

Follow up Evaluation on Crohn Disease

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History

A 22-year-old female patient, suffering from symptomatic Crohn disease (CD), was sent for an imaging follow up evaluation. TwinBeam Dual Energy (TBDE) CT was performed.

Diagnosis

TBDE images revealed a complex, active, penetrating right lower quadrant CD affecting the distal small bowel and the proximal large bowel.

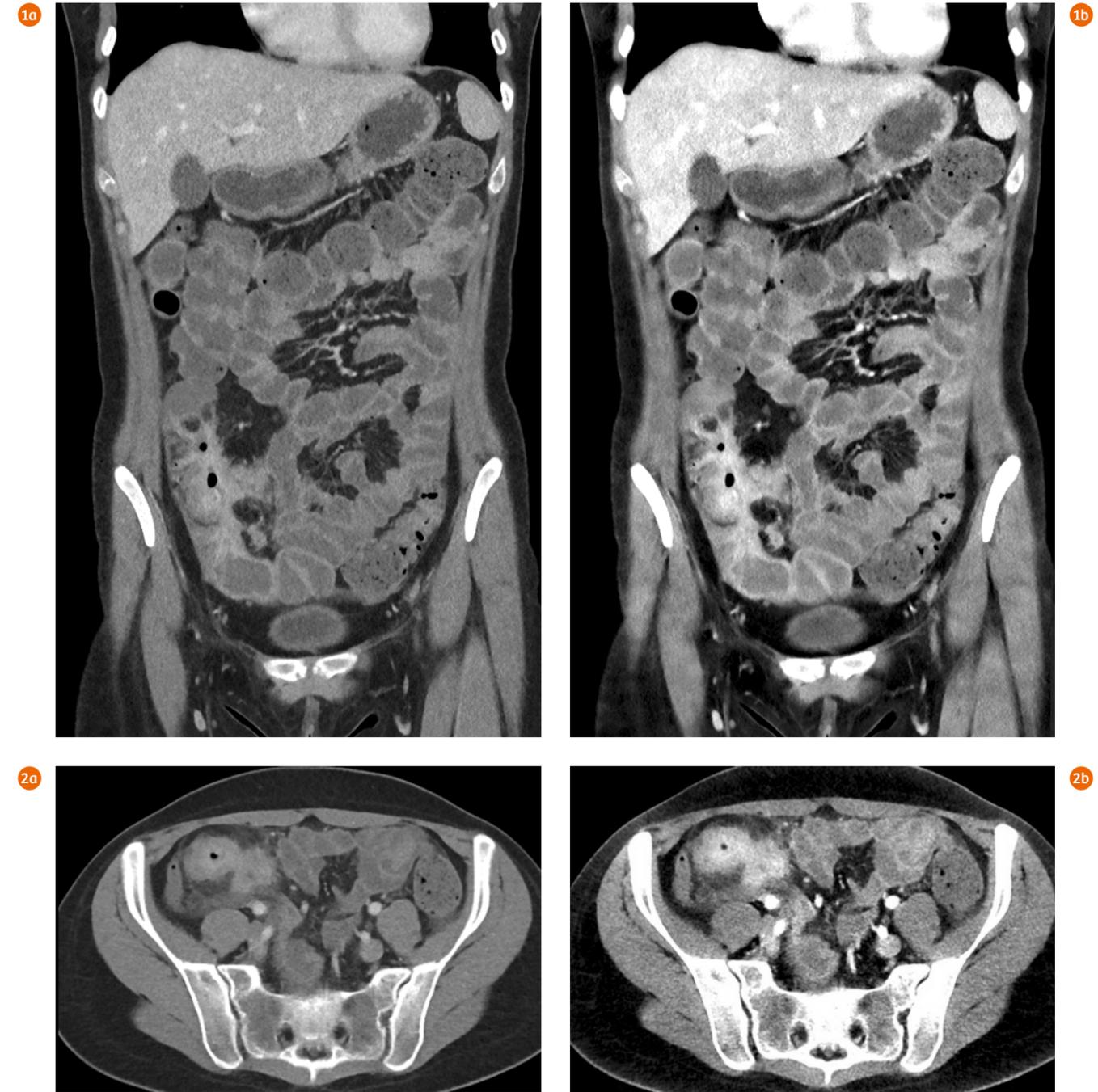
Comments

CT and MR enterography are the procedures of choice for evaluating patient with CD. CT may potentially help the physicians to distinguish between major phenotypes of the disease (active, penetrating, stricturing, quiescent) and depict extra-intestinal complications (fistulae, abscess, obstruction, joint involvement). TBDE allows simultaneous acquisition of high and low kV datasets in a single scan as well as data processing in *syngo*.CT DE Monoenergetic Plus to display images at energy levels between 40 and 190 keV. The image contrast can be significantly

enhanced at lower energy levels, such as in this case – comparing conventional acquisition (Figs. 1a and 2a) with Monoenergetic Plus images at 50 keV setting (Figs. 1b and 2b), the increased conspicuity of regions of higher iodine content as well as the fistulous tracts between the large and small bowel can be immediately depicted, facilitating recognition of the presence of the disease. The image quality remains high despite the 4.18 mSv effective dose, an important consideration in younger patients. ●

Examination Protocol

Scanner	SOMATOM Definition Edge		
Scan area	Abdomen/Pelvis	Rotation time	0.33 s
Scan mode	TwinBeam Dual Energy	Pitch	0.3
Scan length	433 mm	Slice collimation	64 × 0.6 mm
Scan direction	Caudal-cranial	Slice width	0.75 mm
Scan time	12.3 s	Reconstruction increment	0.5 mm
Tube voltage	AuSn 120 kV	Reconstruction kernel	Q40
Effective mAs	288 mAs	Contrast	300 mg/mL
Dose modulation	CARE Dose4D™	Volume	85 mL
CTDI _{vol}	6.16 mGy	Flow rate	2.5 mL/s
DLP	278.6 mGy cm	Start delay	60s
Effective dose	4.18 mSv		



1 2 DE CT enterography conventional (A) and monoenergetic Plus 50 keV (B). Images in coronal (Fig. 1) and axial views (Fig. 2) show a complex, active, penetrating right lower quadrant CD affecting the distal small bowel and the proximal large bowel. Image contrast is significantly enhanced at 50 keV setting.

The outcomes by Siemens' customers described herein are based on results that were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption), there can be no guarantee that other customers will achieve the same results.