

# A Case of Peritoneal Lymphomatosis Diagnosed with Ultrasound Imaging

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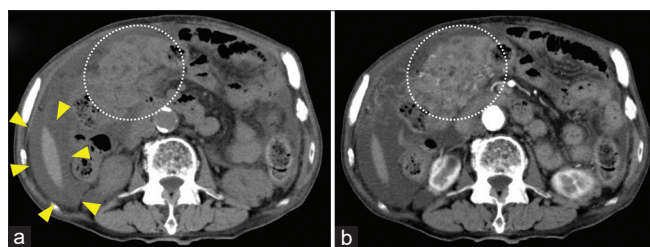
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Dear Editor,

Peritoneal lymphomatosis is a rare pathological condition of non-Hodgkin's lymphoma with diffuse tumor invasion of the peritoneum and omentum and a large volume of ascites. Herein, we report a case of peritoneal lymphomatosis diagnosed in a patient with prior history of advanced gastric cancer.

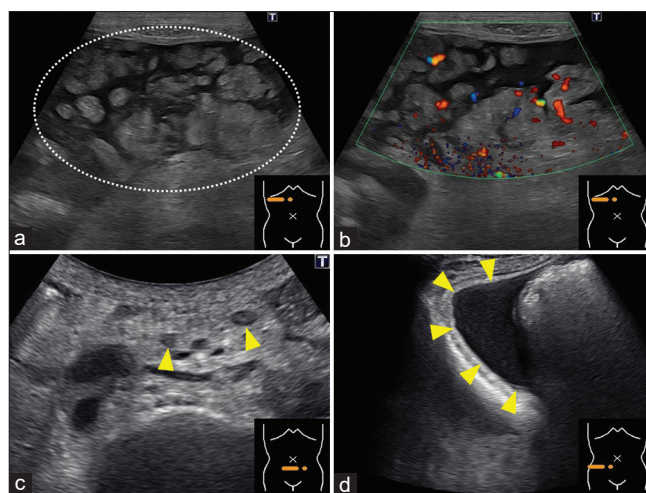
An 80-year-old male underwent an open total gastrectomy for advanced gastric cancer in August 2013. The patient was admitted to our hospital in August 2020 after a computed tomography (CT) scan revealed an abnormality in his abdominal cavity. Tumor markers yielded slightly increased carcinoembryonic antigen levels at 9.8 ng/ml and abnormally high soluble interleukin-2 receptor levels at 2829 U/ml.

Plain CT revealed soft tissue and ascites accumulation in the transverse mesocolon, and peritoneal dissemination was suspected [Figure 1a]. Contrast-enhanced CT showed that the soft tissue images were heterogeneously enhanced in the



**Figure 1:** Computed tomography findings. (a) Soft tissue image of the transverse mesocolon (dotted circles) and ascites (arrows). (b) Contrast-enhanced computed tomography showing that the soft tissue images are heterogeneously enhanced in the arterial phase (dotted circles)

arterial phase [Figure 1b]. No other nodular lesions or obvious primary malignancies were noted. Ultrasonography (US) revealed a nonuniform cobblestone appearance with high echoes, consistent with the areas noted on CT [Figure 2a]; color Doppler showed an abundant blood flow signal in the hypoechoic region [Figure 2b]. Lymph nodes (diameters approximately equal to 10 mm) in the para-aortic and mesenteric regions [Figure 2c] and a moderate volume of particulate ascites were also observed [Figure 2d].



**Figure 2:** Ultrasound findings. (a) Peritoneal thickening with nonuniform cobblestone appearance (dotted circles). (b) Blood flow signal in the hypoechoic region. (c) The lymph nodes have sizes, which were approximately equal to 10 mm in the para-aortic and mesenteric regions (arrows). (d) Moderate volume of particulate ascites (arrows)

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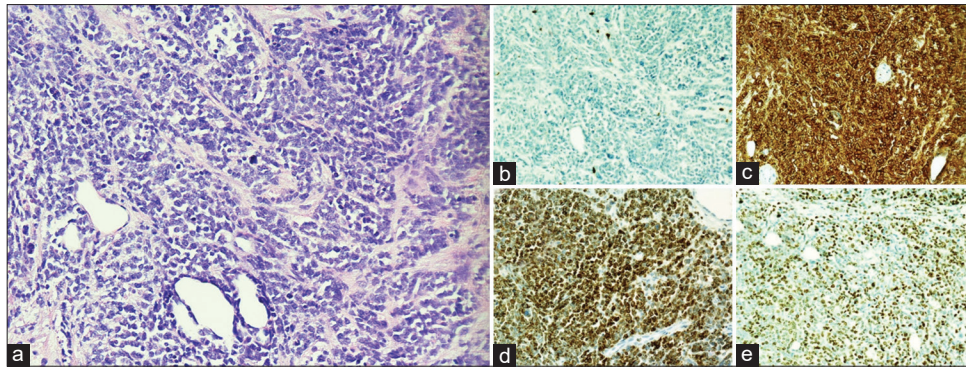
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**Figure 3:** (a) Pathological examination staining show a patternless proliferation of atypical cells with weak adhesion characteristics (H and E stain). Aberrant cells are negative for CD3 (b) and positive for CD20 (c), BCL2 (d), and BCL6 (e). Histological diagnosis was diffuse, large B-cell lymphoma (non-GC type)

Based on the diagnostic imaging and tumor marker results, peritoneal lymphomatosis was suspected, and an open tissue biopsy was performed to confirm the diagnosis. Histopathological examination showed patternless proliferation of poorly adherent atypical cells, and immunohistochemical examination results were negative for CD3 and positive for CD20, BCL2, and BCL6. Based on these findings, the patient was diagnosed with diffuse, large B-cell lymphoma (non-GC type) [Figure 3].

Peritoneal lymphomatosis is a frequent, highly malignant histological finding, and diffuse, large B-cell lymphoma is the most frequently reported pathological finding.<sup>[1]</sup> Note that in the present case, preoperative ultrasound-guided biopsy was not performed, but it may be useful to confirm the pathology.

CT imaging has identified the presence of ascites (without encapsulation), linear, or nodular peritoneal thickening, invasion of the mesentery and omentum, thickening of the intestinal wall, enlarged retroperitoneal lymph nodes, and invasion of the liver and spleen. However, there are few findings specific to this disease, and it is difficult to distinguish it from diseases that present findings associated with peritoneal thickenings, such as cancerous peritonitis, tuberculous peritonitis, diffuse mesothelioma, primary serous papillary adenocarcinoma of the peritoneum, and pseudomyxoma of the peritoneum.<sup>[1-3]</sup>

Previous studies of the US images have reported that this pathology is indistinguishable from diffuse carcinomatosis.<sup>[4]</sup> The US image of this case showed the presence of ascites with moderate volumes, thickening of the peritoneum with relatively abundant blood flow signals, and enlarged retroperitoneal lymph nodes. These findings initially led us to suspect the

presence of cancerous peritonitis as the patient had undergone surgery for advanced gastric cancer. However, this case yielded a nonuniform cobblestone appearance in the echo image, which was different from the thickened findings of the disseminated nodules and omental cakes observed in cancerous peritonitis. Therefore, the present US findings support the suspicion of peritoneal lymphomatosis.

#### Declaration of patient consent

The authors certify that they have obtained patient consent. In the consent form, the patient has consented for publishing his images and other clinical information in the journal. The patient understands that the patient's name and initials will not be published, and due efforts will be made to conceal the identity; however, anonymity cannot be guaranteed.

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Nil.

#### Conflicts of interest

There are no conflicts of interest.

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