

## Malignant Spinal Cord Compression: A Hospice Emergency

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*Malignant spinal cord compression (MSCC) is an uncommon but debilitating complication of advanced malignancy. Clinician knowledge about diagnosis, prognosis, therapy, and hospice referral is important if MSCC patients are to be treated in an optimal way.*

Emergencies in hospice are not common, but like emergencies in the acute care setting, they can be very distressing and need to be managed well. One of the key points in considering a hospice emergency is to be prepared. This means identifying the patients at risk, mentally considering and anticipating an event before it ever happens, and having the tools and methods ready at hand to address the emergency effectively. We emphasize these points as we discuss MSCC.

### Patients at Risk for MSCC

As the name infers, MSCC is experienced by patients with cancer, but not all cancers impose the same risk. Almost any type of cancer can cause MSCC, but the most common, in order of the risk for developing MSCC, involve

- Lung
- Breast
- Prostate
- Lymphoma
- Kidney
- Multiple myeloma

Almost half of all MSCC cases involve patients with lung, breast, or prostate cancer (Abrahm, Bannfy, & Harris, 2008; Schiff, 2003). Therefore, every patient with lung, breast, or prostate cancer should be considered at risk for MSCC.

### Is Malignant Spinal Cord Compression a Common Event?

Every year, approximately 12,700 cancer patients in the United States experience spinal cord compression (Abrahm et al., 2008). For 20% of patients, cancer presents as a spinal cord compression (Schiff, O'Neill, & Suman, 1997). Of all patients dying with cancer, 3% to 5% will have at least 1 episode of spinal cord compression (Davis, 2003). This means that approximately 1 of every 50 hospice patients with cancer will have pain from spinal cord compression.

### Why Is It Important That This Diagnosis Be Made Early?

The devastating clinical sequelae of spinal cord compression

can sometimes be prevented by early diagnosis and treatment, but this requires strong assessment skills and a high level of suspicion on the part of clinicians. Janet Abrahm from the Dana-Farber Cancer Institute stated, "The diagnosis of spinal cord compression should always be considered urgent" (Abrahm et al., 2008). Disabilities and debilities arising from delays in diagnosis or treatment often are associated with shortened patient survival, a decreased quality of life, and much suffering.

### How Does Cancer Cause Compression of the Spinal Cord?

A war analogy may help us better visualize and understand the 3 main mechanisms of how tumors can affect the spinal cord. A bomb can (1) hit the intended target directly, (2) cut off the supply lines to the target, or (3) hit a peripheral target that will affect the intended target, such as a dam bursting and flooding the target.

The analogous cancer mechanisms are

1. Direct tumor invasion of the spinal cord
2. Tumor invasion with disruption of the blood supply to the spinal cord

3. Tumor invasion of the bony vertebrae causing fractures, which lead to spinal cord compression, direct entrapment of nerve roots, or disruption of the blood supply

### What Would Make a Clinician Suspect MSCC?

As the crux of the matter, this question exposes the challenges and difficulties of diagnosing MSCC. Many symptoms of MSCC also are seen in the majority of patients at the end of life. Therefore, diagnosing MSCC requires a high index of suspicion, good assessment skills, and a factoring in and consideration of all of the issues. The 4 cardinal symptoms of MSCC can be remembered using the acronym PAMS:

- **P**ain: a painful back problem
- **A**utonomic dysfunction: an evacuation problem
- **M**otor deficits: a movement problem
- **S**ensory deficits: a feeling problem

Let's look at each of these individually.

#### **Pain: A Painful Back Problem**

Crescendo back pain is the most common symptom, experienced by 9 of every 10 patients at the time MSCC is diagnosed (Abrahm et al., 2008). The pain usually is described as sharp, shooting, deep, or burning. It frequently is made worse by coughing, bending, or sneezing. For 1 of every 5 patients with MSCC, however, the pain is made worse by lying

flat. Malignant spinal cord compression should be considered when back pain suddenly worsens, becomes localized to the spine, or becomes radicular.

#### **Autonomic Dysfunction: An Evacuation Problem**

Autonomic symptoms include urinary hesitancy (difficulty urinating), urinary retention (bladder will not empty), constipation, and sexual difficulties. About half of the patients have urinary catheters already inserted at the time of their MSCC diagnosis. Autonomic dysfunction typically occurs late in MSCC.

