

CASE REPORT

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# Intestinal and peritoneal lymphoma complicating Chron's disease

Basma A. Elged<sup>1</sup> , Rasha Karam<sup>1\*</sup> , Reem Khaled<sup>1</sup>, Eman Omran<sup>2</sup> and Usama Shiha<sup>2</sup>

## Abstract

**Background** Crohn's disease is an inflammatory bowel disease which mostly affects the small intestine. It has a variable clinical course, with alternating attacks of exacerbation and remission. In the last decades, the incidence of Crohn's disease has been increasing, so imaging of those cases has become more important.

**Case presentation** We report a case of a male patient who was treated for Chron's disease in the past three years and presented with abdominal pain. Post-contrast CT abdomen and pelvis was done revealing soft tissue thickening of intestinal walls in a skip fashion with multiple peritoneal deposits. The case was pathologically proven to be anaplastic large cell lymphoma on top of Chron's disease.

**Conclusions** The cause of the association between Crohn's disease and lymphoma is still elucidated. Radiologists should be aware that Chron's disease can be complicated by intestinal and peritoneal lymphoma and should suspect the presence of lymphoma on top of Chron's disease if there is wall thickening of soft tissue attenuation affecting the small bowels in a skipping manner following the areas previously affected by Chron's disease.

**Keywords** Chron's, Inflammatory bowel disease, Lymphoma, CT

## Background

Crohn's disease is an inflammatory bowel disease (IBD) which mostly affects the small intestine, especially the terminal ileum; however, it can affect any segment of the gastrointestinal tract from mouth to anal canal. It has a variable clinical course, with alternating attacks of exacerbation and remission. In the last decades, the incidence of Crohn's disease has been increasing, so imaging of those cases has become more important [1].

## Case presentation

A 52-year-old male patient with a history of Crohn's disease for 3 years (proved by endoscopy and biopsy) on treatment, with a recent history of weight loss, night sweating and low-grade fever presented with abdominal pain and enlargement underwent abdominal US that revealed ascites, peritoneal masses and lymph nodes (LNs) referred for CT abdomen and pelvis (Fig. 1).

A post-contrast CT abdomen and pelvis was done using multidetector computed tomography (MDCT) enterography using a multidetector-row helical CT scanner (Toshiba Aquilion Prime 160 CT). A discontinuous marked circumferential minimally enhancing soft tissue mural thickening of the ileal loops with loss of identification of the normal three layers of the intestinal walls. The affected segments were separated by normal intestinal segments in between in a skip fashion. There were also multiple peritoneal masses implanted on the hepatic surface extending into the fissures as well as GB fossa with subsequent scalloping of liver surface, implanted on the right kidney surface with subsequent scalloping on

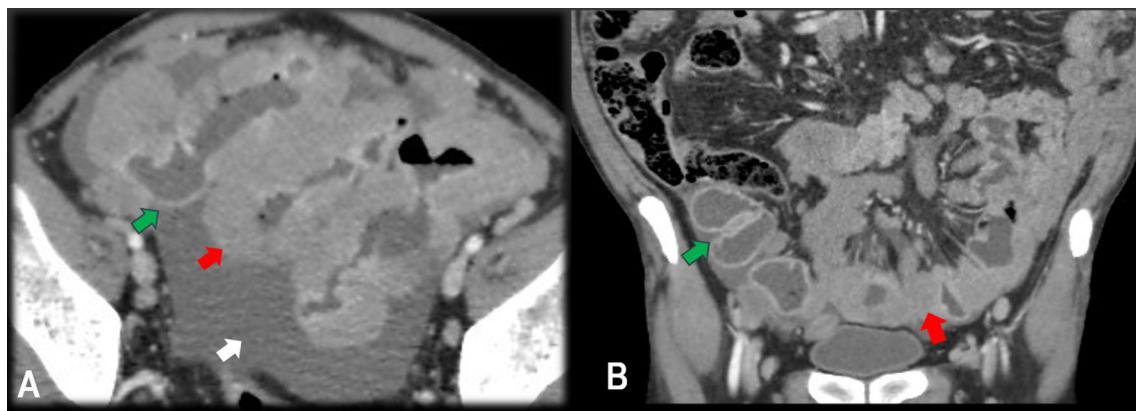
\*Correspondence:

