

## **LOCOREGIONAL RESTAGING OF RECTAL CANCER BY MAGNETIC RESSONANTE IMAGING IN PATIENTS SUBMITTED TO NEOADJUVANT CHEMORADIOTHERAPY: PICTORIAL ESSAY**

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**BACKGROUND:** In cases of local advanced rectal cancer, preoperative concurrent chemotherapy and radiation therapy results in a decreased rate of local recurrence and increased rate of anal sphincter preservation. Hence, neoadjuvant chemoradiotherapy is largely used in the treatment of rectal cancer. Magnetic resonance imaging (MRI) is highly accurate in assessing the mesorectal fascia (MRF) and is useful in the staging and treatment planning. The study before neoadjuvant therapy is already consolidated, however the effectiveness after the neoadjuvant therapy remains in question, due to confounding factors such as fibrosis, edema, desmoplastic reaction, inflammation and viable tumor nests at a fibrotic scar from a previous tumor.

**HYPOTHESIS:** MRI plays an important role in the response evaluation after neoadjuvant treatment in patients with rectal cancer. The use of functional methods such as DWI add important information to conventional morphological evaluation.

**METHODS:** We reviewed MR images before and after neoadjuvant therapy in patients with rectal cancer, emphasizing the differences between the anatomical and functional data of MRI and comparing them with pathologic response.

**RESULTS:** The assessment of tumor response to neoadjuvant therapy by MRI was based on response evaluation criteria in solid tumors (RECIST), which include reduction of at least 30% of the tumor diameter. It was considered a viable tumor a T2WI hyperintense area and fibrosis as hypointense. In diffusion weighted images (DWI) with ADC maps, viable tumor had restricted DWI. The involvement of MRF occurred in tumors with distance <1 mm of it in T2WI. The role of Diffusion weighted MRI post neoadjuvant therapy is adding extra information to the anatomical T2WI, once it reflects tissue cellularity and integrity of cellular membranes.