to bed or chair)
- **5** – Death

Appendix (ii) Pathway for Malignant / Metastatic Spinal Cord Compression (MSCC)

FULL HISTORY AND CLINICAL ASSESSMENT

MSCC suspected

Nurse flat until stability of spine is known.
 Manage pain and other symptoms as required
 Start 16mgs of Dexamethasone immediately if no contraindications
 Continue dexamethasone 8mg bd with PPI until diagnosis confirmed
 DVT prophylaxis with LMWH if no contraindications

MRI arranged by referring team

MRI result reported to referring team and MSCC coordinator

MSCC not suspected

Analgesia and investigation as required
 Refer as appropriate

MSCC confirmed on MRI scan

MSCC Patients' information

Contact MSCC coordinator

Or CHH 01482 875 875 Bleep 500

MSCC team decide on:

- Spinal stability and patient positioning
- Need for tissue diagnosis
- Preferred treatment
- Need for patient transfer

MSCC excluded on MRI
 Treat as appropriate

Treatment to start within 24 hours of diagnosis*

Options include: Surgery (urgency depends on the neurological presentation)
 Radiotherapy
 Chemotherapy
 Best supportive care

* For more information please refer to the local guideline.

Rehabilitation should begin as soon as a diagnosis of MSCC is made
 Referral to: Physiotherapy **within 24 hours**
 Occupational therapy **within 48 hours**
 Social services

Underlying malignant condition should be managed by appropriate team
 Plan for steroid reduction once definitive treatment complete
 Consider transfer to local hospital for continuing rehabilitation

Metastatic / Malignant Spinal Cord Compression (MSCC) Referral Form

Appendix
 Form

Referral

***Please fill all fields and do not use the return key during typing**

Please contact MSCC coordinator before sending

**(Failure to reach the MSCC coordinator please contact CHH 01482 875 875 bleep 500 or Registrar oncall)*

MSCC treatment referral:

Date of referral :

Time of referral:

Date of admission:

Referred by :

Contact number:

Extension:

Bleep/Pager:

Patient Details and relevant information

Surname:

Forename:

DOB:

Address:

Telephone No.

Previously known to Oncologist: Y / N

Name:

Oncologist aware of Referral: Y / N

Prior MDT Discussion Y / N

Hospital

Date

Outcome

•

Background Tumour information

Primary:

Current Management:

Chemo Radiotherapy Hormone

Biological

Best supportive care

Previous MSCC: Y / N

Date:

Area affected:

Treatment received:

Radiotherapy Surgery Both

Other:

MSCC clinical information

Time and Date of MSCC was first suspected:

Walking Status:

Normal

Unsteady: Y / N

Since(date):

Not Ambulant: Y / N

Since (date):

Spinal stable: Y / N / Not Known

Recommandation:

•

MRI Whole spine:

Not Done (Reason:)

Done Location:

Time - Date requested: -

Time - Date done: -

Outcome:

Other relevant Information:

•

•

•

•

•

•

•

Please complete this form as fully as possible and send to MSCC coordinator on e-mail

hyp-tr.mscc-hey@nhs.net or fax to "01482461474", **YOU MUST CALL BEFORE SENDING.**

**for e-mail please send using nhs.net e-mail account to maintain patients' confidentiality.*

Appendix (iv) MSCC Coordinators Contact Details

MSCC Coordinator lead	Site	Phone Number	Bleep	Email address
ANP	CHH	01482875875	500	

Appendix (v) Patient Information

Patients are given a copy of the Trust and the Macmillan Malignant Spinal Cord Compression leaflet available on the following link.

<http://intranet/mscc/pdf/HEY395-2012.pdf>

<http://www.macmillan.org.uk/Cancerinformation/Livingwithandaftercancer/Symptomssideeffects/Othersymptomssideeffects/MSCC.aspx>

MSCC Patient Information Websites

Patients are also made aware that other information is available on the following websites:

The Brain and Spine Foundation

General Administration

Brain & Spine Foundation, 3.36 Canterbury Court, Kennington Park, 1-3 Brixton Road, London, SW9 6DE

Tel: 020 7793 5900

Fax: 020 7793 5939

<http://www.brainandspine.org.uk/>

Email: info@brainandspine.org.uk

There is a range of information covering many different neurological disorders that can be downloaded from the web site, and the brain and spine foundation also has a helpline.

