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ELSEVIER

Magnetic Resonance Imaging 92 (2022) 1–9

Contents lists available at [ScienceDirect](#)

Magnetic Resonance Imaging

journal homepage: www.elsevier.com/locate/mri



EPI susceptibility correction introduces significant differences far from local areas of high distortion

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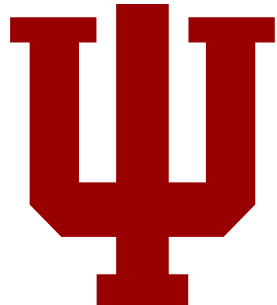
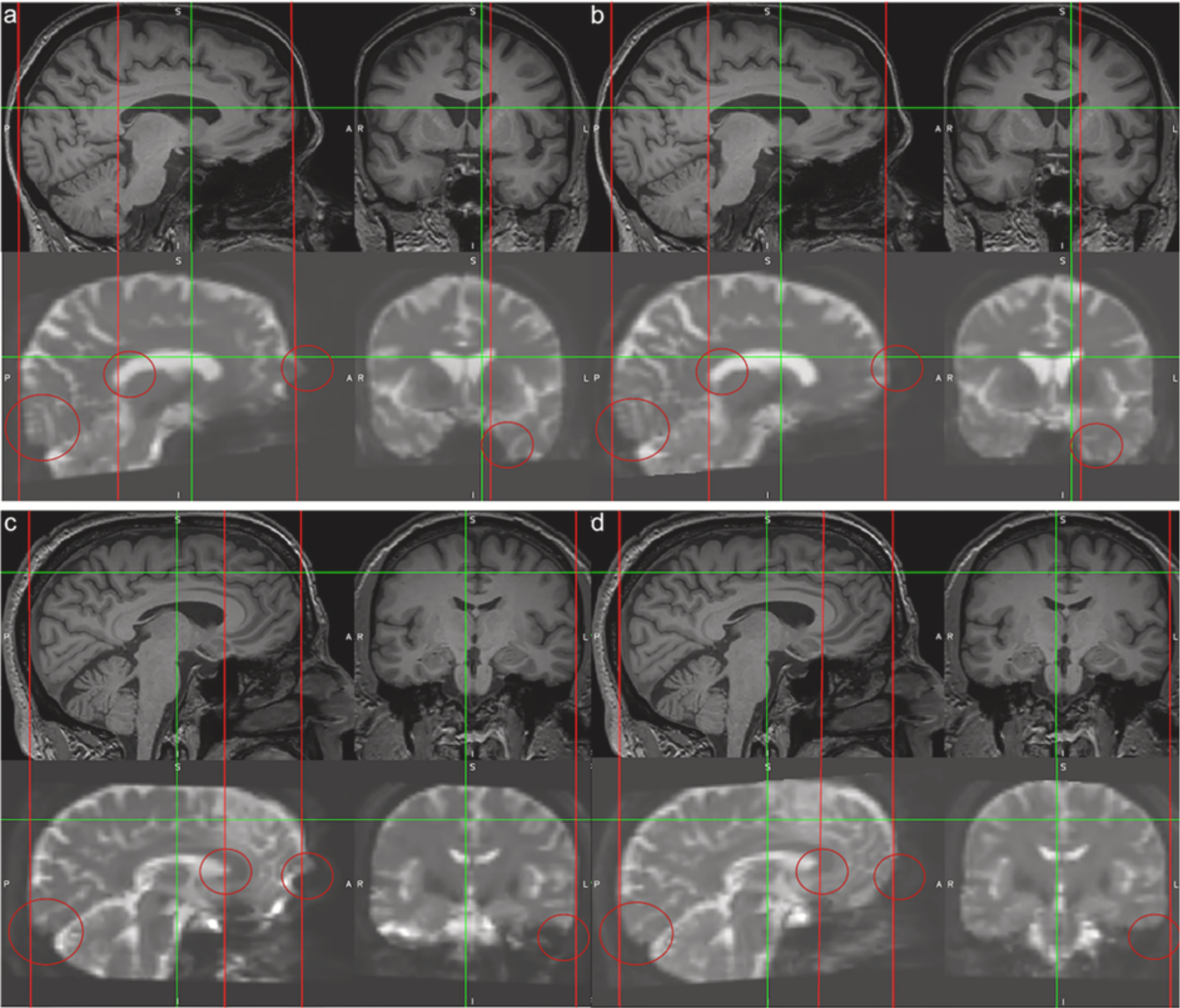
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ARTICLE INFO

Keywords:
Diffusion weighted imaging
Preprocessing
Distortion correction
Quality assurance

ABSTRACT

Purpose: In echo-planar diffusion-weighted imaging, correcting for susceptibility-induced artifacts typically requires acquiring pairs of images, known as blip-up blip-down acquisitions, to create an undistorted volume as a target to correct distortions that are often focal where regions with differences in magnetic susceptibility interface, such as the frontal and temporal areas. However, blip-up blip-down acquisitions are not always available, and distortion effects may not be specifically localized to such areas, with subtle effects potentially extending throughout the brain. Here, we apply a deep learning technique to generate an undistorted volume to correct susceptibility-induced artifacts and demonstrate implications for image fidelity and diffusion-based inference outside of areas where high focal distortion is present.



DOWNSTREAM POLLUTION

