

SUPPLEMENT

CT Scanning Protocol

Helical CT was performed according to the routine protocol. The peak kilovoltage was automatically adjusted using an automatic kilovoltage control ranging from 80 kVp to 120 kVp. Automatic exposure control was applied for all CT examinations, with a minimum value of 100 mA and a maximum value of 600 mA. The noise index was set at 17 for patients weighing ≤ 20 kg and 18 for those weighing > 20 kg. The detector coverage, pitch, coverage speed, and rotation time were 80 mm, 1.531:1, 245 mm/s, and 0.5 seconds, respectively. The CT scan parameters were automatically adjusted with the values recommended by the CT scanner when the projected noise was higher than the prescribed noise.

Contrast injection was administered according to the weight-based injection protocol 1.5–2.0 mL/kg with a maximum dose of 100 mL, using a 270 mg iodine/mL iso-osmolar contrast media (Visipaque 270; GE Healthcare) or 300 mg iodine/mL low-osmolar contrast media (Ultravist 300; Bayer Healthcare). Contrast medium was injected through the antecubital vein, followed by a saline flush (0.5 mg/kg). The injection speed was adjusted to an injection duration of 30 seconds. The scan delay was 60–65 seconds after initiating contrast injection.

Radiation dose metrics, including volume CT dose index, dose-length product, size-specific dose estimates, and effective dose, were retrieved from an automated dose management system (Radimetrics; Bayer Healthcare). A reference phantom with a size of 32 cm was used in this study.

Supplementary Table 1. Summary of Focal Lesion Assessment

Patient Order	Age (Year)/Sex	WED (cm)	Lesion (Size)	Lesion Conspicuity (Reviewer 1, Reviewer 2)					
				FBP	AV50	AV100	TFL	TFM	TFH
1	10/F	20.9	Renal angiomyolipoma (0.3 cm)	2, 2	3, 2	3, 2	3, 3	3, 3	3, 3
2	10/F	23.2	Hepatic hemangioma (2.3 cm)	2, 3	3, 3	3, 2	2, 3	3, 3	3, 3
3	8/F	26.7	Ovarian cyst (2.6 cm)	3, 3	3, 3	3, 2	3, 3	3, 3	3, 3
4	17/M	24.2	Scrotal mass (0.8 cm)	2, 2	3, 2	3, 2	3, 3	3, 3	3, 3
5	11/M	18.9	Renal cyst (1.5 cm)	3, 3	3, 3	3, 3	3, 3	3, 3	3, 3
6	12/F	29.1	Perforated acute appendicitis	2, 2	3, 3	3, 2	3, 3	3, 3	3, 3
7	10/F	18.1	Perforated acute appendicitis	3, 3	3, 3	2, 2	3, 3	3, 3	3, 3
8	9/M	18.2	Perforated acute appendicitis	2, 2	3, 2	3, 2	2, 2	3, 3	3, 3
9	10/F	20.2	Perforated acute appendicitis	3, 2	3, 3	2, 2	3, 3	3, 3	3, 3
10	6/M	17.8	Unperforated acute appendicitis	3, 2	3, 3	2, 2	3, 3	3, 3	3, 3
11	6/F	19.7	Unperforated acute appendicitis	3, 2	3, 3	2, 3	3, 3	3, 3	3, 3

AV50 and AV100 = adaptive statistical iterative reconstruction-V with a blending factor of 50% and 100%, respectively, FBP = filtered back projection, TFL, TFM and TFH = TrueFidelity with low, medium and high strength levels, respectively, WED = water equivalent diameter

Supplementary Table 2. Pairwise Comparison of Image Noise in Qualitative Analysis (Group 1, WED < 18 cm)

	FBP	AV50	AV100	TFL	TFM
AV50	< 0.001	-	-	-	-
AV100	< 0.001	< 0.001	-	-	-
TFL	0.931	0.028	< 0.001	-	-
TFM	0.001	1.000	< 0.001	0.036	-
TFH	< 0.001	0.012	0.310	< 0.001	< 0.001

Data are *p* values calculated with Nemenyi-Wilcoxon-Wilcox all-pairs test. AV50 and AV100 = adaptive statistical iterative reconstruction-V with a blending factor of 50% and 100%, respectively, FBP = filtered back projection, TFL, TFM and TFH = TrueFidelity with low, medium and high strength levels, respectively, WED = water equivalent diameter

