

AbstractID: 9763 Title: Tumor Map Based on Voxel-by-Voxel Magnetic Resonance Spectroscopy Imaging

Magnetic Resonance Spectroscopy Imaging (MRSI) has proven to be a valuable tool in the identification of critical regions of pathology. Chemical Shift Imaging (CSI) is a technique based on MRSI and provides voxel-by-voxel metabolic information about these regions. Single-voxel MRS has been useful in discriminating solid tumors, necrosis and normal brain tissues. It uses the ratio of choline to N-Acetyl Aspartate (NAA) levels. Maps of the relative metabolite ratios overlaid onto the MRI and the planning CT seem to be more beneficial in determining the pathology than overlaid contours of these ratios. With the map overlaid onto the planning CT and MRI, oncologists have a good visual tool to correlate individual voxels to anatomy rather than having to correlate the contour to the anatomy. In this work these maps are shown overlaid on the MRI and planning CT data. A minimum relative choline to NAA ratio value of 2 has been used to identify a voxel as a tumor voxel. On these relative metabolite level maps, bright areas show voxels of ratio value of 2 or above indicating tumor voxels, whereas dark areas show voxels of ratio value below 2 indicating non-pathological voxels.