fissured fibrous cap, plaque ulcerations or intra-plaque haemorrhage will be included in this paper. Advanced post-processing reconstruction al volume rendering will be presented.
Conclusion: Imaging techniques can in depth analyze vulnerable carotid plaque, by precisely stratifying the risk of rupture of the plaque. In particular magnetic resonance can depict the fibrous cap of the plaque by quantifying its thickness. Plaque calcification is optimally depicted by using multi-detector-row CT.

P2345

Stroke and vessel tortuosity: is it a myth?

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Objectives: The purpose of this work was to evaluate whether the presence of stroke is associated with the tortuosity of supra-aortic vessels.
Methods: We studied 74 consecutive patients (53 males, 21 females, age range 39-84, mean age 64) by using multi-detector-row CT. In each patient both carotids and brain were imaged. A total of 148 carotid arteries were assessed for the presence of vessel tortuosity by two experienced radiologists in consensus; tortuosity was considered as kinking or coiling. Brain CT was also analyzed in consensus for the presence of CT cerebral stroke findings. Contrast material was injected into ante-cubital vein and arterial phase images were obtained by using a delay time variable from 11 to 18 and by using a 4–6 ml/sec flow rate. Statistic analysis was performed to determine if an independent interaction existed between the presence of vessel tortuosity and brain CT findings of stroke.
Results: We detected a total of 19 carotids with tortuosity. We observed a significant statistical correlation between the presence of kinking and stroke findings (P-value with Yates correction =0.031), whereas we did not find a statistical correlation between coiling and stroke findings (P-value with Yates correction =0.245).
Conclusion: Kinking seems to be associated with brain CT findings of stroke whereas Coiling seems not to be associated. Neurologist and vascular specialists should consider this parameter in the stroke risk stratification.

P2346

Discriminating idiopathic normal pressure hydrocephalus from Alzheimer's disease: distinctive cognitive profiles and the contribution of the CSF tap test

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Background and aims: To evaluate the utility of neuropsychological assessments and CSF tap test in differentiating idiopathic normal pressure hydrocephalus (iNPH) from Alzheimer's disease (AD).
Methods: Pre-operative performance before and after CSF tapping on the Mini Mental State Examination (MMSE), digit and spatial spans, word fluency, trail making test-A (TMT-A), and frontal assessment battery (FAB) were assessed in 14 iNPH patients (76.3±3.3 years; 6 women) who improved clinically after CSF shunt surgery. The same tests were given twice to 20 patients with AD (75.4±5.0 years; 10 women) whose age, sex, and MMSE score were equivalent to the iNPH patients.
Results: The iNPH group was worse than the AD group in all tests other than MMSE at baseline ($p<0.05$). The test scores were binarized at the cut-offs determined from the ROC curve and then entered into logistic regression analysis, demonstrating that the combination of the TMT-A, digit span, and normalized FAB scores had the best accuracy in discriminating iNPH from AD (85.3%). The two-way repeated-measures ANOVA revealed a significant effect of test repetition ($p<0.05$) and an insignificant trend of disease effect ($p=0.067$). The repetition x disease interaction was significant only for the FAB ($p=0.05$). Forced entrance of the binarized score changes in FAB in the logistic regression model slightly improved the discriminating accuracy to 88.2%.
Conclusions: Inattention and executive dysfunction were distinctive features of iNPH. Contribution of changes of these test scores by CSF tapping to differentiating iNPH from AD was relatively low compared to their neuropsychological profiles at baseline.

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In vivo estimation of the axonal radius in directionally heterogeneous tissues

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Introduction: Diffusion-MRI is a unique tool for accessing microstructural features of brain tissues. It is sensitive to water molecules self-diffusion, which is influenced by tissue geometry and composition [1,2]. Recent models have included axonal radius in the signal equation [3]. Here we extend these models to include directional heterogeneity in the axonal orientation using a Spherical-Harmonics decomposition of the orientation distribution of fibres (ODF). Our simulations show that the axonal radius can be estimated accurately even in tissues with isotropic ODF.
Results: We simulated several datasets with a suitable protocol for human in-vivo acquisition [4], and used Bayesian inference to estimate a posterior distribution on all model parameters. The figure shows histograms of the posterior distribution on axonal radii in different ODF configurations, and for three axonal radius values. Note that even when the ODF is isotropic, axonal radii are estimated to the same degree of accuracy as in the anisotropic case. This illustrates the potential of this method in estimating tissue parameters in the whole brain, including white matter crossing fibre areas and dendrite radii in the grey matter.
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High lumbar radiculopathies

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Background: The study deals with high lumbar radicular pain, caused by disk herniations.
Methods: The study included 900 patients with lumbar radicular pain syndromes caused by disc herniations. All the subjects were examined clinically, neurologically and paraclinically, the method of choice being spinal MRI or CT scan. The subjects with other origin of back pain like somatic diseases were excluded from this study.
Results: In the last 3 years in the department of back pain 900 patients with lumbar radiculopathies caused by disk herniations were treated and studied. In 39% of cases the causative factor was