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Extragastrointestinal stromal tumor of lesser omentum: a challenging radiological and histological diagnosis☆

Claudia Trombatore [a,*], Stefano Palmucci [a], Giuseppe Angelico [b], Enrico Vasquez [b], Giuseppe Petrillo [a], Stefano Puleo [c], Antonio Di Cataldo [c]

[a] Radiodiagnostic and Radiotherapy Unit, University Hospital "Policlinico-Vittorio Emanuele", Catania, Italy
[b] G. F. Ingrassia Department, Section of Anatomic Pathology, University Hospital "Policlinico-Vittorio Emanuele", Catania, Italy
[c] Department of Surgical Sciences, Organ Transplantation and Advanced Technologies, University Hospital "Policlinico-Vittorio Emanuele", Catania, Italy

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ABSTRACT

Extragastrointestinal stromal tumors (EGISTs) are a rare subgroup of gastrointestinal stromal tumors (GISTs), arising from outside the walls of gastrointestinal tubular organs. We report a case of an EGIST of the lesser omentum that represented a diagnostic challenge. Due to its atypical radiologic findings, it was preoperatively mistaken for pedunculated hepatic hemangioma. Histopathologically, it showed epithelioid structure and c-kit negative, very uncommon for GIST. Only a few cases of EGISTs have been previously reported. We discuss imaging and histological features, emphasizing potential pitfalls.

1. Introduction

Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal neoplasms of the digestive tract. Extragastrointestinal stromal tumors (EGISTs) are a rare subgroup displaying no connection to the walls of the gastrointestinal tubular organs. They are usually located in the omentum or in the mesentery and account for 5–10% of all GISTs [1].

Although EGISTs seem to display morphological and phenotypic similarities with GISTs, their clinical, radiological, and histological characteristics are not yet widely known.

2. Clinical features

A 69-year-old woman presented to our hospital due to an uncertain liver lesion discovered during an ultrasound examination performed because she lamented a mild sense of weight in the epigastric region.

No significant pathologies were referred within her anamnesis.

Liver function tests were normal and hepatitis viral markers were negative.

3. Imaging features

Ultrasound images were not available for evaluation because the exam was performed outside of our institution. In order to characterize the suspected lesion, a *computed tomography (CT) scan* was required.

CT was performed using a 64-slice scan (GE Optima 660). The study included the entire abdomen, from diaphragm to pelvis, and images were acquired before and after iv injection of a nonionic contrast material (Iomeron 350; Bracco Imaging spa, Italy). Contrast was administered using a dual-head injector at the flow rate of 4 ml/s; enhanced scan was acquired with SmartPrep system (GE Medical Systems). We obtained a dynamic study with arterial, portal (60 s after the contrast injection), and delayed (180 s) phases.

CT images showed a large mass (diameter of about 7 cm) located along the inferior margin of the left hepatic lobe, with an exophytic growth pattern, developing toward the lesser omentum until the gastric small curvature and the antrum–duodenum region. The lesion was highly vascularized, with a slowly progressive filling in the later stages of the dynamic study (Fig. 1).

Hoping to better evaluate the relationship between the mass and liver and, above all, its internal structure, we choose to perform a *magnetic resonance imaging* (MRI).

We used a 1.5-T scanner (Signa HDxt; GE Healthcare) with an eight-channel phased-array coil. The study protocol included axial breath-hold fast spoiled gradient echo (FSPGR) T1-weighted in-and-out phase imaging, coronal and axial breath-hold steady-state free precession images, axial and coronal breath-hold fat-suppressed fast spin echo T2-weighted sequence, and axial respiratory-triggered diffusion

☆ Conflicts of interest: none.

* Corresponding author. University Hospital "Policlinico-Vittorio Emanuele", via S. Sofia 78, 95123 Catania, Italy. Tel.: +39-3388475798.
E-mail addresses: claudiatr84@libero.it (C. Trombatore), spalmucci@sirm.org (S. Palmucci), giuangel86@hotmail.it (G. Angelico), vasquez@unict.it (E. Vasquez), pucciopetrillo@hotmail.com (G. Petrillo), spuleo@unict.it (S. Puleo), dicataldoa@tiscali.it (A. Di Cataldo).

