A paradigm shift in rectal cancer treatment and the new role of MRI

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The paradigm shift in rectal cancer treatment is to move towards organ saving treatment in patients who have responded very well to preoperative chemoradiotherapy. Critical is the selection and assessment of response. So far this has been mainly through digital and endoscopic examination. This is now changing with the availability of modern planar and functional imaging.

Magnetic resonance imaging (MRI) has so far relied on changes in morphology as a measurement for response. A recent meta analysis (vd Paardt et al, Radiology 2013) reported a poor sensitivity of 55% with specificity of 90% for the assessment of ypT0-2 rectal tumor and even lower sensitivity of 19% for the assessment of a complete response - ypT0. Diffusion-weighted MR imaging and Dynamic contrast enhanced MRI allows for more accurate and early assessment of treatment response. The learning objectives of this lecture are to know the performance of modern MR imaging for the prediction and assessment of response in rectal cancer and to understand how MRI influences treatment.