Malignant Spinal Cord Compression

Introduction

Malignant spinal cord compression (MSCC) occurs when the dural sac and its contents are compressed at the level of the cord or cauda equina. This may be as a result of direct pressure, vertebral collapse or instability caused by metastatic spread or by direct extension of malignancy. It affects about 5 to 10% of patients with cancer. Myeloma and lung, breast and prostate cancers are the most common malignancies involved, but MSCC should be considered in any malignancy especially with bone involvement.

Cord compression can be the initial presentation of cancer. One in five patients presenting with MSCC are not previously known to have malignancy.

Late diagnosis is common causing permanent loss of function and significant morbidity. A rapid assessment, investigation and treatment may prevent or limit irreversible neurological damage.

Assessment

Spinal cord compression

- Consider cord compression in any patient with cancer.
- Thoracic cord compression is most common but any part of the spine or multiple sites can be affected.
- Sites of pain and level of compression do not always correlate; X-rays and bone scans can be misleading.
- A full neurological examination should be done but may be normal initially.
- Magnetic resonance imaging (MRI) of the whole spine is the correct investigation if MSCC is suspected.

Key signs and symptoms

- New, progressively severe back pain (particularly thoracic).
- New spinal nerve root pain (burning, shooting, numbness); may radiate down anterior or posterior thigh (like sciatica), or like a band around the chest or abdomen.
- Coughing, straining or lying flat may aggravate pain.
- New difficulty walking or climbing stairs; reduced power (motor weakness).
- Sensory impairment or altered sensation in limbs.
- Bowel or bladder disturbance; loss of sphincter control is a late sign with a poor prognosis.
Cauda equina syndrome

Compression of lumbosacral nerve roots below the level of the cord itself results in a different clinical picture:

- new, severe root pain affecting low back, buttocks, perineum, thighs, legs
- loss of sensation often with tingling or numbness in the saddle area
- leg weakness, often asymmetrical
- bladder, bowel and sexual dysfunction; occur earlier than in cord compression
- loss of anal reflex.

Management

1. Emergency referral is essential – check the protocol and contacts for your local NHS board:
   - Lothian [http://www.scan.scot.nhs.uk/HealthProfessionals/MSCC/Pages/default.aspx](http://www.scan.scot.nhs.uk/HealthProfessionals/MSCC/Pages/default.aspx)

2. † High-dose dexamethasone, unless contra-indicated, should be started as soon as a diagnosis of cord compression is suspected: 16mg daily (usually given as 8mg twice daily – last dose ideally no later than 2pm to minimise sleep disturbance - but initial dose may need to be given as a single dose after this time).

3. Steroids should be under regular review and downward titration after radiotherapy as per local policy.

4. Consider gastroprotection (proton pump inhibitor [PPI]) and thromboprophylaxis (low molecular weight heparin [LMWH]) unless contra-indicated.

5. If clinical suspicion of spinal instability, manage and transport as a spinal injury.


7. If there is complete paraplegia and loss of sphincter control, radiotherapy may improve pain control but is unlikely to restore function.

8. Refer also to Figure 1 below.
Figure 1: Flow chart to guide management

<table>
<thead>
<tr>
<th>Patient has history of cancer and one of the following:</th>
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<tbody>
<tr>
<td>• new intractable, progressive pain, especially thoracic or lower limb</td>
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<tr>
<td>• new spinal nerve root pain (burning, shooting, numb)</td>
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<tr>
<td>• any new difficulty walking (late sign)</td>
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<tr>
<td>• reduced or altered sensation in limbs</td>
</tr>
<tr>
<td>• bowel or bladder disturbance (late sign)</td>
</tr>
<tr>
<td>• saddle area numbness</td>
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<tr>
<td>• reduced anal sphincter tone.</td>
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**Note:** normal neurological examination does not exclude evolving spinal cord compression

**Is patient fit to consider further investigation?**

### Patient at home or in the community:
- discuss with general practitioner (GP) and same day review
- liaise with cancer centre (malignant spinal cord co-ordinator) if there is one in your area or local hospital. Please refer to local protocol.

### Patient in acute hospital:
- discuss with radiology
- consider discussion with cancer centre. Please refer to local protocol.

**If spinal cord compression is suspected and further investigation clinically appropriate, MRI should ideally be completed within 24 hours. Discuss with radiology services – computerised tomography (CT) scanning may be more available out-of-hours.**

**Immediately after assessment, consider (unless contra-indicated):**
- † high-dose dexamethasone (16mg daily, ideally no later than 2pm to minimise sleep disturbance).
- gastroprotection with PPI
- thromboprophylaxis with LMWH
- patient should be nursed lying flat if possible.
If MSCC is confirmed on scan, discuss immediately with local cancer centre.

Radiotherapy appropriate:
- transfer to local cancer centre for treatment
- consider referral to palliative care specialist for symptom control.

Radiotherapy not required or not possible:
- consider appropriate care setting
- involve palliative care specialist if required.

All patients with spinal cord compression will require urgent assessment and support from occupational therapy and physiotherapy, and may require social work input. Nursing care of pressure areas, bowel and bladder are also essential (refer to [http://www.woscan.scot.nhs.uk](http://www.woscan.scot.nhs.uk) for further information).

References

