

Rapid Fire: Central Nervous System Emergencies

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KEYWORDS

- Cancer • Metastases • Malignant spinal cord compression • Cauda equina
- Neurologic • Emergency

KEY POINTS

- A central nervous system emergency must be suspected in any patient with known cancer diagnosis and new neurologic symptoms or signs.
- The decision to image the brain or spine is dependent on finding key historical and examination features.
- When evaluating for spinal involvement, the preferred diagnostic examination is MRI of the entire spine.
- Therapeutic options include corticosteroids, radiation, and surgery, and should be discussed with the interdisciplinary oncology team.

CASE 1: LOWER EXTREMITY WEAKNESS AND FALLS

Pertinent History

A 51-year-old homeless man with a history of alcohol abuse presents after a fall. The patient is well-known to the emergency department and has been seen frequently for acute alcohol intoxication. On this presentation he was found by emergency medical services personnel on the sidewalk with a head injury. The patient reports that he does not remember the circumstances surrounding his head injury. He reports he has had many falls recently and often has difficulty with balance. He reports worsening bladder incontinence over the past month. He denies any other genitourinary complaints. The

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patient reports worsening back pain over the past few months, but denies any specific trauma to the region.

PMH: Denies.

PSH: Appendectomy at age 13 years.

SH: Daily alcohol abuse for the past 15 years. 30 pack-year history of tobacco smoking. Denies any illicit drug use.

FMH: Hypertension, diabetes, heart attack, stroke, cancer (unknown type).

Medications: None.

Physical Examination

T: 36.8, BP: 165/110, HR: 91, RR:16, SpO₂: 92% on room air.

General: Alert and oriented ×3, disheveled appearing, smells of urine.

HEENT: Small hematoma to the left parietal scalp, mild abrasions to the area without active bleeding. Pupils equal, round, and reactive to light, poor oral dentition, mucous membranes dry.

Neck: Full range of motion, no midline cervical spine tenderness.

Cardiovascular: Regular rate and rhythm, no murmurs/rubs/gallops.

Pulmonary: Clear to auscultation bilaterally.

Abdominal: Soft, nontender, nondistended, normal bowel sounds.

Back: Tenderness to palpation over the lumbar spine.

Neurologic: 5/5 strength of bilateral upper extremities, 3/5 strength of bilateral lower extremities.

Diminished saddle sensation. Rectal tone diminished.

Finger-to-nose intact. Heel-to-shin abnormal bilaterally.

Diminished reflexes bilaterally in the lower extremities.

Musculoskeletal: Normal pulses throughout, full ROM of all extremities, no significant peripheral edema.

Laboratory Testing

CBC: Normal.

CMP: Normal.

Imaging

Computed tomography (CT) of the head without contrast: Small contusion to the soft tissue of the left posterior scalp, mild diffuse atrophy, normal ventricle size, otherwise normal.

CT lumbar spine without contrast: Mild L3 disc protrusion without significant stenosis, age-related diminished bone density, no acute fractures, otherwise normal.

Clinical Course

Based on clinical suspicion for cauda equina syndrome, the patient was given 10 mg of dexamethasone intravenously. Neurosurgery was consulted and a Foley catheter was placed for urinary retention. An emergent MRI showed a soft tissue tumor in the lumbar spinal canal causing acute compression of the cauda equina.

LEARNING POINTS

Introduction and Background

1. Cord compression is defined as compression in the dural sac and its contents by an extradural or intradural mass leading to neurologic damage. Malignant spinal cord compression (MSCC), is one of the most devastating neurologic complications of cancer, and constitutes an oncologic emergency. It affects 5% to 10%

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