Supplementary Table 3. Pairwise Comparison of Edge Definition in Qualitative Analysis (Group 1, WED < 18 cm)

	FBP	AV50	AV100	TFL	TFM
AV50	0.858	-	-	-	-
AV100	< 0.001	0.003	-	-	-
TFL	0.704	0.099	< 0.001	-	-
TFM	0.903	0.238	< 0.001	0.998	-
TFH	0.463	0.036	< 0.001	0.999	0.974

Data are *p* values calculated with Nemenyi-Wilcoxon-Wilcox all-pairs test. AV50 and AV100 = adaptive statistical iterative reconstruction-V with a blending factor of 50% and 100%, respectively, FBP = filtered back projection, TFL, TFM and TFH = TrueFidelity with low, medium and high strength levels, respectively, WED = water equivalent diameter

Supplementary Table 4. Pairwise Comparison of Overall Quality in Qualitative Analysis (Group 1, WED < 18 cm)

	FBP	AV50	AV100	TFL	TFM
AV50	< 0.001	-	-	-	-
AV100	0.121	0.463	-	-	-
TFL	0.463	0.121	0.981	-	-
TFM	0.009	0.938	0.952	0.613	-
TFH	< 0.001	0.375	0.002	< 0.001	0.046

Data are *p* values calculated with Nemenyi-Wilcoxon-Wilcox all-pairs test. AV50 and AV100 = adaptive statistical iterative reconstruction-V with a blending factor of 50% and 100%, respectively, FBP = filtered back projection, TFL, TFM and TFH = TrueFidelity with low, medium and high strength levels, respectively, WED = water equivalent diameter

Supplementary Table 5. Pairwise Comparison of Image Noise in Qualitative Analysis (Group 2, WED 18–23 cm)

	FBP	AV50	AV100	TFL	TFM
AV50	< 0.001	-	-	-	-
AV100	< 0.001	< 0.001	-	-	-
TFL	0.053	0.709	< 0.001	-	-
TFM	< 0.001	0.158	0.053	0.001	-
TFH	< 0.001	0.068	0.128	< 0.001	0.999

Data are *p* values calculated with Nemenyi-Wilcoxon-Wilcox all-pairs test. AV50 and AV100 = adaptive statistical iterative reconstruction-V with a blending factor of 50% and 100%, respectively, FBP = filtered back projection, TFL, TFM and TFH = TrueFidelity with low, medium and high strength levels, respectively, WED = water equivalent diameter

Supplementary Table 6. Pairwise Comparison of Edge Definition in Qualitative Analysis (Group 2, WED 18–23 cm)

	FBP	AV50	AV100	TFL	TFM
AV50	0.999	-	-	-	-
AV100	< 0.001	0.002	-	-	-
TFL	0.546	0.367	< 0.001	-	-
TFM	0.846	0.689	< 0.001	0.996	-
TFH	0.464	0.296	< 0.001	1.000	0.989

Data are *p* values calculated with Nemenyi-Wilcoxon-Wilcox all-pairs test. AV50 and AV100 = adaptive statistical iterative reconstruction-V with a blending factor of 50% and 100%, respectively, FBP = filtered back projection, TFL, TFM and TFH = TrueFidelity with low, medium and high strength levels, respectively, WED = water equivalent diameter

Supplementary Table 7. Pairwise Comparison of Overall Quality in Qualitative Analysis (Group 2, WED 18–23 cm)

	FBP	AV50	AV100	TFL	TFM
AV50	< 0.001	-	-	-	-
AV100	< 0.001	1.000	-	-	-
TFL	< 0.001	1.000	1.000	-	-
TFM	< 0.001	0.728	0.567	0.629	-
TFH	< 0.001	0.138	0.075	0.095	0.899

Data are *p* values calculated with Nemenyi-Wilcoxon-Wilcox all-pairs test. AV50 and AV100 = adaptive statistical iterative reconstruction-V with a blending factor of 50% and 100%, respectively, FBP = filtered back projection, TFL, TFM and TFH = TrueFidelity with low, medium and high strength levels, respectively, WED = water equivalent diameter

Supplementary Table 8. Pairwise Comparison of Image Noise in Qualitative Analysis (Group 3, WED > 23 cm)

	FBP	AV50	AV100	TFL	TFM
AV50	< 0.001	-	-	-	-
AV100	< 0.001	< 0.001	-	-	-
TFL	0.005	0.956	< 0.001	-	-
TFM	< 0.001	0.401	0.021	0.064	-
TFH	< 0.001	0.007	0.622	< 0.001	0.622

