Fitz Hugh Curtis syndrome
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Section: Genital (female) imaging
Area of Interest: Genital / Reproductive system female
Abdomen Liver
Procedure: Contrast agent-intravenous
Imaging Technique: CT
Special Focus: Inflammation Case Type: Clinical Cases
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Patient: 20 years, female

Clinical History:
A young woman, sexually active, presented to the emergency room due to vaginal secretions, pelvic pain and sharp right upper abdominal pain at the rib margin, which worsened on respiration. Laboratory data showed an increase of the white blood cell count and the C-reactive protein values.

Imaging Findings:
Abdominal sonography showed the presence of peritoneal effusion and a heterogeneous mass lesion in the right iliac fossa, probably of inflammatory origin. Caecal appendix and right ovary were not discernible. Left ovary was normal.
US showed no other significant finding such as gallbladder or renal stones, biliary dilatation or fatty liver.
Contrast-enhanced CT of the abdomen followed, including arterial and portal phase. CT showed a multicystic right adnexal mass lesion, separate from the ipsilateral ovary. The lesion was tortuous and elongated, with thick, contrast-enhancing walls, filled with complex fluid and a fluid-fluid level. The findings were suggestive of a pyosalpinx. Both ovaries were normal. In addition CT evidenced linear contrast enhancement of the anterolateral surface of the right hepatic lobe in the arterial phase.

Discussion:
Imaging findings were suggestive of pelvic inflammatory disease (PID) associated with focal perihepatitis. Fitz Hugh Curtis syndrome (FHCS) was proposed by Curtis in 1930 as a rare clinical condition, with accompanying PID, characterized by inflammation of the perihepatic capsule, without involvement of the hepatic parenchyma. The perihepatitis evolves to fibrous adhesions, also called a "violin-string appearance", between the surface of the liver and the abdominal wall [1].
This syndrome has been reported between 4% and 27% of patients with PID [2]. Currently C. trachomatis is considered the main causative pathogen, although in the past it was more frequently associated with gonococcal infections [3].
The typical symptoms are abdominal pain, which can be severe on respiration, fever and urinary symptoms, such as frequency and residual sensation [4].
FHCS can be classified into acute phase and chronic phase according to the pathologic changes of perihepatitis. Acute clinical phase is characterized by exudative inflammation of the hepatic surface, capsular congestion, oedema, punctuate haemorrhage and fibrinous exudation. In the chronic phase, local or diffuse thickening of the hepatic capsule and adhesions between the surface of the liver and the abdominal wall can be observed [5, 6].
Hepatic capsular enhancement due to increased blood flow or inflammation at the hepatic capsule has been reported as a pathognomonic sign of the acute phase of FHCS on contrast-enhanced CT [4, 6]. For this reason arterial phase scan can significantly increase the sensitivity and the accuracy of diagnosing FHCS. The persistence of capsular enhancement on the delayed images may reflect early events in capsular fibrosis. Other CT findings of this entity are the following: thickening of the hepatic capsule, large loculated perihepatic fluid collection, transient hepatic attenuation difference and gallbladder wall thickening. Some authors classified the thickening of hepatic capsule in following types: local type (length < 5 cm) or diffuse type (length >5 cm), depending on the extent, and string type (capsular thickness of 1–2 mm), broadband type (≥3 mm for capsular thickness) and mixed type (including string type and broadband type) in terms of the appearance [7].

**Differential Diagnosis List:** Fitz Hugh Curtis syndrome, Ovarian mass, Appendicitis, Cholecystitis, Renal colic

**Final Diagnosis:** Fitz Hugh Curtis syndrome

**References:**


Description: Arterial phase of dynamic CT scan shows linear contrast enhancement of the hepatic margin (arrow) due to inflammation of the perihepatic capsule. Liver parenchyma is normal. Origin: Department of Radiology IRCCS S.Martino-IST Genova, Italy.
Figure 2

Description: Arterial phase of dynamic CT in coronal plane. Same findings as in Figure 2. Origin: Department of Radiology, IRCCS S.Martino-IST, Genova, Italy.
Figure 3

Description: Contrast-enhanced CT scan (portal phase) shows uterus (blue arrow), ovaries (red arrows) and the dilated right fallopian tube with thick walls and lumen filled with fluid (green arrow).

Origin: Department of Radiology, IRCCS S.Martino-IST, Genova, Italy.
Description: Coronal CT scan reveals both hepatic marginal enhancement and right pyosalpinx (arrows) in the setting of PID. Origin: Department of Radiology IRCCS S.Martino IST Genova Italy.
Figure 5

Description: In the video, a small amount of fluid in the Douglas space was also detected, with peritoneal contrast enhancement. Origin: Radiology Department IRCCS S: Martino IST Genova, Italy.