Inversion-prepared, fast spoiled-gradient recalled (FSPGR) acquisition at C2-C3 in a patient (A) and healthy subject (B) at study entry. This sequence was used to calculate the cord cross-sectional area using a semi-automated method previously described\textsuperscript{9}. The regions of interest contoured around the cord and the cerebro-spinal clued (CSF) are shown. From these two regions, the mean CSF and the mean cord signal intensities (SIs) are calculated, and then the mean of these SIs (i.e., the boundary signal intensity) was obtained. The boundary signal intensity was used to create an automated border around the spinal cord\textsuperscript{9}. (A) Female, age 31 years, EDSS 6.0 at baseline, disease duration 8 years, cross-sectional cord area = 62.1 mm\textsuperscript{2}, (B) Female, age 35 years, cross-sectional cord area = 90.4 mm\textsuperscript{2}.