CT and MR imaging features of diffuse lipomatosis of the abdomen

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Dear Editor,

Diffuse infiltrating lipomatosis (DIL) is a rare entity characterized by massive proliferation and accumulation of mature, non-encapsulated adipose tissue with an extensive infiltrative pattern [1]. Diffuse lipomatosis of the neck, face, trunk, mediastinum, extremities, abdomen, pelvis and the gastrointestinal (GI) tract have been described before [2]. However, involvement of GI tract and abdominal cavity together is an extremely rare condition. Herein, we report DIL of the colon and abdominal cavity, including peritoneal space and present the imaging findings of this rare condition.

A 63-year-old man presented with constipation, weight loss and arthralgia of one-year duration. Physical examination was unremarkable, except for symmetric joint tenderness. Results of blood tests revealed high erythrocyte sedimentation rate and C-reactive protein levels. Rheumatologic diseases and vasculitis were thus considered as possible diagnoses. Computed tomography (CT) examination obtained after intravenous administration of iodinated contrast material and CT angiography were initially performed for suspected vasculitis. CT angiography features were not consistent with vasculitis. However, CT images revealed diffuse fatty infiltration of the abdomen, including the pelvis and the left side of peritoneal cavity with displacement of small intestinal loops to the right side of the abdomen (Fig. 1). There was intramural and submucosal extensive fatty infiltration with a diffused narrowing of the lumen, extending from transverse colon to rectum with sparing of retroperitoneal space and the right hemi-colon. Magnetic resonance (MR) imaging by using a 1.5T unit (Magnetom Avanto®; Siemens Healthcare, Erlangen, Germany) with an 8-channel head coil was performed to evaluate the extension of the lesions. The MR imaging protocol included transverse T2-weighted HASTE imaging (TR/TE, 1110/108 ms); transverse T1-weighted VIBE imaging (TR/TE, 4.7/2.4 ms) and transverse T1-weighted fat-suppressed (TR/TE, 4.7/2.4 ms) imaging. On fat-suppressed MR images, the signal intensity of the lesions completely decreased consistent with the fatty nature (Fig. 2). Positron emission tomography/computed tomography (PET/CT) scan showed no uptake of ¹⁸F-fluorodeoxyglucose. Histopathological analysis of biopsy specimens of the peritoneal mass using a 14-Gauge needle and endoscopic biopsy of the colonic submucosal layer revealed adipose tissue without any signs of malignancy, supporting the diagnosis of DIL.

DIL is a term used to describe the overgrowth of mature adipose tissue with a lack of encapsulation. This entity is composed of mature adipocytes, which cannot be histologically differentiated from normal fat [3]. DIL can affect several anatomical parts, such as the neck, face, trunk, mediastinum, extremities, abdomen, pelvis and GI tract [2]. Abdominal and intestinal lipomatosis are two different clinical entities. Abdominal lipomatosis is a variant of multiple symmetrical lipomatosis and is defined by an extensive infiltrative accumulation of non-encapsulated adipose tissue in the intraperitoneal and/or retroperitoneal space [4]. However, intestinal lipomatosis has been used to describe the presence of diffuse, well-defined intramural hypoattenuating areas with attenuation values between -80 and -120 HU [5]. There is no predilection site for intestinal lipomatosis, but the colon is one of the places that can be involved by this disorder. The etiology of DIL is still unknown, however metabolic abnormalities, alcohol abuse, polyneuropathy and malignancies have been described as possible causes [4]. Although, the majority of the cases are asymptomatic, the most common symptoms are non-specific abdominal pain, bladder dysfunction, diarrhea, constipation, bleeding (intestinal lipomatosis), abdominal distension and edema [6]. CT is an excellent imaging modality to evaluate lipomatosis of abdomen and GI tract. The major imaging finding of colonic lipomatosis on CT is a diffuse infiltration of the submucosa or intramural layer by mature adipose tissue without tumor formation. However it may extend to the serosa and mesentery [5]. On CT, DIL of the abdomen has been seen as widespread, infiltrative and non-encapsulated fatty mass that has a density equal to that of the normal adipose tissue. It can originate from the retroperitoneal space or peritoneal cavity or both of them and can cause the displacement of intra-abdominal organs. The major differential diagnosis is liposarcoma and diagnosis can be difficult. Liposarcomas generally are poorly marginated, inhomogeneous and invasive tumors that have a higher density than the normal adipose tissue and have various amounts of solid components within.

In conclusion, DIL of the colon and abdominal cavity together is an extremely rare condition. Nevertheless, imaging findings of these entities are good indicators for
reaching diagnosis, and radiological assessment can give useful information about the size, extension and location of the lipomatosis additionally.

**Disclosure of interest**

The authors declare that they have no competing interest.

**References**


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