

Interventional Radiology Coding Case Studies

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T12, L1, L4, and L5 Vertebral Augmentation Biplane Fluoroscopic Guidance

Indications: 87-year-old woman with a spontaneous pathological osteoporotic compression fractures of the T12, L1, L4, and L5 vertebral bodies. She has failed conservative management and is not able to sit or stand upright due to severe pain.

Access: Bilateral transpedicular, T12, L5, L4, and L1 (treated in that sequence).

Description: Informed consent was obtained from the patient prior to the procedure. During this process, the procedure and potential alternatives was explained along with the intended outcome and benefits. The risks of the procedure, including the possibility of an unsuccessful procedure, as well as the risk of not doing the procedure were discussed. The patient was given the opportunity to ask any questions regarding the procedure and appeared competent to make medical decisions. A signed consent form which documents this discussion was placed in the medical record. The patient's previous lumbar spine MRI of 7/23/2018 was reviewed.

The patient was brought to the neuro interventional radiology suite and a final time out procedure was performed. General endotracheal anesthesia was induced by the anesthesiology department. The patient was placed on the special procedures table in the prone position.

The pedicles of T12, L 1, L4, and L5 were identified fluoroscopically and the levels marked on the skin using an indelible dermal marker. The back in the region of the lower thoracic and lumbar spine sterilely prepped and draped in the usual manner. Maximum sterile barrier technique was maintained throughout the procedure.

A StabiliT Vertebral Augmentation System was used. Based on anterior posterior (AP) and lateral fluoroscopic visualization of the pertinent anatomy, the skin, subcutaneous tissues, and periosteum of each level were anesthetized using 1% Lidocaine local anesthesia. Small skin incisions were then made at the appropriate levels. The vertebral compression fractures were treated in the following order: T12, L5, L4, and L1.

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At each level, introducers (working cannula and stylet) were advanced through the right and then the left pedicle and directed to the posterior to middle third of the vertebral body under biplane fluoroscopy. After final positioning, the introducer stylet was removed leaving the working cannula in place. Under fluoroscopic guidance, an initial cavity was created in the vertebral body by inserting a straight hollow coring cement staging osteotome through the working cannula to the anterior third of the vertebral body. It was advanced and turned multiple times to core and remove cancerous bone leaving a cavity in the vertebral body. The larger directional cement staging osteotome and was then inserted through the working cannulas and directed across the midline. The reticulated arm was deployed through the working cannula to create and further enlarge the cavities.

The Controller (containing both a RF generator and a hydraulic controller) was turned on. The warming cartridge, delivery cables, and hydraulic assembly were then connected to the Controller. The StabiliT ER2 bone cement was mixed and the cement cartridge filled and attached to the warming cartridge and hydraulic control via the hydraulic assembly.

After removal of the introducer stylet, the locking delivery cannula was attached to the cement warming cartridge component of the Delivery System and then inserted through the working cannulas alternating from side-to-side so that the end of the docking deliver cannula was in the cavity created in the anterior one-third of the vertebral body. It was then locked to the working cannula stabilizing its position to ensure it was not displaced during the delivery of the ultra-high viscosity semi-solid cement. The ultra-high viscosity semi-solid cement was then delivered through the locking delivery cannula initially filling the cavity created by the cement staging osteotome at a rate of 1.3 cc per minute. The mass of the ultra-high viscosity semi-solid cement continued to grow in size further expanding the cavity size while filling. Cement delivery was monitored under continuous biplane fluoroscopic guidance.

There was excellent stabilization of the T12, L1, L4, and L5 compression fractures. Approximately 8 cc of cement was used at each level. The locking delivery cannula was then removed and the stylet was reinserted into the working cannulas. Final intraoperative imaging was obtained confirming and adequate filling without evidence of extension to into the spinal canal, discs, perispinal soft tissues, or neuroforamina. The introducers were then removed, the incisions were closed with LiquiBond cement.

The patient was returned onto her back on the stretcher and extubated. The patient was neurologically intact. There was no evidence of complications

Fluoro time: 26 minutes, 11 seconds

Conclusion: Vertebral augmentation performed of T12, L1, L4, and L5 osteoporotic insufficiency vertebral compression fractures under biplane fluoroscopic guidance via bipedicular approach with excellent fracture stabilization. No complications were encountered.

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Interventional Radiology Coding Case Studies CPT Codes

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Procedure Codes:

- 22513 T12 Vertebral Augmentation (Kyphoplasty)
- +22515 L1 Vertebral Augmentation (Kyphoplasty)
- +22515 L4 Vertebral Augmentation (Kyphoplasty)
- +22515 L5 Vertebral Augmentation (Kyphoplasty)

Diagnosis Codes:

- M80.08XA Osteoporotic pathologic fracture, vertebra(e)

Comments:

- Code 22513 is assigned for the initial T12 kyphoplasty. Only one primary kyphoplasty code may be assigned, therefore all additional lumbar levels are reported with add-on code +22515.

Applicable Coding Rules:

Kyphoplasty (22513-22515)

- One primary code is assigned per encounter either thoracic (22513) or lumbar (22514). Each additional level is reported with the add-on code +22515. The NCCI manual states the following:
 - ❖ *“CPT® codes 22510-22512 represent a family of codes describing percutaneous vertebroplasty, and CPT® codes 22513-22515 represent a family of codes describing percutaneous vertebral augmentation. Within each of these families of codes, the physician may report only one primary procedure code and the add-on procedure code for each additional level(s) whether the additional level(s) are contiguous or not.”* – NCCI Chapter 9
- Codes 22513-22515 include the following components:
 - ❖ Bone biopsy at the level of vertebroplasty (20225)
 - ❖ Imaging guidance

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