Rasha Karam

rasha90karam@mans.edu.eg; rasha90karam@gmail.com

<sup>1</sup> Diagnostic Radiology Department, Faculty of Medicine, Mansoura University, Elgomhoria St., Mansoura 35516, Egypt

<sup>2</sup> Department of Radiology, Gastro-Intestinal Surgery Centre, Mansoura University, Elgomhoria St., Mansoura 35516, Egypt



**Fig. 1** Lymphomatous intestinal affection: Axial (A) and coronal (B) post-contrast CT lower abdomen and pelvis showing marked irregular circumferential mural thickening of multiple segments of small intestinal loops of soft tissue attenuation (red arrows) with short segments of normal wall thickness in between (skipped segments) (green arrows). Pelvic-free fluid is seen (white arrow)

its surface and scattered in all pelvi-abdominal regions forming discrete and amalgamated masses (high peritoneal index). Multiple enlarged para-aortic, mesenteric LNs and mild ascites were present (Figs. 2 and 3).

Endoscopic guided biopsy from the thickened intestinal walls revealed anaplastic large cell lymphoma on top of Chron's disease.

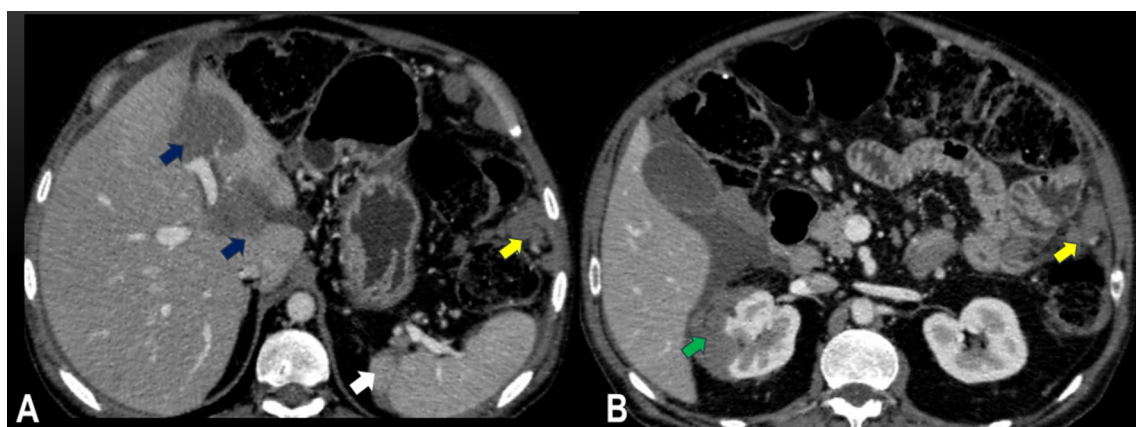
### Discussion

The cause of the association between Crohn's disease and lymphoma is still elucidated. Some studies reported that the development of lymphoma in Chron's patients is secondary to the use of immunosuppressive drugs which cause a drop in patient immunity [2].

