A patient with suspected metastatic spinal cord compression and the dilemma of non-resident status

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Metastatic spinal cord compression (MSCC)

- Is indentation, displacement or encasement of the thecal sac in the epidural space at the level of the spinal cord or cauda equina by metastatic spread of cancer to the vertebrae that threatens or causes neurological disability

Farrell, 2013; Gabriel, 2012; Warren, 2011

What happens?

Vertebral body collapse or tumour outgrowth from vertebral body
↓
Mechanical compression of cord/cauda
↓
Associated inflammation/oedema
↓
Vascular compromise
↓
Infarction of spinal cord and permanent neurological damage

MSCC

- May occur in up to 5% of all patients with cancer
- 10% of patients with spinal mets. develop MSCC
- Prostate, breast and lung cancer each account for 15-20% of cases of MSCC but it can occur in other cancers
- In 8-34% of patients it may be the initial presentation of a previously undiagnosed cancer
- Main sites are thoracic (70%), lumbosacral (20%) and cervical (10%)

Farrell, 2013; Gabriel, 2012; Warren, 2011

MSCC is a palliative care emergency

Signs/symptoms

- **BACK PAIN**
- **Localised spinal tenderness**
- **Motor weakness**
- **Sensory Impairment**
- **Autonomic dysfunction**

Back pain

- Acute back pain is the main presenting symptom (85-90% of pts)
- Pain can be local or radicular
- Pain secondary to cervical and lumbosacral involvement is usually unilateral and thoracic radicular pain is often bilateral and wraps around anteriorly in a bandlike fashion
- Radicular pain may be constant or aggravated by movement eg coughing, sneezing, and lying flat and may be relieved by sitting
- Cauda equina pain often affects the low back, buttocks, perineum (saddle area), genitalia, thighs and legs
- Often described as constant, aching and dull

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Signs/symptoms

Localised spinal tenderness

- Often accompanies back pain

Motor weakness

- Patients may describe a sensation of weakness in their legs or unsteady gait/ataxia, foot drop

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Signs/symptoms

Sensory impairment

- Often starts in feet and ascends until it reaches level of compression; includes numbness and tingling, loss of thermal sensation and progressive loss of proprioception
- Saddle area loss of sensation is common in cauda equina lesions

Autonomic Dysfunction

- Urinary retention, hesitancy, loss of the sensation to defecate or ability to bear down may lead to constipation, urinary and/or faecal incontinence
- In cauda equina, bowel bladder and sexual dysfunction (erectile dysfunction, loss of ejaculation) occur

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MSCC

- Important to have a high index of suspicion because of the consequences of delayed diagnosis and irreversible neurological damage
- Once a patient develops neurological changes, irreversible neurological damage can occur within hours and 30% of patients who present with weakness progress to paraplegia within one week if undiagnosed and untreated

Bhatt et al., 2013; Farrell, 2013; NHS Lothian, 2010; Warren, 2011

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MSCC

- The likelihood of neurologic recovery when paraplegia has been present for more than 24 hours is poor
- The average survival from diagnosis is estimated at 2-6 months

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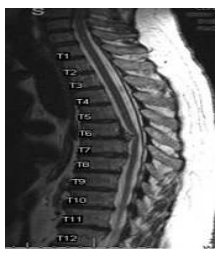
Diagnosis



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Diagnosis

- Image the whole spine important as imaging on the presumed site of lesion may fail to diagnose a treatable lesion
- The minimum radiographic criterion for a MSCC is an indentation of the thecal sac
- New Zealand lacks national guidelines however anecdotally an urgent MRI is advocated for all patients who have a suspected MSCC even in the absence of neurological symptoms

NHS Lothian 2010; NICE, 2008; Schiff, 2012; Warren, 2011

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Management

- **Dexamethasone** is the initial treatment until MSCC can be confirmed or ruled out and more definitive treatment initiated
- Dexamethasone reduces peritumoral oedema with the aim of 1) spinal cord preservation 2) pain management
- A loading dose of dexamethasone 16mg and then starting dose of 16mg dexamethasone daily (unless contraindicated) is recommended
- **Radiotherapy** - reduces the tumour size and also osteoclastic activity and therefore reduces direct pressure and oedema

Farrell, 2013; NHS Scotland, 2010; NICE, 2008

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Eligibility for publicly funded health care

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NZ Health and Disability Eligibility Direction 2011

- Describes who is eligible for NZ publicly funded (free or subsidised) health and disability services
- Must meet one of the criteria
- If ineligible, charged for the full costs of medical treatment or disability support services
- Foreign nationals must hold valid ie current:
  resident visa
  permanent visa
  residence permit issued before Nov 29, 2010
- Reciprocity with Australia and UK for emergency care only

MOH, 2015

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Eligibility for Tuvaluans

- NZ Govt. funds special health services with Tuvalu Govt. through an agreement
- If a person is referred through this agreement, health service providers need to check that Tuvalu Govt. aware of likely cost and has agreed to pay
- People presenting for non urgent health care in NZ without going through their own government are likely to be refused help

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Patient background

- N a 51 year old Tuvalu woman
- Married with 2 children (6 and 14 years old)
- Unlawful non resident: been living in NZ for 10 years
- Enrolled with local Hospice and GP

