Focal fat infarction of the falciform ligament
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Section: Abdominal imaging
Area of Interest: Abdomen
Procedure: Diagnostic procedure
Imaging Technique: CT
Special Focus: Acute Case Type: Clinical Cases
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Patient: 32 years, male

Clinical History:
A 32-year-old man with no remarkable medical history was admitted to the emergency room for an severe epigastric pain of acute onset associated with nausea and vomiting. No fever was noted. Mild guarding was seen at epigastrium. Laboratory tests were normal including acute phase reactants and serum amilases and lipases.

Imaging Findings:
Contrast-enhanced computed tomography was performed with the clinical suspicion of gastroduodenal perforation. It revealed an oval area of fat attenuation surrounded by a thin peripheral rim with a central linear dot of high attenuation in the lower part of the falciform ligament, the ligamentum teres hepatis. CT also showed periportal and gallbladder wall oedema as well as a small amount of free fluid in rectovesical space. No pneumoperitoneum or fluid collections were found.

Discussion:
The falciform ligament attaches the liver to the anterior body wall, and separates the left lobe into lateral and medial segments. It is formed by two layers of peritoneum and contains a variable amount of extraperitoneal fat along with the remnants of the umbilical vein and the ligamentum teres in its free edge. [1]

Torsion of the falciform ligament or of a lipomatous appendage of the falciform ligament is very rare, with less than 20 case reports described on imaging. [2, 3] It is part of the spectrum of intra-abdominal focal fat infarction (IFFI), [4, 5] that commonly involves epiploic appendages or greater omentum, and rarely other locations like perigastric ligaments (gastrohepatic, gastroplenic and falciform). All of them are characterised by the presence of fatty tissue necrosis and share the same clinical presentation, physiopathology, imaging findings, prognosis and treatment, with different location and size.

Like other fatty appendages, the fatty appendages of the ligamentum teres have a fragile blood supply. When they twist, kink, or stretch transiently or permanently, the efferent vein may become thrombosed, giving rise to haemorrhagic infarction. [5]

Patients present with abdominal pain and rebound tenderness that correlates with the location of the infarcted fat appendage, usually in epigastrium in the case of falciform ligament. Despite of severe pain, laboratory tests are
usually normal or with mild inflammatory changes. Clinical suspicion is usually gastroduodenal pathology, acute pancreatitis and cholecystitis. [3]

At sonography it appears as an oval echogenic, non-compressible mass at the point of maximal tenderness. [6] Sonography may be useful to demonstrate that the lesion does not move with breathing, due its superficial extraperitoneal nature. [5] Blood flow is typically absent on colour Doppler unlike other inflammatory conditions. The most common CT feature is an oval area of heterogeneous fat attenuation surrounded by a ring of soft tissue (hyperattenuating rim sign) that represents adjacent inflamed peritoneum, sometimes with a central area of high attenuation (central dot sign) due to venous thrombosis, associated to adjacent inflammatory changes. [6]

The course is usually self-limited with spontaneous resolution. [4] Management is conservative with symptomatic treatment, although many of cases have been discovered in surgery. [1, 7, 8, 9]

CT is the imaging method of choice to identify this condition and exclude other diagnosis. So, it is important that radiologists know the entity and recognise the typical imaging findings of IFFI in a-typical locations like falciform ligament in order to avoid unnecessary interventions.

Written informed patient consent for publication has been obtained.

**Differential Diagnosis List:** Focal fat infarction of the falciform ligament., Lipoma of the falciform ligament, Epiploic appendagitis

**Final Diagnosis:** Focal fat infarction of the falciform ligament.

**References:**


**Description:** Contrast-enhanced CT shows an ovoid lesion of fat attenuation surrounded by a thin hyperattenuating rim (arrow) with a central dense dot arising in the teres ligamentum of the falciform ligament. **Origin:** E Martínez Chamorro, Department of Radiology, Hospital Universitario 12 de Octubre, Madrid, Spain.
**Description:** Note that the lesion has a slightly higher attenuation than non-involved fat. **Origin:**
E Martinez Chamorro, Department of Radiology, Hospital Universitario 12 de Octubre, Madrid, Spain.
Description: Sagittal CT reconstruction depicts the anatomical location of the infarcted fatty appendage in the ligamentum teres hepatis and shows the linear morphology of the central hyperdensity. **Origin:** E Martinez Chamorro, Department of Radiology, Hospital Universitario 12 de Octubre, Madrid, Spain.
**Description:** Coronal CT reconstruction displays an oval fat lesion with central linear structure outlined by a hyperattenuating rim in the ligamentum teres hepatis. **Origin:** E Martínez Chamorro, Department of Radiology, Hospital Universitario 12 de Octubre, Madrid, Spain.