Metastatic Spinal Cord Compression Secondary to Prostatic Adenocarcinoma: A Case Report on Functional Outcomes in Inpatient Rehabilitation

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INTRODUCTION

- Prostate cancer is both the most frequently diagnosed malignancy among men worldwide and the most significant contributor to cancer-associated mortalities in the United States.[1, 2] Commonly known risk factors include family history, ethnicity, age, and obesity.[1]
- Prostate biopsy is the diagnostic gold standard for prostate cancer and is typically performed with a transrectal or transperineal ultrasound-guided approach.[3] Current American Urological Association guidelines recommend PSA screening every 2-4 years for those between 50 and 69 deemed low-risk.[1]
- In late stages of the disease, patients may experience lower urinary tract symptoms.[3] Once the cancer has metastasized, patients may experience fatigue, ostealgia, back pain, limb weakness, paresthesia, and numbness. Bone metastasis typically travels hematogenously through the venous system, specifically via the pelvic plexus in prostate cancer.[4]
- In rare cases, patients with late-stage prostate cancer may present with the emergent complication of spinal cord compression. Metastatic spinal cord compression (MSCC) occurs in around 2.5-5% of patients who are terminally ill as a result of their cancer, with prostate cancer contributing to 16.2% of hospitalizations related to MSCC.[4]
- "Red flag" symptoms that should encourage clinicians to consider spinal imaging in potential cases of MSCC include limb weakness, difficulty walking, sensory loss, bladder or bowel dysfunction, neurological signs, thoracic or cervical pain, pain that is increased by straining, and nocturnal spinal pain.[5]
- Post-treatment rehabilitation is essential for restoring mobility and independence, yet functional outcomes in MSCC remain underreported. This case report details the rehabilitation progress of a patient with MSCC secondary to prostatic adenocarcinoma, contributing to existing literature on functional recovery.

CASE PRESENTATION

- A 68-year-old male of Armenian descent with a past medical history of prostate cancer presented to the emergency department with progressively worsening mid to lower thoracic back pain for the last four months. The pain had been radiating to the mid and lower abdomen and was initially responsive to acetaminophen and bed rest.
- The patient had a known history of hypertension, hyperlipidemia, type 2 diabetes mellitus, obstructive sleep apnea on CPAP, and morbid obesity.
- His initial workup included an MRI that revealed metastatic disease of the mid and lower thoracic vertebral bodies with partial destruction and compression of the spinal cord by an extraosseous tumor.
- He underwent T8 laminectomy for tumor resection and T6-11 fusion with instrumentation. The pathology report confirmed prostatic adenocarcinoma.
- A significant decline in patient self-care was noted, including lower extremity weakness and gait impairment, and the patient was admitted to an inpatient rehabilitation facility for at least three hours of combined PT and OT sessions daily. Prior to surgical intervention, the patient had been independently completing activities of daily life, such as walking and showering.

RESULTS

Admission, Goal, and Discharge Physical Therapy Functional Mobility Performance			
	Admission	Goal	Discharge
Chair/Bed to Chair Transfer	03	04	05
Roll Left to Right	03	04	06
Sit to Lying	03	04	06
Lying to Sitting on Side of Bed	03	04	06
Sit to Stand	03	04	05
Walk 10 ft	03	04	04
Walk 50 ft with two turns	03	04	04
Walk 150 ft once standing	03	88	04
1 Step Curb	03	04	04
4 Steps without a Rail	88	88	04
12 Steps without a Rail	09	09	09
Wheelchair or Scooter Use	No	-	No
Car Transfer	01	04	04
Picking up Object	88	-	04

Table 1: Admission, Goal, and Discharge Physical Therapy Functional Mobility Performance
01: Dependent, 02: Substantial/maximal assistance, 03: Partial/moderate assistance, 04: Supervision or touching assistance, 05: Setup or clean-up assistance, 06: Independent, 09: Not Applicable, 88: Not attempted due to a medical condition or safety concerns.

Admission, Goal, and Discharge Occupational Therapy Activities of Daily Life Performance			
	Admission	Goal	Discharge
Eating	06	06	06
Oral Hygiene	04	06	05
Toileting Hygiene*	03	06	01
Shower/Bathe Self*	03	05	01
Upper body dressing*	05	06	04
Lower body dressing	03	06	04
Putting on/Taking off Footwear	01	06	04
Shower Transfer	03	05	04
Toilet Transfer	03	05	04

Table 2: Admission, Goal, and Discharge Occupational Therapy Activities of Daily Life Performance
01: Dependent, 02: Substantial/maximal assistance, 03: Partial/moderate assistance, 04: Supervision/Touching assistance, 05: Setup or clean-up assistance, 06: Independent, 09: Not Applicable, 88: Not attempted due to a medical condition or safety concerns.

DISCUSSION

- At admission, the patient set discharge goals for PT and OT.
- The patient's PT performance was particularly notable, with all categories improving by at least one point.
- An increase in the admission versus the discharge score was reported in 55% of the domains assessed in OT. Three categories (* in Table 2) of the OT ADLs displayed decreased scores upon discharge.
- ADLs were targeted at different points of the patient's stay with varying frequency. Factors such as daily pain, soreness, or fatigue may have impacted the decline in scores.
- At discharge, it was recommended that the patient use a bedside commode and a shower chair due to decreased strength, balance, and functional activity tolerance.
- The patient made significant improvements in most ADLs and functional mobility tasks after two weeks of therapy (see Table 1 and Table 2).
- Research has indicated that cancer patients benefit from rehabilitation services, with some having a significant improvement in long-term outcomes.[6] One study found that the application of an Enhanced Recovery After Surgery (ERAS) program in patients with MSCC contributed to better postoperative results.[7]
- At least 60% of cancer survivors require rehabilitation services, yet many do not receive referrals, with 40% reporting unmet rehabilitation intervention.[8] Other research indicates an even greater lack of access to these services.[8]
- These findings highlight systemic barriers to rehabilitation, including limited provider awareness, lack of standardized referral protocols, and insufficient rehabilitation infrastructure.
- Efforts should be made to integrate rehabilitation more effectively into oncologic care, ensuring that all eligible patients receive timely referrals.
- Increasing provider education, implementing standardized rehabilitation screening tools, and expanding rehabilitation infrastructure may help bridge the gap in care for cancer patients.

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