Brain and Spine Helpline

Brain & Spine Helpline, 3.36 Canterbury Court, Kennington Park, 1-3 Brixton Road, London, SW9 6DE

Tel: 0808 808 1000

Fax: 020 7793 5939

Registered charity no. 1098258

Information booklets are available from the web site in pdf form and can be downloaded free of charge.

http://www.brainandspine.org.uk/information/publications/brain_and_spine_booklets/index.html

Cancer BACUP

Cancer BACUP merged with Macmillan in 2008 and can be contacted via the Macmillan web site below or address later in this section.

<http://www.macmillan.org.uk/Cancerinformation/Cancerinformation.aspx>

Macmillan and Cancer Backup provide a range of information for individuals on all aspects of cancer and its treatment. Some of the booklets we provide for patients with tumours of the brain and CNS include:

- Understanding brain tumours
- Understanding radiotherapy
- The Cancer guide
- Diet and Cancer
- Coping with fatigue
- Coping with hair loss
- When someone with cancer is dying
- Caring for someone with advanced cancer
- How are you feeling?
- A quick guide to benefits and financial help
- Cancer treatment and fertility

Macmillan Cancer Support

Information on accessing Macmillan services: from nursing to grants

89 Albert Embankment, London, SE1 7UQ

Tel: 0808 808 0000

www.macmillan.org.uk

Macmillan grant forms / benefit information

<http://www.macmillan.org.uk/HowWeCanHelp/FinancialSupport/FinancialSupport.aspx>

Publications e.g. The cancer guide.

http://www.macmillan.org.uk/HowWeCanHelp/Publications/Macmillan_Publications.aspx

Spinal Cord Tumours:

<http://publications.macmillan.org.uk/kbroker/macmillan/mid/search.ladv?sr=0&as=1&cs=iso-8859->

[1&sc=mid&sf=&sm=0&ha=145&tx0=1&fl0=__showAll%3A&op0=1&ty0=0&fl2=subject%3A&op2=1&ty2=0&tx2=Spinal%20cord%20tumours](#)

Information for people with cancer and those who care. Illustrated booklet with detailed information for people with cancer and their relatives. It covers many aspects of cancer, including the cancer journey, treatment options, getting the best care, people who can help, complementary approaches and useful organisations. Welsh, Braille, large print, and audiocassette versions are also available.

Published by: Macmillan Cancer relief. Non-English versions available

Last published: 2010, Price: Free, Order number MAC5765

Macmillan Cancer Line: 0808 808 2020;

Macmillan Resources Line (for health and social care professionals): 01344 350310;

Email: cancerline@macmillan.org

[National Institute for Health & Excellence \(NICE\)](#)

CG75 Metastatic spinal cord compression: understanding NICE guidance

<http://guidance.nice.org.uk/CG75/PublicInfo/pdf/English>

[General Information](#)

[Cancer Help UK \(Cancer Research UK\)](#)

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www.cancerhelp.org.uk

Registered charity no. 1089464

[Local Information:](#)

Hull & East Yorkshire Hospitals NHS Trust

<http://www.hey.nhs.uk/content/corporate/Default.aspx>

North East Lincolnshire & Goole Hospitals Foundation Trust

<http://www.nlg.nhs.uk/>

York Teaching Hospital NHS Foundation Trust

http://www.yorkhospitals.nhs.uk/our_hospitals/scarborough_hospital/

Appendix (vi) Tokuhashi score (T score)

Parameter	Score
General Condition	
Poor	0
Moderate	1
Good	2
No. of extraspinal metastases	
≥3	0
2	1
1	2
Metastasis to major internal organs	
Non removable	0
Removable	1
Non	2
Primary site of cancer	
Lung, osteosarcoma, stomach, bladder, oesophagus, pancreas	0
Liver, gallbladder, unidentified	1
Others	2
Kidney, uterus	3
Rectum	4
Thyroid, breast, prostate, carcinoid	5
Palsy or myelopathy	
Complete	0
Incomplete	1
None	2

*Total score < 5 palliative approach, >9 for consideration for surgical treatment and between 5–9 for individual case discussion.