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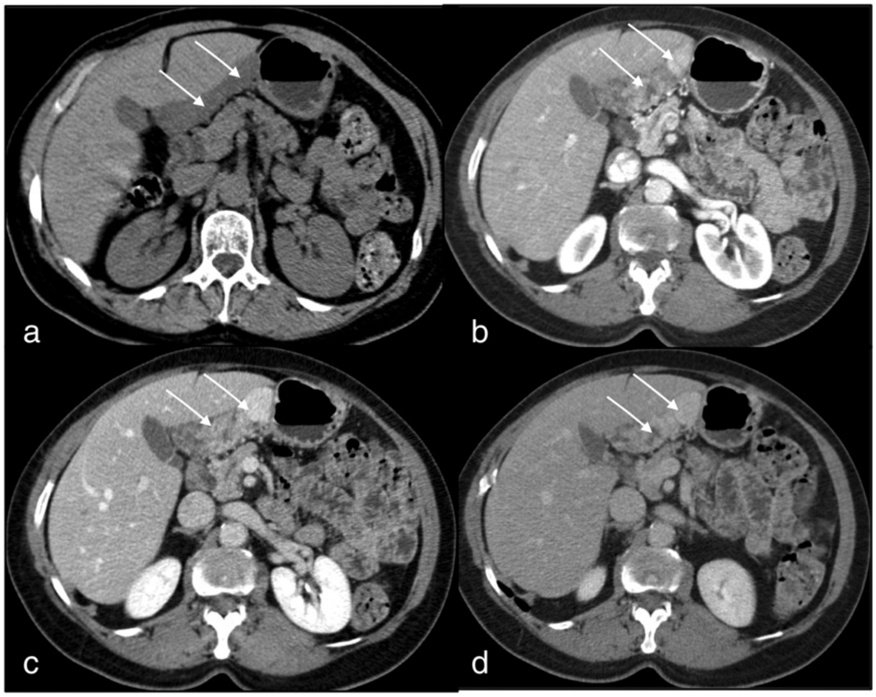

Fig. 1. CT examination. The axial images acquired before (a) and after iv administration of the contrast medium—respectively in arterial (b), portal (c), and delay (d) phases—show a large mass (arrows) along the inferior margin of the left hepatic lobe, characterized by a slowly progressive filling, without any necrotic or hemorrhagic areas.

weighted imaging with multiple *b*-values (50, 400, and 800). Finally, unenhanced and gadolinium-enhanced MRI images were obtained using a multiphase three-dimensional FSPGR T1-weighted sequence.

MRI images showed a multilobulated mass, with hyperintense signal on T2-weighted sequences (Fig. 2); no signal drop was observed in "out-of-phase" acquisition or after fat suppression. No signal restriction was depicted on apparent diffusion coefficient map, created on a dedicated workstation. A progressive heterogeneous enhancement—after gadolinium injection—was observed during the dynamic phases.

The dubious morphology of the mass suggested that we should perform a *diagnostic abdominal angiography* to evaluate its vascularization. According to Seldinger technique, through a right femoral access, we placed a 5-F Cobra catheter (C1) within the origin of the celiac artery. The selective angiogram showed a common trifurcation of the tripod.

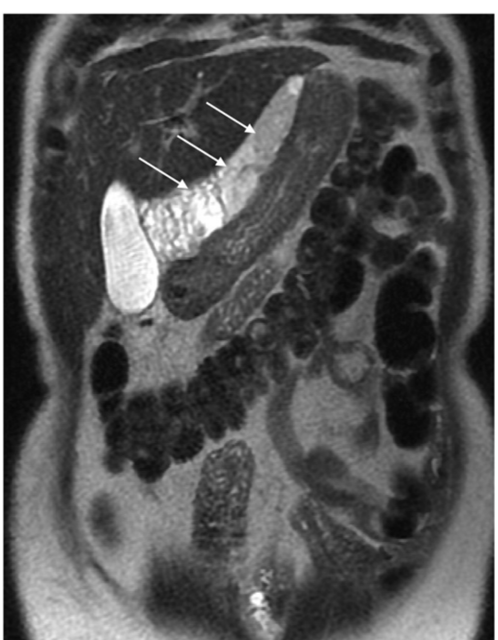

Fig. 2. MRI examination. The coronal T2-weighted image shows a multilobulated mass (arrows), located between the inferior part of the liver lobe and the small gastric curvature; the hyperintense signal is similar to that of a lymphangioma.

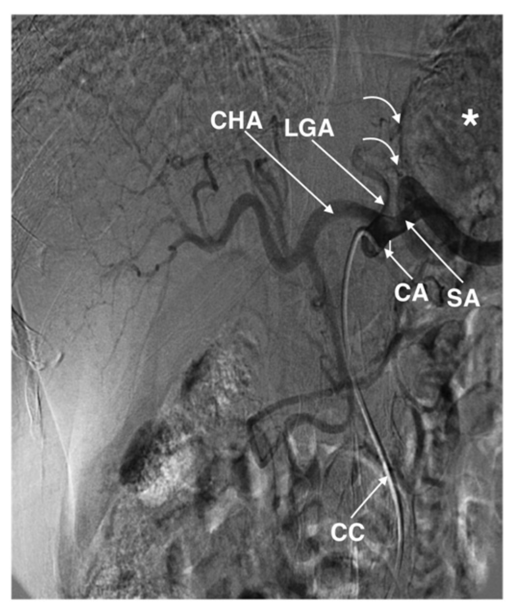

Fig. 3. Abdominal angiography. The selective evaluation of the celiac trunk, performed using a Cobra catheter, shows that the cranial part of the mass (asterisk) receives some feeding vessels (curved arrows) directly from the left gastric artery. This sign probably could suggest the correct diagnosis of a primitive tumor of the lesser omentum (CC, Cobra catheter; CA, celiac artery; LGA, left gastric artery; CHA, common hepatic artery; SA, splenic artery).