# Article information:

Ablative Margins of Colorectal Liver Metastases Using Deformable CT Image Registration and Autosegmentation - PubMed
<https://pubmed.ncbi.nlm.nih.gov/36719291/>

# Article summary:

1. A biomechanical deformable image registration (DIR) method was used to quantify minimal ablative margin (MAM) of colorectal liver metastases (CLM) treated with CT-guided microwave or radiofrequency ablation.

2. An MAM of 0 mm was depicted in 14.6% of CLMs, from greater than 0 to less than 5 mm in 40.4%, and greater than or equal to 5 mm in 45.1%.

3. An MAM of 0 mm was independently associated with local disease progression, while no local disease progression was observed for an MAM greater than or equal to 5 mm.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article is generally reliable and trustworthy, as it is based on a single-institution retrospective study that included 124 consecutive patients with CLM treated with CT-guided microwave or radiofrequency ablation from October 2015 to March 2020. The authors also used a biomechanical DIR method with AI-based autosegmentation of liver, tumors, and ablation zones on CT images for MAM quantification retrospectively, which provides a more accurate assessment of the minimal ablative margin compared to manual segmentation methods. Furthermore, the results were evaluated using the multivariable Fine-Gray subdistribution hazard model and a 3D ray-tracing method for spatial localization of local disease progression sites within the tissue at risk for tumor progression (<5mm).

However, there are some potential biases that should be noted when interpreting the results of this study. First, since this is a retrospective study, there may be selection bias due to the fact that only patients who had undergone CT-guided microwave or radiofrequency ablation were included in the study sample. Second, since this is a single institution study, there may be institutional bias due to differences in patient characteristics between institutions that could affect the results. Finally, since this is an observational study rather than a randomized controlled trial, it is possible that other factors not accounted for by the authors could have influenced the results.

# Topics for further research:

* CT-guided ablation outcomes
* Minimal ablative margin assessment
* Fine-Gray subdistribution hazard model
* AI-based autosegmentation
* Selection bias in retrospective studies
* Institutional bias in observational studies

# Report location:

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