

## FAST FACTS AND CONCEPTS #62 EARLY DIAGNOSIS OF EPIDURAL METASTASES

David E Weissman MD

**Background** Epidural metastases are very common in patients with advanced cancer. Cancers most often associated with epidural spread include lung, prostate, breast, kidney, myeloma and melanoma. They are also common in testicular cancer, lymphomas, and Hodgkin's disease. Ovarian and pancreatic cancer rarely lead to epidural metastases. Tumor reaches the epidural space via contiguous spread from adjacent vertebral body metastases or, less commonly, from direct extension of tumor through the intervertebral foramina from adjacent tissue (e.g. retroperitoneal lymphoma or posterior lung cancer).

**The importance of early diagnosis** Back pain is the herald symptom of epidural metastases; occurring, on average, many weeks to months prior to any neurological damage. That is, pain occurs long before there is any direct compression of the spinal cord, at a time when early diagnosis can be established and treatment started. *Neurological deficits from spinal cord compression are a late finding of epidural metastases; serious damage is usually preventable by early diagnosis.*

**Characteristics of pain from epidural metastases** Pain from epidural metastases occurs due to vertebral body fracture, structural spine instability, periosteal or nerve root irritation. The various descriptions of pain from epidural metastases are protean. Most commonly, patients say it is 'dull' or 'aching,' often with a sensation of 'muscle spasm.' Pain typically worsens gradually, so that over a period of weeks patients require increasing analgesics and have a corresponding decrease in function. This is in contrast to benign compression fractures, where severe pain occurs suddenly, followed by slow improvement over weeks. If there is nerve root irritation, patients will describe neuropathic symptoms in a radicular pattern (e.g. burning or shock-like pain, and/or dysesthesias). The pain is usually located in the central back or paravertebral region and/or in a radicular distribution. Commonly missed radicular symptoms are tip of shoulder pain from C7-T1 metastases; lateral or anterior rib pain from thoracic metastases; anterior abdominal, flank or hip pain from T12-L2 metastases. Pain is often made worse by increasing the spinal cord load that occurs with standing, coughing or valsalva. Pain in the thoracic region is particularly worrisome due to the narrow spinal canal and minimal epidural space; patients with thoracic metastases often complain of increasing pain when recumbant.

**Diagnostic strategies** The key to early diagnosis is a high index of suspicion. A good rule to use is that the cancer patient with progressive back or radicular pain, for more than 1-2 weeks, has epidural metastases unless proven otherwise; this is especially true in the high risk cancers (breast, prostate, lung, myeloma). Various protocols describing diagnostic approaches have been developed to aid clinicians (see references); all agree that in the setting of a normal neurological examination, early radiological imaging is essential for diagnosis and treatment planning. Rodichok et al demonstrated in 1981 that plain spine x-rays, in the region of back pain, can be an excellent first screening tool; MRI is the definitive diagnostic study and is necessary for planning radiation or surgical intervention. If neurological signs have become evident, emergent MRI is the diagnostic test of choice.

### Summary/Key Teaching Points:

- Epidural metastases (tumor in the epidural space), occurs prior to actual spinal cord compression and neurological damage.
- Pain will precede neurologic deficits by weeks to months.
- Early diagnosis will preserve neurological function.
- Progressive back or radicular pain is an indication for radiographic investigation to rule out epidural metastases, especially in high risk cancers.

### References

1. Schmidt MH, Klimo P Jr, Vrionis FD. Metastatic spinal cord compression. *J Natl Comp Cancer Network*. 2005; 3(5):711-9.

2. Byrne TN. Spinal cord compression from epidural metastases. *NEJM*. 1992; 3217:614-619.
3. Rodichok LD, Harper GR, Ruckdeschel JC. Early diagnosis of spinal epidural metastases. *Am J Med*. 1981; 70:1181-1188.
4. Posner JB. Neurologic complications of cancer. *Contemporary Neurology Series, Vol 45*. Philadelphia, PA: FA Davis; 1995.

**Version History:** This *Fast Fact* was originally edited by David E Weissman MD. 2<sup>nd</sup> Edition published July 2006; 3<sup>rd</sup> Edition May 2015. Current version re-copy-edited April 2009; then again May 2015.

**Fast Facts and Concepts** are edited by Sean Marks MD (Medical College of Wisconsin) and associate editor Drew A Rosielle MD (University of Minnesota Medical School), with the generous support of a volunteer peer-review editorial board, and are made available online by the [Palliative Care Network of Wisconsin](#) (PCNOW); the authors of each individual *Fast Fact* are solely responsible for that *Fast Fact's* content. The full set of *Fast Facts* are available at [Palliative Care Network of Wisconsin](#) with contact information, and how to reference *Fast Facts*.

**Copyright:** All *Fast Facts and Concepts* are published under a Creative Commons Attribution-NonCommercial 4.0 International Copyright (<http://creativecommons.org/licenses/by-nc/4.0/>). *Fast Facts* can only be copied and distributed for non-commercial, educational purposes. If you adapt or distribute a *Fast Fact*, let us know!

**Disclaimer:** *Fast Facts and Concepts* provide educational information for health care professionals. This information is not medical advice. *Fast Facts* are not continually updated, and new safety information may emerge after a *Fast Fact* is published. Health care providers should always exercise their own independent clinical judgment and consult other relevant and up-to-date experts and resources. Some *Fast Facts* cite the use of a product in a dosage, for an indication, or in a manner other than that recommended in the product labeling. Accordingly, the official prescribing information should be consulted before any such product is used.