

CT Entercolonography Crohn's Disease

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Introduction

Although a number of reports have demonstrated the utility of computed tomography (CT) colonography for diagnosis of colorectal tumor lesions, little has been reported on Crohn's disease, one of the inflammatory bowel diseases. We have investigated the utility of CT for not only colorectal but also ileal lesions of Crohn's disease. We termed a new approach by CT for small and large intestinal lesions as CT Enterocolonography (CTEC). Here we present CTEC images in two cases of Crohn's disease.

Conditions of CT

Soon after colonoscopy, CT was performed in supine and prone positions. A multi-detector row CT (MDCT), GE LightSpeed Plus, was used to acquire the data. The examination protocol used: 120kV, 240mA, 2.5mm collimation, 7.5-mm/sec table speed, pitch of 3:1, and an interval of 1.25mm. The GE Advantage Workstation™ 4.2 running the AdvantageCTC™ software with Virtual 120-Dissection was used for image reconstruction and image analysis. No IV-contrast medium was administered. Orally, we used isotonic magnesium citrate solution (1800ml) added with sodium picosulfate (10ml) for the colonic preparation.

Patient History

The patient was a 26-year-old-male. Endoscopy revealed a longitudinal ulcer at the distal ileum (Fig. 1). The virtual endoscopy procedure exhibited the longitudinal ulcer more clearly than endoscopy (Fig. 2), as did the AdvantageCTC 120-Dissection view (Fig. 3).

Summary

The longitudinal ulcer with trench is a typical sign of Crohn's disease in imaging diagnosis and is clearly demonstrated with the AdvantageCTC endoluminal view (Fig.2), as well as the 120-Dissection view (Fig. 3). In addition to the intracolonic findings, the CT data offers the ability to evaluate and comment on the extracolonic pathology characteristic of Crohn's disease, such as swelling of lymph nodes and increasing fat-tissue densities. Evaluating the image data holistically offers a clearer perspective of the diagnosis as compared to endoscopy.



Figure 1
Endoscopic pictures in Case 1. The distal end of longitudinal ulcer is observed from the orifice of the ileocecal valve.



Figure 2
Virtual endoscopic image in Case 1. Longitudinal ulcer is clearly demonstrated.

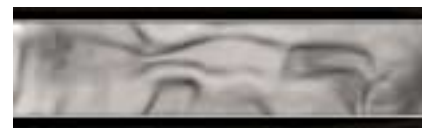


Figure 3
The Dissection view in Case 1. Whole longitudinal ulcer is clearly delineated.

Patient History

The subject was a 16-year-old female. Due to the stricture of the ascending colon, insertion of an endoscope into the cecum was impossible (Fig. 4) and the procedure was aborted. CT Colonography was ordered and the coronal view of the CT data set revealed stricture from the ascending colon to the cecum with remarkable wall thickening (Fig. 5). A Virtual Barium Enema view clearly demonstrated the ileum and stricture from the ascending colon to the cecum (Fig. 6). The 120-Dissection view visualized the ileum as long as 146 cm from the ileocecal valve (Fig. 7). The AdvantageCTC is a non-invasive diagnostic alternative should endoscopy fail due to severe obstructive stricture of the colon.

Conclusion

While the utility of capsule endoscopy and double-balloon enteroscopy has been recommended as a new approach to the evaluation of small intestinal lesions of Crohn's disease, CTEC is expected to be an effective modality and less-invasive procedure to evaluate not only large but also small intestinal lesions of Crohn's disease.



Figure 4
Endoscopic picture in Case 2.
Severe stricture is recognized in
the ascending colon.

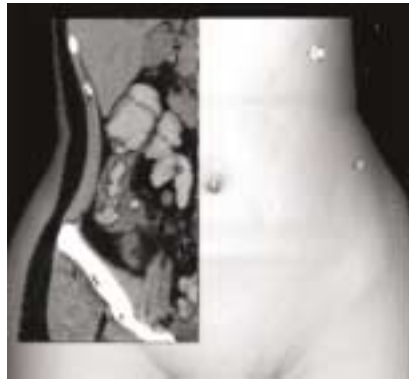


Figure 5
CT image in Case 2 (coronal view).
Stricture from the ascending colon to the
cecum with remarkable wall thickening
is observed (indicated by an arrow).



Figure 6
A Ray-sum view in Case 2. The ileum
and stricture from the ascending colon
to the cecum (indicated by an arrow)
are clearly demonstrated.

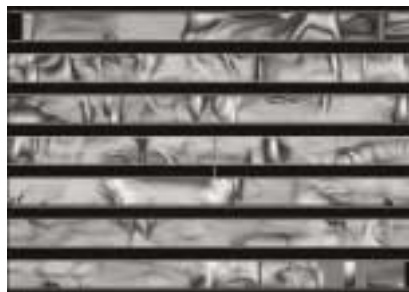


Figure 7
The 120-Dissection view in Case 2. The
ileum is visualized as long as 140 cm
from the ileocecal valve. No lesion is
observed in the ileum.

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