#### **Motor Deficits: A Movement Problem**

Muscle weakness is present in 60% to 85% of patients at the time MSCC is diagnosed, and it is sometimes the reason why patients with MSCC seek medical attention (Abrahm et al., 2008). Two-thirds of MSCC patients are already nonambulatory at the time of diagnosis, but more patients are paraparetic (have partial paralysis of the lower extremities) than are completely paralyzed (Abrahm et al., 2008).

As would be expected, the weakness seen with MSCC occurs before paralysis. Patients often describe the weakness as "a heaviness," and it usually starts in the feet then moves up the legs. It is sometimes associated with ataxia and an imbalance. Complaints from patients such as "my legs won't carry me up the stairs" or "I find it difficult to stand up" are common. Of course, the difficult issue is that such statements and complaints of weakness are very common among patients receiving hospice care.

#### **Sensory Deficits: A Feeling Problem**

More than 50% of the patients with MSCC will present with sensory changes (Davis, 2003). These usually start in the toes then rise into a stocking-like pattern on the legs. Patients frequently describe it as a numbness, a feeling of coldness, or paresthesias (pins and needles), or they simply tell you that their legs "feel funny."

### So . . . If You Suspect a Malignant Spinal Cord Compression

Good hospice and palliative care always begins with careful considerations to honor the wishes of patients and families. A review of the following questions clarifies wishes and choices:

- What are the patient's goals of care?
- What is the patient's condition and prognosis?
- Do the patient and family desire the anticipated treatment?
- What is the potential for therapeutic success?
- Will the treatment improve the patient's quality of life?

However, because the paralysis and paresis of MSCC are such devastating complications, and because the therapy usually is well tolerated, pursuing the diagnosis of MSCC should be seriously considered, even for patients with a limited overall prognosis.

#### **If Treatment Is Appropriate and Desired**

Once it is decided that pursuing the diagnosis and initiating treatment fits with the goals of

the patient and with his or her condition and prognosis, then an urgent hospital or inpatient hospice admission is required. A magnetic resonance image (MRI) of the spinal cord should be obtained immediately. The MRI is the gold standard both for diagnosing MSCC and for developing a treatment plan. A computed tomography (CT) scan or myelogram also can make the diagnosis but is less accurate (Bayley, Milosevic, & Blend, 2001). Plain x-rays are not very helpful.

### Prognosis

The prognosis of a patient with MSCC depends on how early the diagnosis is made and when the treatment is instituted. The pretreatment ambu-

nosis, 35% will regain the ability to walk.

- Of the patients unable to walk at diagnosis, only 5% will ever walk again.
- **Survival after treatment** (Abrahm et al., 2008)
  - The patients who could walk after completion of therapy had a median survival of 7.9 to 9 months.
  - The patients who could not walk after the completion of therapy had a median survival of only 1 to 2 months.

### Therapy

Therapy depends on a number of factors: the type of cancer, the location of the tumor in the spinal cord, the speed of symp-

therapy. Therapy ports usually include 1 of 2 vertebral bodies above and below the site of the compression.

- **Surgery:** Decompression laminectomy usually is reserved for patients with no previous diagnosis of cancer, patients whose tumors are radiation resistant, or patients who have already received the maximum radiation dose (Patchell, Tibbs, & Regine, 2005). Newer surgical techniques developed recently are discussed in a recent *JAMA* article (Abrahm et al., 2008).
- **Chemotherapy or hormonal therapy:** These therapies are sometimes efficacious for patients whose tumors are particularly sensitive to

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latory status is the most important predictor of ambulation after treatment and of survival. In other words, if MSCC is identified early (i.e., when the patient is still walking), there is a much better chance that his or her ability to walk can be preserved (Abrahm et al., 2008; Quinn & DeAngelis, 2000). Let's look at both the ambulation rates and the survival after treatment:

- **Ambulation after treatment** (Schiff, 2003)
  - Of the patients who can still walk at diagnosis, 70% will die able to walk.
  - Of the patients who have partial paralysis at diag-

nosis, and the degree of function before the onset of symptoms. Possible therapies include corticosteroids, radiation therapy, surgery, chemotherapy, and hormonal therapy.

- **Corticosteroid therapy:** Prompt institution of high-dose corticosteroid therapy is important. Corticosteroids have been found to decrease vasogenic edema, reduce pain, preserve neurologic function, improve functional outcomes, and improve patient survival.
- **Radiation therapy:** For years, radiation has been considered the gold standard of

these specific treatments. They work because the epidural space is on the systemic side of the blood-brain barrier, allowing oral and intravenous therapies to penetrate to areas of tumor spread.