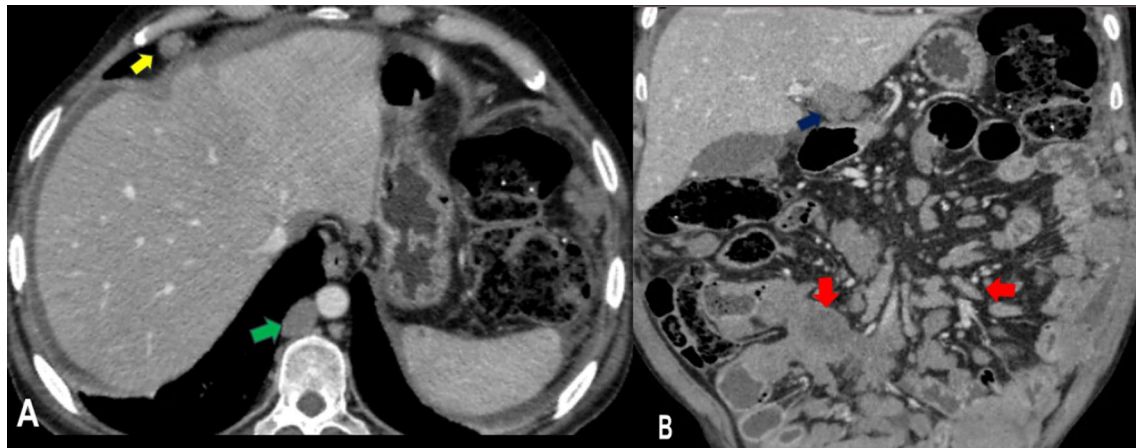
The imaging characteristic of Crohn's disease is the skip lesions, meaning there are segments of normal mucosa between the affected segments [3].

Clinically, small bowel lymphoma has nonspecific symptoms like abdominal pain, nausea, vomiting and weight loss. The imaging findings of small bowel lymphoma include multifocal polypoid intestinal wall masses, homogeneously enhancing circumferential wall thickening with aneurysmal dilatation as lymphoma lacks desmoplastic reaction, with or without associated mesenteric lymphadenopathy [4].

Lymphoma can also affect the peritoneum giving imaging findings similar to those seen in peritoneal carcinomatosis including omental cakes and diffuse nodular peritoneal thickening [5].



**Fig. 2** Lymphomatous peritoneal deposits: Axial (A, B) post-contrast CT abdomen showing multiple variable-sized peritoneal deposits indenting hepatic (blue arrows) and right renal (green arrow) surfaces and scattered nodules in left hypochondrial and lumbar regions (yellow arrows). Note normal-sized spleen with normal parenchymal density (white arrow)



**Fig. 3** Lymphomatous nodal deposits: Axial (A) and coronal (B) post-contrast CT abdomen and pelvis showing multiple variable-sized right epiphrenic (yellow arrow), para-aortic (green arrow), porta-hepatitis (blue arrow) as well as discrete and amalgamated mesenteric (red arrows) LNs

Radiologists should be aware that Chron's disease can be complicated by intestinal and peritoneal lymphoma and should suspect the presence of lymphoma on top of Chron's disease if there is soft tissue density with grey enhancement pattern within the thickened bowel wall with loss of normal triple layers of the bowel wall. The most interesting part about our case which according to our knowledge was not reported before is that the wall thickening seen in our case representing lymphomatous infiltration was found in a skipping manner following the areas primarily affected by Chron's disease (Figs. 2 and 3).

## Conclusions

Intestinal lymphoma is one of the complications of Chron's disease, and when it affects the small bowel loops, it follows the segments primarily affected by Chron's disease and spares the normal segments in between in a skip manner.

## Abbreviations

IBD	Inflammatory bowel disease
US	Ultrasonography
LN	Lymph nodes
CT	Computed tomography
MDCT	Multidetector computed tomography
GB	Gall bladder

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Not applicable.

## Author contributions

All authors have read and approved the manuscript. Study concept and design were proposed by RK and BE. Database search was performed by RK. Pathological report analysis was carried out by RK. Analysis and interpretation of data and drafting of the manuscript were done by BE. Revision of the manuscript was performed by EO and US. Technical or material support was given by EO and US.

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## Availability of data and materials

All data generated or analyzed during this study are included in this published article.

## Declarations

### Ethics approval and consent to participate

The study was approved by our institution's ethics committee (Mansoura Faculty of Medicine Institutional Research Board), A written informed consent was obtained from the patient included in the study.

### Consent for publication

The participants in the study were informed and consented to the possibility of research publication. Authors hereby transfer, assign or otherwise convey all copyright ownership to the *Egyptian journal of radiology and nuclear imaging* if such work is published in that journal.

### Competing interests

The authors declare that they have no conflict of interest.

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