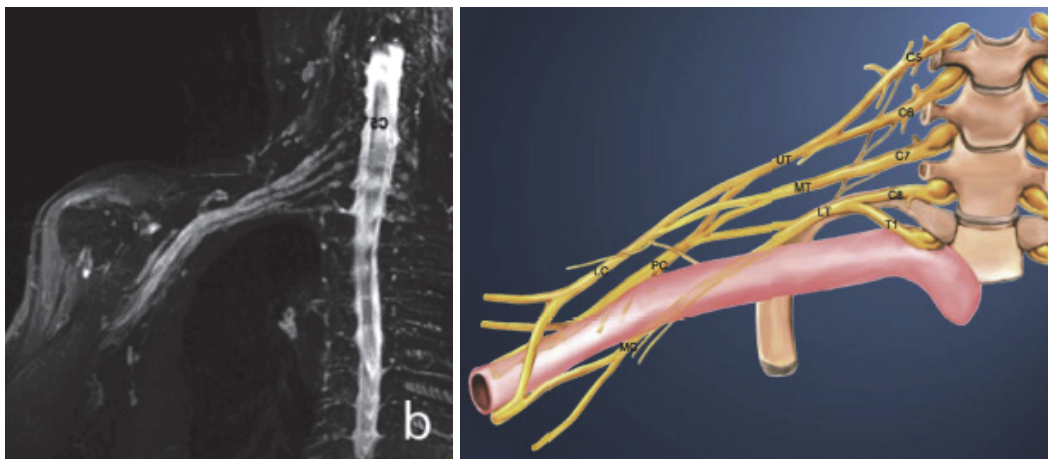


Master Thesis: Implementation and assessment of MR neurography techniques

Background: MR imaging, including diffusion tensor imaging and tractography, offer new perspectives for the assessment of many pathological processes affecting peripheral nerves such as entrapment syndromes, tumors and tumor like lesions, and traumatic disorders. The implementation in clinical practice is not trivial and need a specific analysis for the different applications for structural and microstructural neurography. Structural MR neurography uses mainly the STIR sequence to image the nerves, is however not always successful in the visualization of a nerve. Microstructural MR neurography depends on the diffusion tensor imaging that provides quantitative information about the degree and direction of water diffusion within the nerves and requires high end hardware and need a more complex post processing successful application.



Goals of the Thesis: 1) Introductory literature review for either structural or microstructural MR neurography. 2) Optimizing contrast for STIR Sequences and Parameters for DTI-Imaging. 3) Implemented and testing of the scanning protocols at the 3T Scanner at TU-Graz (healthy volunteers). 4) Porting of the optimized scanning procedure to a clinical used system.

Prepositions: Knowledge's and interest in MRI and practical work with the scanner. The Thesis will be performed in cooperation with Dr. Daryousch Parvizi from the Department Surgery, Division of Plastic, Esthetic and Reconstructive Surgery.

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