

CT-guided Microwave Ablation of the Liver

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Case History

77-year-old male with liver cirrhosis (BCLCA).

Triple-phase liver CT, MRI, and US detected arterial hyperenhancement of a lesion in liver segment V.

Microwave ablation and intra-procedural US-guided biopsy were performed and confirmed highly differentiated HCC.

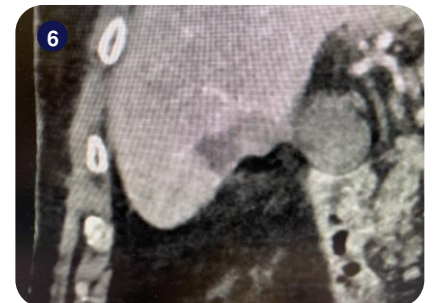
MRI follow-up after 6 and 9 months showed a growing, hyperenhanced nodule at the medial ablation zone margin with a size of 8mm, reported as a local recurrence.

Procedure

- Due to the local recurrence could not be detected with US and CEUS, CT-guided microwave ablation was a viable option.
- As the nodule was not reachable via in-plane trajectories, Micromate™, with its planning and navigation system, was used to perform a stereotactic, robotic-guided microwave ablation with an angulated, off-plane trajectory under general anesthesia.
- Ablation zone evaluation via image fusion confirmed the success of the procedure.

Key Takeaways

- Micromate™ enabled precise positioning of the ablation probe off-plane from an oblique angle.
- The robot provided user-friendly needle trajectory planning using intra-procedural imaging and stable guidance to reach a challenging target in less time compared to the conventional workflow.
- The system setup was easy and fast, and it did not require changes to the standard ablation workflow.



1) Micromate™ system setup for liver interventions, including the Armrest for arm positioning. 2) Unsterile registration. 3) Sterile, draped robot aligned to target 4) Robotic-assisted positioning of the ablation probe 5) Intraoperative CT scan showing microwave ablation probe insertion; 6) Confirmation scan showing the clinical success of the procedure.