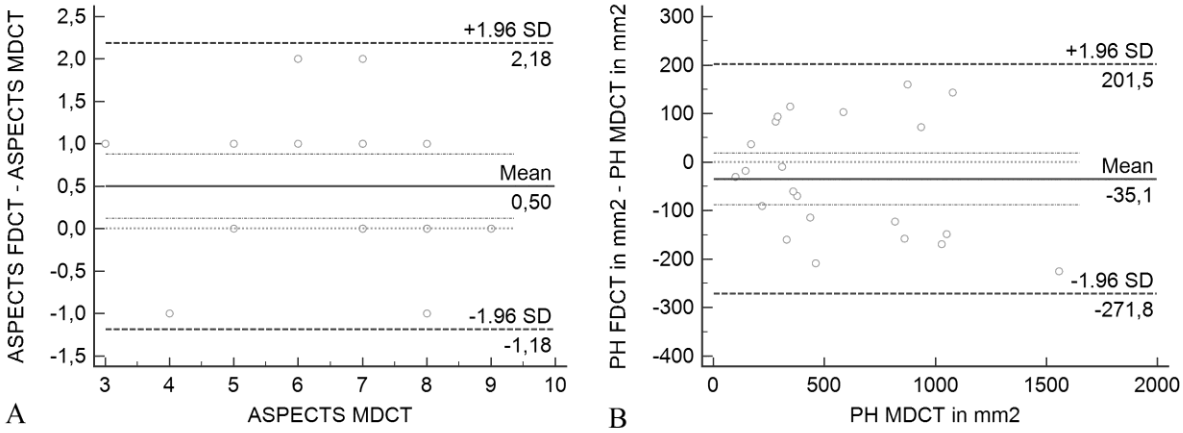
DATA SUPPLEMENT

Artifact Reduction

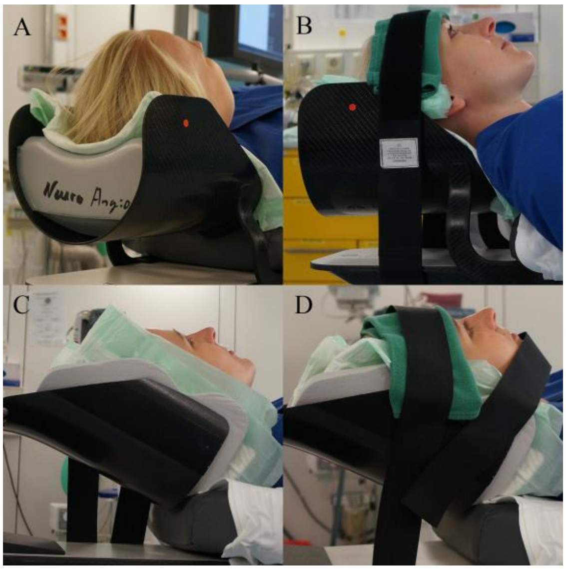
While the improved delineation of subarachnoidal spaces (and generally the brain regions located adjacent to the skull) as well as the enhanced grey-white differentiation is a result of the improved detector and better reconstruction algorithms, the enhanced image quality in the infratentorial region was additionally a result of correct patient placement within the headholder (Online Fig 2). We used a wedge-shaped headholder-insert to tilt the patient's head so that the orbitomeatal line was parallel to the rotation plane, preventing streak artifacts of teeth implants from overlapping with the cerebellum. The reason for the large number of streak artifacts on FDCT, especially in the supratentorial region, was analyzed as part of this study and traced back to the thick carbon fiber walls of the standard headholder, which are intermittently visible during acquisition of the FDCT (Online Fig 3A, white arrow). Further development of the head holder, which is currently in progress (Online Fig 2), promise additional improvement in image quality. Motion artifacts were visible in 26% of FDCT cases but only mildly influenced image quality in our study. In order to prevent a significant deterioration of image quality due to motion we paid attention to patient's head fixation within the headholder (Online Fig 2C). This process can be further improved with the aforementioned prototype headholder, as the sidewalls are much thinner and flexible, incorporating the patient's head better within the headholder (Online Fig 2D). Burn-in artifacts were typically detected in case of time-consuming interventions and lead to reduced image quality around the insular region. This situation obviously does not apply to cases where a FDCT was acquired prior to intervention. Additionally, we found that by acquiring FDCTs at the end of an intervention (e.g. after placement of a vascular closure device in order to have a 5- to 10-minute gap between the last angiogram and FDCT) there were practically no burn-in artifacts detected. About one fourth of FDCT cases showed slight image degradation as a result of metal artifacts. There are several studies suggesting improvement of image quality with the application of metal artifact reduction algorithms.[17] The evaluation of such algorithms has to be considered for the near future.