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- Diagnosed 2 years prior with multifocal T3 N3 M1 locally advanced infiltrating intraductal carcinoma
- Underwent mastectomy with axillary lymph node clearance
- Histology - showed 3 Type ERPR HER-2 positive tumours and 17/17 lymph nodes were positive
- She also had residual tumour around the brachial plexus and great vessels
- Staging CT - likely liver metastases with an indeterminate pulmonary lesion
- Opted for no chemo due to cost of treatment

Current admission

- 8 day hx. severe back pain and 2 week hx. constipation
- Referred Hospital Palliative Care Team 3 days post admission for pain management

To date:

1. Controlled release and short acting oxycodone for analgesia, laxatives/enemas to manage constipation
2. Abdominal X-Ray - some faecal material in the ascending and descending colon
3. Chest X-ray - compression of T6 and T8 thoracic vertebral bodies but no evidence of consolidation or pulmonary metastasis.

Current medications

Regular

- paracetamol 1g orally (PO) four times daily (maximum dose 4g/24hours)
- oxycodone controlled release 20mg PO BD
- docusate and senna 2 tabs PO BD
- domperidone 10mg PO three times daily
- felodipine extended release 5mg PO mane

As required (prn) medications

- metoclopramide 10mg PO TDS - had last used two days earlier
- ondansetron 8mg PO BD - had last used two days earlier
- oxycodone short acting 5mg Q1H - had used total of 20mg/24hours
- Microlax enema – last used the day earlier

Assessment

- N was sitting upright in bed and was moving around the bed almost constantly to try and relieve her pain
- She identified back pain as main current concern

Pain

- Constant, dull, aching
- Main site - right paraspinal mid-thoracic region
- Sometimes radiated bilaterally around to her front
- Worse on mobilising, coughing, lying flat, any movement
- Numeric Pain Scale - current pain level 6/ 10 and, at its worst, 9 /10
- Only partially relieved by the use of prn oxycodone short acting which reduced her pain to 6/10.

Assessment contd.

- She denied leg weakness, numbness or tingling in her limbs
- Her bowels had moved well, following an enema, the day before. Continent of urine and faeces and she denied any urinary symptoms
- She was usually independent with mobility and self-cares but currently her mobility was restricted by pain
- She was keen to return home to her children

On examination

- **Tender on palpation in right mid thoracic paraspinal area with no midline tenderness**
- **Neurological exam - no weakness, normal reflexes**
- No signs of opioid toxicity i.e. no pinpoint pupils, reduced respiration rate or myoclonic jerks
- Examination otherwise essentially normal

Differential diagnosis

- **Possible metastatic spinal cord compression (MSCC) - known breast cancer, known compression fractures, back pain that is worse on coughing/lying flat**

Palliative care symptoms and needs

1. **Physical**
- Need to minimise risk of possible neurological deterioration whilst waiting to rule out/confirm MSCC
- Back pain – associated with bone metastases and possible MSCC
- Recent constipation - causes likely multifactorial (suspected MSCC, opioids, reduced physical activity secondary to pain)

2. **Psychosocial**
- A need to provide support to patient and family in hospital and following discharge related to metastatic breast cancer and ineligibility for publicly funded health services secondary to non-resident status

Recommended management plan

Back pain and suspected MSCC

1. Give dexamethasone 16mg PO stat and then commence dexamethasone 16mg PO daily. Review dose once MRI result available and decision made regarding treatment plan
2. Urgent Magnetic Resonance Imaging (MRI) to confirm or rule out MSCC and to assess spinal metastases overall
3. Once MRI results available, discuss patient with Radiation Oncology regarding radiotherapy for MSCC (if confirmed) and pain control

Constipation

The following medication regime :

- Continue with docusate and senna two tabs PO twice daily
- Prn Movicol one sachet PO twice daily if bowels not open for two days

- Trial Kiwicrush
- Maintenance of a Bowel Chart each duty

A need to provide effective care and support to patient/family in hospital and following discharge

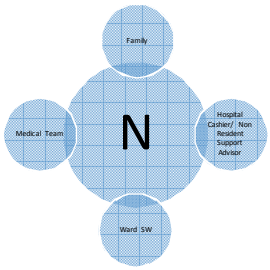
- Time was spent listening to and acknowledging N's feelings regarding her children and wish to get home to them as soon as possible
- Discussion re the possible causes of her symptoms and the rationale for the medications prescribed
- Discussion re her worries about having to pay for her medical costs
- Suggested referral to Pacific Support Services and the ward social worker

Dilemma

Costs

- Private MRI cost $ 1500
- Hospital stay $1587 per day
- Possible radiotherapy cost $2535
- Ongoing GP and prescription costs post discharge home

Outcome



MRI Result

- Metastatic disease replacing the vertebral bodies and posterior elements of T5, T6 and T7 with small metastases at T3 andT4
- The T5 vertebral body is reduced in height consistent with pathological fracture and there is **bulging into the spinal canal with mild distortion of the spinal cord at T5**
- No other vertebral metastases are shown in the cervical or lumbar region.

Next?

- Arrangements were made for the Tuvalu Government to meet radiotherapy costs

- 5 days after my initial assessment, N commenced five fractions of external beam radiotherapy to T2-T8

Outcome for N

- No development of neurological dysfunction - remained ambulant
- Improved symptom management
- Discharged back to her home with ongoing community support
- She died 7 months later during her only other hospital admission.

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