Data are *p* values calculated with Nemenyi-Wilcoxon-Wilcox all-pairs test. AV50 and AV100 = adaptive statistical iterative reconstruction-V with a blending factor of 50% and 100%, respectively, FBP = filtered back projection, TFL, TFM and TFH = TrueFidelity with low, medium and high strength levels, respectively, WED = water equivalent diameter

Supplementary Table 9. Pairwise Comparison of Edge Definition in Qualitative Analysis (Group 3, WED > 23 cm)

	FBP	AV50	AV100	TFL	TFM
AV50	1.00	-	-	-	-
AV100	< 0.001	< 0.001	-	-	-
TFL	0.50	0.64	< 0.001	-	-
TFM	0.15	0.23	< 0.001	0.98	-
TFH	0.13	0.21	< 0.001	0.98	1.00

Data are *p* values calculated with Nemenyi-Wilcoxon-Wilcox all-pairs test. AV50 and AV100 = adaptive statistical iterative reconstruction-V with a blending factor of 50% and 100%, respectively, FBP = filtered back projection, TFL, TFM and TFH = TrueFidelity with low, medium and high strength levels, respectively, WED = water equivalent diameter

Supplementary Table 10. Pairwise Comparison of Overall Quality in Qualitative Analysis (Group 3, WED > 23 cm)

	FBP	AV50	AV100	TFL	TFM
AV50	0.013	-	-	-	-
AV100	0.440	0.701	-	-	-
TFL	< 0.001	0.775	0.064	-	-
TFM	< 0.001	0.045	< 0.001	0.622	-
TFH	< 0.001	0.007	< 0.001	0.263	0.992

Data are *p* values calculated with Nemenyi-Wilcoxon-Wilcox all-pairs test. AV50 and AV100 = adaptive statistical iterative reconstruction-V with a blending factor of 50% and 100%, respectively, FBP = filtered back projection, TFL, TFM and TFH = TrueFidelity with low, medium and high strength levels, respectively, WED = water equivalent diameter

Supplementary Table 11. Pairwise Comparison of Image Noise in Qualitative Analysis (All Patients)

	FBP	AV50	AV100	TFL	TFM
AV50	< 0.001	-	-	-	-
AV100	< 0.001	< 0.001	-	-	-
TFL	< 0.001	0.021	< 0.001	-	-
TFM	< 0.001	0.175	< 0.001	< 0.001	-
TFH	< 0.001	< 0.001	0.005	< 0.001	0.021

Data are *p* values calculated with Nemenyi-Wilcoxon-Wilcox all-pairs test. AV50 and AV100 = adaptive statistical iterative reconstruction-V with a blending factor of 50% and 100%, respectively, FBP = filtered back projection, TFL, TFM and TFH = TrueFidelity with low, medium and high strength levels, respectively

Supplementary Table 12. Pairwise Comparison of Edge Definition in Qualitative Analysis (All Patients)

	FBP	AV50	AV100	TFL	TFM
AV50	0.976	-	-	-	-
AV100	< 0.001	< 0.001	-	-	-
TFL	0.058	0.005	< 0.001	-	-
TFM	0.084	0.008	< 0.001	0.999	-
TFH	0.006	< 0.001	< 0.001	0.981	0.958

Data are *p* values calculated with Nemenyi-Wilcoxon-Wilcox all-pairs test. AV50 and AV100 = adaptive statistical iterative reconstruction-V with a blending factor of 50% and 100%, respectively, FBP = filtered back projection, TFL, TFM and TFH = TrueFidelity with low, medium and high strength levels, respectively

Supplementary Table 13. Pairwise Comparison of Overall Quality in Qualitative Analysis (All Patients)

	FBP	AV50	AV100	TFL	TFM
AV50	< 0.001	-	-	-	-
AV100	< 0.001	0.312	-	-	-
TFL	< 0.001	0.951	0.849	-	-
TFM	< 0.001	0.447	0.001	0.073	-
TFH	< 0.001	< 0.001	< 0.001	< 0.001	0.080

Data are *p* values calculated with Nemenyi-Wilcoxon-Wilcox all-pairs test. AV50 and AV100 = adaptive statistical iterative reconstruction-V with a blending factor of 50% and 100%, respectively, FBP = filtered back projection, TFL, TFM and TFH = TrueFidelity with low, medium and high strength levels, respectively