Diffusion MRI in cancer and stroke

Diffusion MRI has shown value in diagnosis of acute ischemic stroke and in prognosis of outcomes after ischemic stroke. Also, diffusion MRI has been used to aid prediction of responses of brain tumors to therapy. Recently, anistropic diffusion of water through tissue has been used to delineate axonal tracks, and to assess the integrity of white matter, axonal myelination, and axonal injury in various neurological diseases and injury. Recently, the role of anistropic water diffusion in prediction of rapid vs slow brain tumor growth has been explored. Examples of how diffusion MRI has been used in the clinical setting will be presented.

From this presentation, the audience should be able to:

1) Understand the process of acquiring diffusion weighted MRI
2) Understand how a diffusion tensor is determined and used
3) Appreciate current and emerging clinical applications for diffusion MRI