

Microwave ablation combined with PMMA vertebroplasty using Micromate™

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Patient description

78-year-old female patient with metastatic breast cancer.

PET-positive recurrence on a lumbar vertebra. The lesion had recurred despite previous radiation therapy (RT), making a repeat radiation approach highly complex.

Key Takeaways

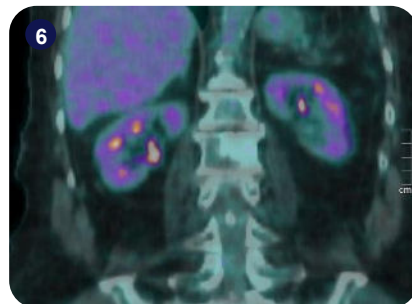
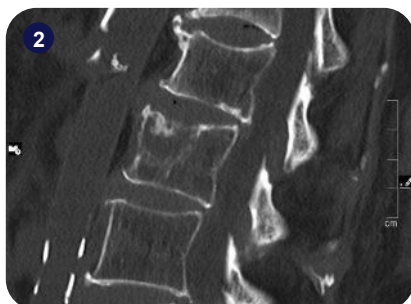
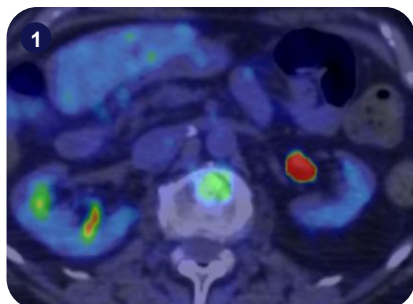
Micromate™ supported trajectory planning and automatic alignment.

This case shows that robotic-guided interventional oncology does not just offer temporary palliation. At one year post-procedure, it delivered robust, predictable, and durable disease control, even in a challenging post-radiation recurrence scenario.

To target the lesion safely and with absolute precision, the interventional team combined advanced robotic navigation with ablative and consolidation techniques.

Micromate robotic system was used for millimetric trajectory planning and pinpoint alignment. Access was achieved via precise needle placement utilizing an Arrow OnControl bone drill. The team performed targeted microwave ablation of the metastatic lesion, followed by percutaneous cementoplasty (PMMA injection) immediately after ablation to provide structural support to the lumbar vertebra and prevent pathological fractures.

The most rewarding aspect of this case was not just the initial technical success, but the 12-month follow-up. One-year post-procedure, the local tumor response was fully maintained. The patient remained clinically stable and pain-free, having preserved an excellent quality of life.



1) PET/CT image fusion showing the vertebral tumor before treatment; 2) CT image used to plan the procedure; 3) Use of Micromate to plan and automatic align to the trajectory; 4) Needle placement into the vertebral tumor; 5) CT image after treatment showing bone cement inside the vertebra; 6) PET/CT image fusion one year after treatment showing no signs of tumor activity.