Appendix (vii) MSCC Matrix of treatment / Rehabilitation

Professional Group	UNSTABLE SPINE PRIOR TO RADIOTHERAPY OR STABILISATION	STABLE SPINE PRIOR TO AND DURING RADIOTHERAPY	THERAPY POST RADIOTHERAPY +/- STABILISATION
Physiotherapy	<p>Bed rest until stabilisation achieved (this may be achieved by surgery or bracing) or Radiotherapy completed (It must be acknowledged that completion of radiotherapy does not automatically</p>	<ul style="list-style-type: none"> • Patient elevated in bed to 45° initially, if tolerated progress to 60° over 3–4 hrs if BP and pain / neurology stable & then further elevation to 90° (If any significant 	<p>Bed mobility assessment May require monkey pole or cot sides to facilitate this</p> <p>Sitting up in bed</p>

	<p>indicate the spine is stable. The patient should be reviewed for signs of spinal instability, further scanning may be indicated and a decision made by the MDT regarding safety to mobilise.)</p> <p>Respiratory Function (see Respiratory section)</p> <ul style="list-style-type: none"> Breathing exercises to increase air entry Use of incentive spirometer Autogenic drainage and active cycle of breathing to aid clearance of secretions Assisted coughing Suction as indicated <p>ROM Exercises & Positioning</p> <ul style="list-style-type: none"> Exercises twice daily, encourage patient and family/carers to be independently involved with exercises Teach active/active assisted exercises, including static quadriceps and gluteal contractions 	<p>deterioration in pain +/- neurological status to return to supine & re-evaluated by doctor)</p> <ul style="list-style-type: none"> Mobilise as condition allows in consultation with consultant. If any significant deterioration in pain +/- neurological status to return to supine and re-evaluated by medical team <p>Respiratory Function</p> <p>Thoracic Expansion Exercises, use of incentive spirometer to increase air entry, Active Cycle of Breathing Technique, autogenic drainage to aid clearance of secretions, assisted coughing, suction as indicated</p> <p>ROM Exercises & Positioning</p> <p>Active / Active-Assisted / Passive exercises involving all muscle groups depending on patient's ability to maintain ROM and muscle power</p>	<p>Gradually elevate to 45°, then 60° over 3–4 hrs if BP, pain and neurology stable increase to 90°</p> <p>Collar or brace?</p> <p>If pain limits patient's mobility, consider the use of a brace, liaise with consultant and neurosurgical team</p> <p>Respiratory function</p> <p>See previous table</p> <p>ROM Exercises & Positioning</p> <p>Sitting balance assessment and re-education</p> <p>Once able to sit upright in bed, modified log roll technique to move from supine to sitting</p> <p>Sit-Stand assessment and re-education</p>
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	<p>and perform passive movements within pain limits of all joints</p> <ul style="list-style-type: none"> • Cervical lesions avoid movements that cause pain at the site of fracture/compression and no resisted arm movements • Tendo Achilles stretches to prevent ankle contracture and hamstring stretches (consider frogging position) • Hip flexion: lesions T10 and below restrict to 30°, move within pain free range 		<p>If patient has independent sitting balance and grade 3 and above muscle power</p> <p>Standing balance assessment and re-education</p> <p>Patients with grade 3 and above lower limb strength</p> <p>Transfers</p> <ul style="list-style-type: none"> • If no sitting balance use full hoist • If sitting balance but unable to stand consider sliding board use. Be aware of any sensory deficit and pressure areas. • If sitting balance and grade 3 or above lower limb strength consider facilitated transfer +/- aid <p>Gait re-education</p> <p>Appropriate walking aids and stair mobility as appropriate</p> <p>Sitting out of bed</p> <ul style="list-style-type: none"> • Assessment of suitable seating and pressure relief including frequent position change to reduce sores, initially to sit out for 1 hr closely
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	<p>Anxiety management Advice, education, relaxation techniques</p>	<p>Anxiety management Advice, education, relaxation techniques</p>	<p>monitoring BP and pain/neurological function, then increase as able/indicated</p> <ul style="list-style-type: none"> • Liaison with OT for provision of wheelchair and pressure relieving cushion, <p>Exercises / Positioning</p> <ul style="list-style-type: none"> • Strengthen unaffected muscle groups, taking care not to increase spasticity or cause muscle imbalance • Exercises and functional activities to aid recovery in weak muscles, passive movements if unable to exercise actively • Control spasticity if present, positioning, splinting, muscle relaxants • Increase exercise tolerance and reduce fatigue, graded ex programme and pacing <p>Anxiety management Advice, education, relaxation techniques</p>
Occupational	<ul style="list-style-type: none"> • Introductions to patient and 	As for unstable / stabilisation and ...	As for unstable / stable and....