Online Figures

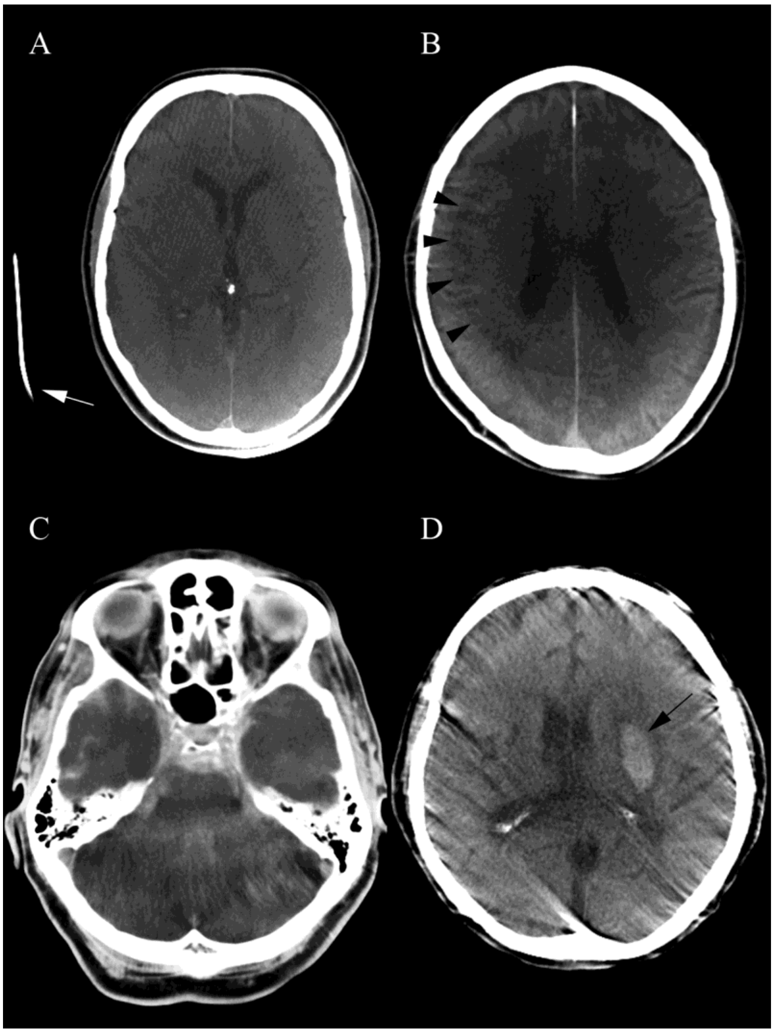
Online Fig 1. A, Bland-Altman plots of FDCT ASPECTS versus MDCT ASPECTS ratings and B, of FDCT PH measurements versus MDCT PH measurements in mm^2.



Online Fig 2. A, B Positioning of a co-author’s head inside the standard headholder. By using a wedge-shaped headholder-insert the head is tilted and the orbitomeatal line is parallel to the rotation plane, preventing streak artifacts of teeth implants from overlapping with the cerebellum (A). Fixation of the head within the standard headholder is feasible (B) but not sufficient in cases of anxious patients. Correct positioning is easier and fixation is enhanced with a prototype headholder (C, D).



Online Fig 3. A, Streak artifacts are present in the supratentorial region in cases where cables are placed next to the patient's head or the carbon fiber walls of the standard headholder (white arrow) are intermittently visible during acquisition of the FDCT. B shows typical burn-in artifacts (black arrowheads) after a long intervention. Burn-in artifacts on FDCT can be significantly reduced by incorporating a 5 to 8-minute pause between the last angiographic series and the FDCT. C, Due to incorrect positioning of the patient's head and streak artifacts of teeth implants overlapping with the cerebellum, there is limited image quality in the infratentorial region. Such artifacts can be reduced by tilting the patient's head, so that the orbitomeatal line is parallel to the rotation plane of FDCT. D shows reduced image quality of FDCT due to motion artifacts. However, a PH (black arrow) resulting in a NIHSS of 12 can be diagnosed on FDCT.



Online Table 1: Detection of intracranial hemorrhage

		MDCT (-)	MDCT (+)	Sensitivity	Specificity
SAH	**FDCT (-)**	61	2	95%	97%
	FDCT (+)	2	37		
IVH	**FDCT (-)**	68	1	97%	100%
	FDCT (+)	0	33		
PH	**FDCT (-)**	79	0	100%	99%
	FDCT (+)	1	22		

MDCT, multidetector CT; FDCT, flat detector CT; SAH, subarachnoidal hemorrhage; IVH, intraventricular hemorrhage; PH, parenchymal hemorrhage