Metastatic Spinal Disease

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Metastatic spinal disease, or the spread of cancer from its original location to the spine, is extremely common. Metastatic disease means that the cancer cells from the primary site actually spread via the bloodstream or the lymphatic system to a remote site, such as the spine. The spine is actually the third most common site for cancer cells to metastasize, with both the lung and the liver being the more likely sites for tumor cells to grow.

Nearly sixty to seventy percent of patients with cancer will have spinal metastases. Of the patients afflicted with metastatic cancer, only one in ten is actually symptomatic. Most patients with spinal metastatic cancer will present to the physician’s office with either involvement of the spinal cord and nerve endings (epidural), or the vertebral column (bones) itself.

The most common causes of metastatic spinal disease are generally primary tumors arising from the lung (31%) and breast (24%). These are the most likely to metastasize to the skeleton.

Case History

BK is a fifty-two year old woman with a history of breast cancer. She underwent a lumpectomy from the left breast, resecting a tumor approximately the size of a quarter. She underwent additional chemotherapy and radiation, since some of the lymph nodes in the armpit area had cancer cells present (lymphatic spread). She underwent the surgery and chemotherapy approximately three years prior to coming to the office.

She arrived in the office complaining of an insidious onset of neck pain, which had become quite severe recently. There was no obvious injury to blame for the progressive neck pain, but she felt that any posture other than lying flat in bed caused her significant discomfort. She also noticed the gradual, but progressive, loss of function in her arms and legs. She felt that her balance and dexterity were both deteriorating. She initially was told that she had arthritis by her primary care physician, but then saw a chiropractor. The chiropractor noted brisk reflexes on her neurologic examination and ordered an MRI scan. The MRI scan demonstrated a large tumor of the cervical spine, involving the C4, C5, and C6 vertebral bodies (Figure 1). There was significant compression of the spinal cord and, clearly, the structure of the spine had been destroyed by the tumor.

Figure 1 Preoperative cervical imaging.
Surgical Summary

Given the severity of her neck pain, as well as the progressive loss of function, she was taken to surgery. Specimens sent from the involved vertebral bodies demonstrated obvious breast cancer tumor cells. The bones of C4, C5, and C6 were removed from the front of the neck, leaving only a shell of bone protecting the nerve endings and important blood vessels. Her operation was completed from both the front and the back of the neck, with a spinal reconstruction using titanium cages, plates, and screws (Figure 2). Her spinal cord was completely decompressed and her spine stabilized in its normal posture. BK’s neck pain was brought under control by the surgery and she regained her motor function. The surgery did not eradicate the cancer and cancer treatment (additional chemotherapy and radiation) was provided by BK’s oncologist.

Figure 2 Postoperative cervical imaging.

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Dr. Subach is a spine surgeon and the Director of Research at the Virginia Spine Institute. He is a nationally recognized expert in the treatment of spinal disorders and an active member of the American Association of Neurological Surgery, the Congress of Neurological Surgeons, and the North American Spine Society. He is an invited member of the international Lumbar Spine Study Group and a Fellow in the American College of Surgeons. He lectures extensively regarding the management of complex spinal disorders in both national and international forums.