

New method for investigating and classifying liver tumours

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Adenomas are rare liver tumours, a certain percentage of which can become malignant. Using a new MR (magnetic resonance) technique at MedUni Vienna, it is now possible to classify adenomas without subjecting patients to invasive tissue sampling procedures.

Hitherto patients have had to undergo biopsy to take tissue samples for histological examination in order to determine whether a hepatocellular adenoma is benign or potentially malignant. Using a new imaging technique at the University Department of Radiology and Nuclear Medicine at MedUni Vienna (Christian Herold), this type of tumour can

now be clearly classified by means of a liver-specific MR contrast agent.

Adenomas of the liver are relatively rare. They can develop in different ways. Hence there are three subtypes (benign, inflammatory, pre-malignant) and a fourth unclassifiable subgroup with different clinical courses and potential progression. It is now possible to determine which group a particular adenoma belongs to using a new MR imaging technique.

The liver-specific contrast agent, gadoxetic acid, targets the bile transporters OATP (organic anion-transporting polypeptide) and MRP (Multidrug Resistance-Related Protein) in adenoma cells and normal liver cells. These will either absorb the agent or re-excrete it. The tumours can then be classified on the basis of the relative proportion of these surface transporters as compared to normal [liver cells](#), as shown in the MR image.

"This new investigation technique enables us to evaluate the nature of an adenoma without the need for invasive sampling," explains Ahmed Ba-Ssalamah of the MedUni Vienna Department of Radiology and Nuclear Medicine at Vienna General Hospital, "and that is less stressful for patients. Moreover, this method opens up new avenues, in terms of research, so that we can gain a better understanding of the biology of adenomas and other [liver](#) tumours."

The study was conducted by Ahmed Ba-Ssalamah, Head of the Abdomen Working Group at the University Department of Radiology and Nuclear Medicine, in collaboration with the Clinical Department of Gastroenterology and Hepatology (Michael Trauner) and MedUni Vienna's Clinical Institute of Pathology. Coimbra University Hospital (Portugal) also provided patient data for the study. The results have been published in the leading journal *Radiology*.

More information: "Morphologic and Molecular Features of Hepatocellular Adenoma with Gadoteric Acid-enhanced MR Imaging" *Radiology*. 2015 May 18:142366.

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