

## Case 13

# CT-Guided Interventional Vertebral Kyphoplasty Palliative Treatment

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## History

A 74-year-old female patient was admitted to the hospital due to a growing mass in the left posterior thoracic region associated with local and lower back pain. MRI and PET/CT examinations revealed a soft tissue lesion with multiple secondary lesions in the liver and the spine. A biopsy of the thoracic lesion was performed and a histopathological diagnosis of melanoma was confirmed. After two weeks of oncological treatment and pain control, the back pain remained (8 out of 10 in pain scale) despite optimization in pain relief. An interventional kyphoplasty palliative treatment was indicated and requested.

## Diagnosis

CT images showed metastatic destructions in the 9<sup>th</sup> thoracic (T9) and the 2<sup>nd</sup> lumbar vertebral body (L2). CT-guided intervention was performed uneventfully, with consequent gain in height in the fractured vertebral bodies and significant improvement in pain relief (2 out of 10 in pain

scale). The patient was released to continue treatment in home care.

## Comments

The patient was suffering from intense pain and kyphoplasty was seen as the best option. However, there were great concerns about central canal safety and placing the needles to target – the vertebral body height loss was significant and the posterior wall was clearly disrupted. CT guidance allows great accuracy and the fluoroscopy gives the necessary confidence while injecting the cement. We achieved satisfactory vertebral restoration and significant pain relief, without any neurological involvement. ■

The outcomes by Siemens' customers described herein are based on results that were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption), there can be no guarantee that other customers will achieve the same results.

## Examination Protocol

Scanner	SOMATOM Definition AS+	
Scan area	T9	L2
Scan mode	i-spiral	i-spiral
Scan length	24 mm	42 mm
Scan direction	Cranio-caudal	Cranio-caudal
Scan time	0.75 s	1.3 s
Tube voltage	100 kV	100 kV
Tube current	50 mAs	50 mAs
Dose modulation	–	–
CTDI <sub>vol</sub>	30 mGy	6.47 mGy
DLP	208 mGy cm	39 mGy cm
Effective dose	1.7 mSv	0.58 mSv
Rotation time	0.5 s	0.5 s
Pitch	0.8	0.8
Slice collimation	16 × 1.2 mm	16 × 1.2 mm
Slice width	3 mm	3 mm
Reconstruction increment	3 mm	3 mm
Reconstruction kernel	B30f	B30f



1

Axial images show the distance measurements before the needle positioning at T9 (Fig. 1A) and L2 (Fig. 1B).

2A



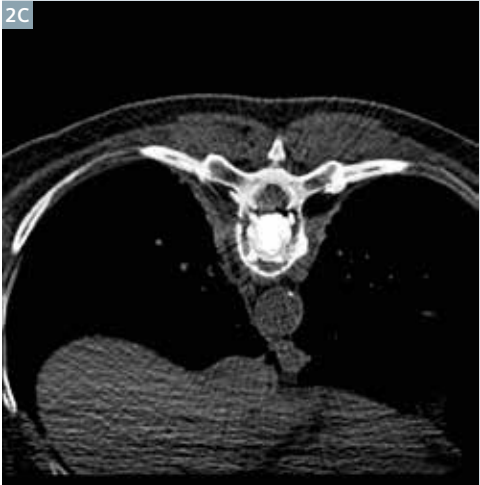
2B



2

Fused axial and VRT images show the needle positioning (Fig. 2A), the injection (Fig. 2B), and the post procedure control (Figs. 2C and 2D) at T9.

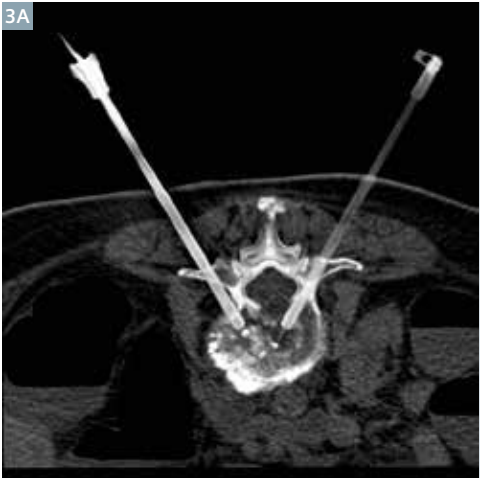
2C



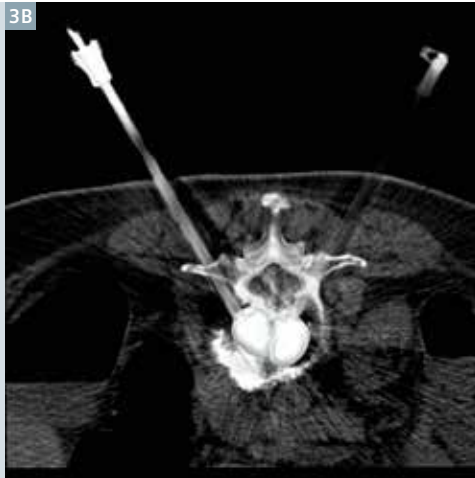
2D



3A



3B



3

Fused axial and VRT images show the needle positioning (Fig. 3A), the injection (Fig. 3B), and the post procedure control (Figs. 3C and 3D) at L2.

3C



3D