<p>Therapy</p>	<p>relatives , and commence initial interview</p> <ul style="list-style-type: none"> • Assessment of cognitive functioning • Assessment of psychological functioning • Feeding & drinking whilst flat bed rest • Self care and leisure activities whilst on flat bed rest • Management of environment as independent as possible • Clarification of understanding of MSCC • Psychological support to enable adjustment to loss, encouraging realistic expectations and enabling early choices • Anxiety management • Advice and support to carers • Acquisition of specialist equipment – chair / wheelchair / hoist which may be needed for rehab phase • Discussions around goal setting with patient / carers • Possible initial access visit • Liaison with MDT re particular issues e.g. social worker and housing, palliative care team and pain 	<ul style="list-style-type: none"> • Psychological support to enable adjustment to loss of function • Functional assessment • Assess for communication deficit • Assessment for wheelchair (intermediate) if sitting balance (as appropriate) • Assess transfer method (hoist / transfer boards etc.) • Pressure care assessment (liaison with staff nurse) • PADL or purposeful activity to increase ROM and active sitting balance/standing balance • Assessment for temporary wheelchair • Wheelchair practice (dependent on ability/site of SCC / known metastases) • Functional mobility within ADLs as able • Access visit as appropriate • Liaison with patient and carers, look at goal setting towards end of RT • Liaison with S/S OT teams / local rehab teams/OT teams • Liaison with D/N (specific issues) • Access visit as appropriate 	<ul style="list-style-type: none"> • Joint assessment with Physiotherapist • Assess trunk postural stability, level of mobility <ul style="list-style-type: none"> - walking aid - assisted transfer - wheelchair needs • Method of transfer <ul style="list-style-type: none"> - transfer board - standing hoist - full hoist • Wheelchair assessment and prescription (as appropriate) • Acquisition of specialist equipment related to discharge • Activity practice (PADL, purposeful activities, meal prep, home management, leisure and social – as appropriate) – techniques such as backward chaining can be useful to gain confidence • Compensatory approach to increase independence • Additional activity for fatigue / balance / confidence • Fatigue management including advice and education on energy conservation techniques • Progressively increase graded activities.
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	<ul style="list-style-type: none"> • Encourage self care with pain and ROM precautions • Liaison with nursing team re moving and handling • Joint assessment with Physiotherapist • Liaison with S/S OT teams (as appropriate) • Goal setting with patient, small manageable goals to completion or as progressive to larger long term goal • Liaison with D/N (specific issues – as appropriate) • Liaison with community rehab palliative therapy services. • Liaison with next place of care if to be transferred 		<ul style="list-style-type: none"> • Liaison with MDT <ul style="list-style-type: none"> - advice - benefits - symptom control • Liaison with carers • Achievable goals – plans to achieve goals with patient / carers / MDT • Domestic hoist assessment if to go directly home (as required) • Home visit / Access visits • Environmental adaptations – refer to appropriate resource • Assess with adaptations, referral to community teams, liaison with out of area OTs for access visits • Demo (& training) of equipment with carers • Re-housing reports • Advice to patient / carers re privately funded equipment • Referral to community agencies for support • Facilitation of Stair lifts provision • Splinting as appropriate • Liaison with D/N (specific issues)
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