### Holistic Care

Whole-person care involves good pain management, attention to restoring bladder and bowel function, emotional and psychological support, and spiritual care. The hospice interdisciplinary team (physicians, nurses, counselors, social workers, chaplains, and volunteers) is ideally suited to support and help patients, fam-



## Case Study

Mr. B is an 85-year-old retired schoolteacher living with his daughter in a 3-bedroom apartment. He had urinary urgency and nocturia since 2001 but refused to see a physician until 2005 due to his long-standing distrust of medications and the medical profession in general.

In 2005, Mr. B's daughter brought him to the hospital because of his weight loss and poor appetite. A digital rectal exam showed an enlarged nodular prostate gland, and his prostate-specific antigen result was 40.8 ng/mL (normal, 4.0 ng/mL).

Mr. B refused a prostate biopsy or any additional tests or medications. He was told that he likely had prostate cancer, but he refused all therapies and insisted on being discharged from the hospital.

For the next year, Mr. B did not seek any medical care. In February 2007, Mr. B's daughter (at the advice of the patient's community physician) called hospice because Mr. B was reporting severe lower abdominal pain, increased back pain, weakness of his extremities, constipation, and problems urinating. (Mr. B had refused to see the doctor or go to the hospital.) The pains were 8 on a scale of 10 and self-described as "sharp and burning pain" in the back and "cramping" in the abdomen.

A Foley catheter inserted by the hospice nurse extracted 400 mL of residual fluid from Mr. B's bladder, dramatically relieving his abdominal pain. However, his back pain persisted. The hospice nurses suggested starting short-acting morphine, senna, colace, and sorbitol, and the community physician agreed. A diagnosis of spinal cord compression was entertained, and after repeated urgings from the hospice nurse (on multiple visits), Mr. B finally agreed to enter the hospital 1 week later.

The diagnosis of spinal cord compression was made by MRI. The patient was placed on high-dose steroids, received radiation therapy, and had monthly hormonal injections. The patient improved dramatically. His pain was relieved. He regained much of his lower extremity strength and continued to be able to ambulate. He was discharged from the hospice program after 2 months.

In late 2007, after doing well for almost 8 months, he was admitted once again to hospice for generalized weakness, bone pain, and fatigue. He was treated symptomatically with opioids, low-dose steroids, and a bowel regimen and died at home in early 2008 still ambulating.

ilies, and caregivers cope with the often debilitating and disabling sequelae of MSCC.

## What About Our Community Physicians?

Dr. Janet Abraham, in the *Journal of Supportive Oncology*, stated to her physician readers:

*With such a limited prognosis, the implications for referral of patients with malignant spinal cord compression to hospice programs are clear. Patients with MSCC from lung cancer, patients who are nonambulatory after therapy, and patients who need admittance to a rehabilitation facility all meet hospice criteria of a life expectancy of less than 6 months if the disease takes its usual course. (Abraham, 2004)*

Clearly, Dr. Abraham is telling her physician colleagues that a hospice referral should be considered for the vast majority patients with MSCC.

## Summary

Malignant spinal cord compression is an uncommon but debilitating complication of advanced malignancy. Clinician knowledge about diagnosis, prognosis, therapy, and hospice referral is important if patients are to be treated in an optimal way. ♣

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## Errata

In the article entitled "Type 2 Diabetes: The Many Facets of Care" by Mellisa A. Hall in the June 2008 issue of *HHN*, the photograph on page 346 shows a drop of blood on the tip of the finger; however, patients should prick the side of the fingertip, not the center of the fingertip pad.

In the same article, Table 2 on page 351 does not list a duration for Lispro, Aspart, and Glulisine. The duration is 3 to 5 hours; a corrected version of the table appears below.

*HHN* regrets the errors.

**Table 2. Insulin Overview**

Type of Insulin	Onset	Peak Actions	Duration
Lispro (Humalog) Aspart (NovoLog) Glulisine (Apidra)	15 min	30—90 min	3—5 hr
Regular Humulin R Novolin R	30 min	2—3 hr	3—6 hr
NPH Humulin N Novolin N	2—3 hr	6—12 hr	12—18 hr
Glargine (Lantus) Detemir Levemir	1 hr 1—2 hr dependent	Virtually no peak 6—8 hr	22—24 hr 6—23 hr (Dose dependent)
Premixed	Onset and peaks correspond with component insulins.		

Note. Data from Wilson, B.A., Shannon, M.T., Shields, K.M. & Stang, C.L. (2007). *Prentice Hall: Nurse's Drug Guide, 2007*. Upper Saddle River, N.J.: Pearson Prentice Hall.