

### When Lower Back Pain isn't Mechanical: Case review of metastasis of breast cancer to spine



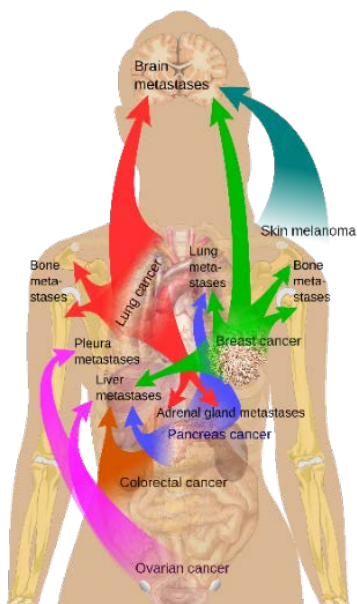
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This pleasant 51-year-old female with a previous history of breast cancer (in remission since 2011) presented to an ISAEC community clinic with a new onset of low back pain (LBP) of approximately 4 weeks' duration. It was aggravated by prolonged standing at work and rising from sitting and relieved with sitting and lying down. While at rest she rated her pain 0/10. Her most recent bone scan as well as her most recent hip x-ray were read as normal. Additionally, she indicated she had a follow up with her oncologist scheduled in approximately 2 weeks' time. She was provided with education on her LBP, red flags and was asked to follow-up with her ISAEC Advanced Practice Clinician (APC) in approximately six weeks' time. At her follow up 8 weeks later, she reported that she had been seen by both her oncologist and an orthopedic surgeon. Since those appointments as well as her last ISAEC visit she

indicated that she had developed pain at rest, increased mechanical pain and unexplained weight loss. After consulting with the ISAEC surgical team, a call was made to her Primary Care Provider (PCP) recommending an urgent referral back to the oncologist. Post-consultation imaging (bone scan and MRI) revealed increased uptake at L3 and left 5th rib and infiltration of L3 vertebral body with pathological fracture respectively.

Metastases to the spine commonly occur in breast and prostate cancer, but can also occur in lung, colorectal, thyroid, and kidney carcinomas. However, breast cancer has a particular affinity for the spine. Spinal metastases can cause severe pain, pathological fractures of the vertebrae, nerve root impingement, spinal cord compression, and hypercalcemia.

Normally bone remodels itself with a balance of osteoblastic and osteoclastic activity. However, when tumour cells metastasize to bone the normal re-modelling pattern is disrupted. Depending on the type of cancer, either osteoblastic or osteoclastic activity predominates. In breast cancer most bone lesions are osteolytic. In prostate cancer most bone lesions are osteoblastic.



Pain is the most common manifestation in spinal metastases. It can be biological, mechanical, or radicular. Biological pain occurs as a result of periosteal stretching, tumour growth or tumour-induced inflammation. This pain is often at night and is described as gnawing or aching. Mechanical pain occurs when metastases, especially lytic breast lesions, affect spinal stability. Mechanical pain is aggravated by movement or axial loading of the spine and is relieved by lying down. Radicular pain can be dermatomal and occurs when a tumour or pathological fracture compresses or irritates a nerve root. Motor weakness and sensory dysfunction can also be seen from nerve root compression. In cases where there is spinal cord compression, patients can present with motor weakness, anesthesia, and autonomic disturbances such as incontinence, urinary retention, and impotence.

With the above information in mind, new onset back pain in a patient with a history of cancer, and in the presence of other red flags, should be thoroughly investigated for a suspicion of spinal metastases.

