

Metastatic bone disease patients can walk in Lazarus' footsteps

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Osteoplasty—a highly effective minimally invasive procedure to treat the painful effects of metastatic bone disease by injecting bone cement to support weakened bones—provides immediate and substantial pain relief, often presenting individuals who are suffering terribly with the miraculous so-called "Lazarus effect," according to researchers at the Society of Interventional Radiology's 34th Annual Scientific Meeting. Interventional radiologists often couple osteoplasty with heat or cold treatments to kill tumor nerves, if needed.

"The immediate good clinical results observed in our [patients](#) should encourage more widespread application of this palliative interventional radiology treatment," said Giovanni C. Anselmetti, M.D., interventional radiologist at the Institute for Cancer Research and Treatment in Turin, Italy. "A patient's quality of life can be severely affected when they have metastatic [bone](#) disease. Normal daily activities can become difficult when the metastases become painful, and many patients report that their sleep patterns change, appetite diminishes and the need to take [pain](#) relief medications increases," he noted. "Osteoplasty is not a first-line treatment. It is a highly effective minimally invasive procedure that provides [pain relief](#) for patients not responding to conventional [pain medication](#) treatments," he said. "Metastatic [bone disease](#) patients—who have no other options, who are in pain, who have short life expectancies and who have dismal quality of life—should be referred to interventional radiologists for osteoplasty treatment. Interventional radiologists can improve the quality of life for patients who have very large metastases and who are going to die because of their primary cancers," added

Anselmetti.

Metastatic bone disease is a painful condition that can develop in conjunction with cancers of the breast, bladder, kidney, lung or other organs. It occurs when [cancer cells](#) at an original site [metastasize](#) or travel to the bone. These metastases can become widespread throughout the skeletal system. Some [bone metastases](#) become painful because the tumor eats away at the bone (osteolysis), creating holes that make the bone thin and weak. As the bones are replaced with tumor, nerve endings in and around the bone send pain signals to the brain and the bone loses its functional strength. If left untreated, bone metastases can eventually cause the bone to fracture and seriously affect a patient's quality of life. Each year, about 100,000 cases of bone metastasis are reported in the United States.

In treating cancer patients with painful bone metastases, interventional radiologists may also use radiofrequency ablation (RFA) or cryoablation. These treatments use heat or cold to desensitize the bone by killing the nerve endings in the vicinity of the metastasis. Once the nerve endings are dead, interventional radiologists can perform osteoplasty. Osteoplasty involves the injection of semi-liquid bone cement (in this case, polymethyl-methacrylate or PMMA) into a bone lesion under constant and precise visual monitoring by CT or digital fluoroscopy imaging. The technique is similar to vertebroplasty, an interventional radiology treatment that has been used extensively in the spine to treat the pain of compression fractures.

In the study, the average pain intensity score for patients based on the 11-point visual analog scale dropped significantly from 8.8 \pm 1.4 to 1.8 \pm 2.1 within 24 hours of osteoplasty, said Anselmetti. "These patients experienced immediate and substantial pain relief. They did not require pain medication during the time of follow-up, and there were no clinically significant complications," said Anselmetti. Of 81 patients (59

women, 12 men), 64 (79 percent) were able to stop taking narcotic drugs for their pain, and 43 (53 percent) could stop taking other pain medication. In this study, pelvic, femur, sacrum, ribs, humerus, scapula, tibia, pubis and knee bones were treated.

In one case, Anselmetti recounted, a 79-year-old Roman Catholic nun had severe pain and was bedridden because of cancerous osteolytic lesions (thyroid cancer metastases) located deep in her pelvis—previously treated unsuccessfully with chemotherapy and radiotherapy. She underwent osteoplasty and experienced significant relief of pain and was able to walk two hours after the procedure. "This is the [Lazarus effect](#)," said Anselmetti, referring to the term often used to connote an apparent restoration to life, with Lazarus being the subject of the miracle recounted in the New Testament in which Jesus raises him from the dead. The nun, like other patients, was able to be discharged from the hospital on the same day.

"I cannot emphasize enough how important it is to provide relief to patients who are dying from their cancers. In most cases we can provide pain relief, restore function for them to do daily activities and help them to stay ambulatory," said Anselmetti. He noted that osteoplasty provided effective pain regression for individuals with both painful bone metastases and benign lytic lesions that didn't respond to conventional analgesic treatment.

Bones are the third most common location where cancer cells spread and metastasize. Bone metastases occur when cancer cells gain access to the blood stream, reach the bone marrow, begin to multiply and then grow new blood vessels to obtain oxygen and food—which in turn causes the cancer cells to grow more and spread. For the most part, the goal of treating bone tumors is not curative, but rather palliative by reducing pain, preventing additional bone destruction and improving function.

Source: Society of Interventional Radiology

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