

Malignant Spinal Cord Compression

Malignant spinal cord compression (MSCC) is a common complication of malignancy that can result in permanent neurologic deficits if not rapidly diagnosed. Breast, lung, and prostate cancers are the most frequent causes, but it can be seen in a variety of other cancers including lymphoma, multiple myeloma, thyroid cancer and renal cell carcinoma. It may also be the presenting symptom of a previously undiagnosed cancer for up to 1 in 5 patients with MSCC.

Pathophysiology

Malignant spinal cord compression can occur three different ways:

- 1) Hematogenous spread of malignant cells to the vertebrae which can lead to direct cord impingement or vertebral collapse → **This is the most common cause**
- 2) Local spread from tumor adjacent to the spine
- 3) Metastases to the epidural space

Patients with known cancer and with previously diagnosed bone metastases may be particularly high risk.

Location of Compression

Cervical spine: 10%

Thoracic spine: 60-80%

Lumbar spine 15-20%

Clinical Presentation and Diagnosis

MSCC should be suspected in any patient with cancer presenting with new or worsening back pain. The presenting symptoms include back pain, motor weakness, sensory deficits, and bowel or bladder dysfunction as outlined below.

Pain

- Most frequent presenting symptom
- Localized or radicular and may not correlate with disease level
- May be worse with coughing/sneezing, movement or laying flat

Weakness

- Patients often describe limb weakness, heaviness, or clumsiness
- Eventually may develop an unstable gait or paraplegia
- Can present with upper or lower motor neuron signs

Sensory Loss

- Present in the majority of patients at the time of presentation
- May not have a clear sensory level and if one is present, it may not predict where the lesion is

Bowel and Bladder Dysfunction

- Patients may have fecal incontinence, constipation, or urinary retention. However, urinary retention due to autonomic dysfunction is most common.
- Often occurs late in the disease course

Non-contrast MRI is the best imaging modality to diagnose MSCC. An MRI of the entire spine should be ordered as the symptoms may not correlate well with the level of the lesion, as discussed above. Many patients are also found to have disease at multiple levels. If a patient cannot undergo an MRI, CT myelography is the next best option.

Management

1

Early Diagnosis is Key:

- The severity of permanent neurologic dysfunction is dependent on the degree of motor weakness → Rapid recognition is essential!
- Biopsy should be urgently pursued if the patient does not have a pre-existing cancer diagnosis.

2

Start Steroids while Awaiting a Definitive Management Plan:

- Dexamethasone 10mg IV x 1 then 16mg/day in divided doses.
- Steroids are controversial if lymphoma is suspected due to concerns about decreasing the diagnostic yield of a biopsy. In this setting, speak to a Hematologic Oncologist ASAP.

3

Definitive Management and Supportive Care:

Options for definitive management include surgery plus radiation vs. radiation on its own.

Management decisions should consider the sensitivity of the tumor to radiation, severity of motor deficits and presence of spinal instability. Overall functional status and goals of care are also central to decision-making.

Surgery is usually needed in the following situations:

- Spinal instability
- Severe compression on MRI with motor deficits

Supportive care:

- DVT prophylaxis
- Multimodal analgesia
- Bowel routine
- Monitor for urinary retention