

# Cone Beam CT-guided Vertebroplasty

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Case performed at Hôpitaux Civils de Colmar, France

## Patient description

72-year-old female.

Osteoporotic compression fracture with persistent edema on MRI.

## Key Takeaways

Micromate™ helped to advance the needle with the proper angulation from the beginning.

The robotic system eliminated the need to manipulate the needle several times. Thus, the needle is held close to the C-arm, thereby reducing the radiation dose to the operator's hands.

Micromate™ is easy to manipulate, even when using it for the first time. Its tiny targeting platform can be easily put aside and does not take away any operating space.

Vertebroplasty was the preferred treatment after a painful osteoporotic compression fracture with persistent edema on MRI scans. The steps of Vertebroplasty include 1) planning with definition of the correct entry point on different angulations, 2) insertion of the needle according to the planned trajectory until the needle reaches the spine, 3) advancement of the needle inside the vertebral body, 4) cement injection. The Micromate™ device was used for steps 2 and 3.

The Micromate™ device was gross-positioned near the predefined entry point and remotely controlled for alignment to the surgical plan under fluoroscopic live imaging. After the alignment, the 10G vertebroplasty trocar needle was inserted along the predefined trajectory through the Micromate™ needle guide, again under fluoroscopic live imaging. Four needles at four different levels were placed in total. After the placement of all needles, cement was injected and controlled with short fluoroscopy sequences. The patient had an immediate improvement in pain following the cementoplasty. The procedure was done without complications and took 45 minutes.



1) Intra-operative fluoroscopy sequence while aligning the vertebroplasty trocar needle to the target in bullseye view. A second needle is used for guidance to the target; 2) Lateral control fluoroscopic shot after placement of 2 needles; 3) 3 out of 4 vertebroplasty trocar needles are placed; 4-5) Control fluoroscopic sequence after cement injection in lateral and AP view.