Malignant spinal cord compression

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- Spinal cord compression (SCC) is an oncological emergency that early diagnosis and intervention may prevent, and presents with debilitating neurological sequelae including paraplegia and incontinence.
- second most common neurological complication in cancer patients after brain metastases, and affects approximately 5% of cancer patients.
- Metastatic tumour from any primary site can result in Spinal Cord Compression
- Commonest primaries are:
  - Prostate cancer ~ 20%
  - Breast cancer ~ 20%
  - Lung cancer ~ 20%
  - Haematological malignancies ~20%
- ~20% of cases occur as 1st presentation of malignancy, especially lung, cancer of unknown primary, myeloma and non-Hodgkin's lymphoma.

Clinical Manifestations

- Though multiple vertebral metastases are common, more than half of SCC arise from the thoracic spine (60%), followed by lumbosacral (30%) and cervical spine (10%).
- The presenting symptom is usually pain, which is observed in 83%–95% of patients.
- In later phases of SCC, local pain may gain a radicular pattern. Referred pain can also be seen.
- Pain may be aggravated by movement, straining and coughing.
- Muscle weakness is a common sign of motor deficits and is observed in 60%–86% of patients. Poor prognosis and recovery.
- sensory loss is less common but may be observed in 40%–90% of patients. Numbness and paraesthesia may also occur in patients with SCC.
- Bladder and bowel dysfunction and ataxia can occur in later phases of SCC.

Evaluation of SCC

- cases of new onset of back or neck pain with cancer, high level of suspicion and assessment for SCC is crucial for early diagnosis, to prevent debilitating results.
- Physical examination and history are initial steps.
- Conventional plain radiography is frequently used, but, because of the high rate of false-negative results and low sensitivity and specificity, it is not recommended for initial evaluation and screening.
- myelography, bone scan, computed tomography (CT) and positron emission tomography (PET) are less useful for evaluating SCC.

- MRI is the imaging modality of choice
- MRI has high sensitivity (93-100%) and specificity (90-97%) in Dx of cord compression
- Should be performed ASAP and within 24 hours for patients suspected of having cord compression
- Multiple tumour deposits/levels are present in 1/3rd of patients
- Imaging MUST include the entire spinal cord/cauda equina
- The presence of multiple sites of disease significantly affects both prognosis & treatment planning

Differential Diagnosis

- Benign musculoskeletal diseases (muscle spasm, spinal stenosis, and intervertebral disc diseases)
- infectious diseases (spinal epidural abscess)
- radiation myelopathy
- metastatic disease with vertebral metastases without SCC.

Management

- The main goal of treatment is to maintain and improve neurological functions and survival.
- Although SCC is a common and devastating problem, limited data from randomised controlled trials (RCTs) are available.
- Main treatment modalities
  - Glucocorticoids (GCs),
  - radiotherapy (external beam radiation therapy [EBRT] and stereotactic body radiation therapy [SBRT; also known as stereotactic radiosurgery, SRS])
  - and surgery are widely used for decompression.

- Patient selection for the most appropriate treatment has a crucial role.
- Patients' pre-treatment neurological status is the most important prognostic factor.
  - Rapidity of symptom onset is also associated with treatment outcome.
  - Likewise, patients with chemo- or radiosensitive tumours, such as small-cell carcinoma, lymphoma or germ cell tumours, may have favourable treatment outcomes.
  - Systemic chemotherapy also plays a role in the case of chemosensitive tumours.

Glucocorticoids

- first-line treatment for most patients.
- reduce inflammation and vasogenic oedema, and also may show antitumoural effects in several types of tumour, including lymphoma, leukaemia, breast cancer and prostate cancer.
- no consensus on the optimum loading and maintenance doses of GCs.
- 2 small studies of high dose Dexamethasome (96 mg over 3 days) vs moderate dose (16 mg over 3 days), one showed higher ambulation rate at 3 months, one did not show any difference.
- Cochrane Review concluded high dose Dexamethasome increased complications including perforated peptic ulcer, psychoses, infection and death. No clear additional benefit.

- Dexamethasone should be commenced immediately there is suspicion of cord compression
- Especially if neurological changes are present
- Recommend 8-16 mg oral or IV
- Gastric protection with a PPI

Summary

- Patients with any symptoms suggestive of spinal cord compression must be managed to minimise treatment delay:
- Delay in diagnosis will lead to neurological decline
- Initiate dexamethasone immediately
- Immediate discussion with the treating oncologist & escalate if necessary
- Urgent whole spine MRI
- Don’t forget to manage: Pain, Anticoagulation especially if bedbound, Bowels, Chest physiotherapy especially if paraplegic.