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Fitz-Hugh–Curtis syndrome revealed by a suspected cholecystitis: A case report

Kaoutar Imrani, Souad Maher, VA Blata, Khadija Benelhosni, Ittimade Nassar

ABSTRACT

Fitz-Hugh–Curtis syndrome is characterized by inflammation of the liver capsule following the spread of a pelvic starting point infection. The most commonly involved germ is *Chlamydia trachomatis*. The clinical presentation can be misleading and simulate cholecystitis or other cause of pain in the right hypochondrium. In imaging, it results in a contrast enhancement characteristic of the hepatic capsule at portal time.

Keywords: Fitz-Hugh–Curtis, Pelvis, Perihepatitis

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INTRODUCTION

Fitz-Hugh–Curtis syndrome (FHCS) is a clinical presentation that associates adnexitis with perihepatitis. The most common cause was a gonococcal infection but currently *C. trachomatis* is more and more involved [1].

The inflammation of the hepatic capsule results from ascending infection from the pelvic cavity causing right abdominal pain accentuated while inspiration. Differential diagnosis includes cholecystitis, pneumonia, renal colic, perforated ulcer, and pulmonary embolism [1, 2].

We report the case of a patient admitted for suspicion of cholecystitis who presented the Fitz-Hugh–Curtis syndrome secondary to salpingitis. The aim of this article is to demonstrate the challenge in the diagnosis and imaging findings that confirm the diagnosis.

CASE REPORT

A 38-year-old female patient admitted to the emergency department complaining for pain in the right hypochondrium, which had been moving for four days in a feverish context (fever at 38.5 °C). Clinical examination showed sensitivity in the right hypochondria with a positive Murphy sign. Biologically, the patient had leukocytosis predominantly neutrophils (white blood cells = 14,000/mm^3) with a positive C reactive protein at 80 mg/L and a biological assessment of the liver that revealed cytolysis (alanine aminotransferase = 250 IU/L, aspartate aminotransferase = 350 IU/L) without cholestasis (total bilirubin = 0.1 mg/dL). The diagnosis of cholecystitis had been suspected. An abdominal ultrasound was performed in this setting. It showed a normal sized liver with regular contours and perihepatic effusion. The gallbladder was thin-walled, alithiasic. There was no dilatation of the intra and extra hepatic bile ducts.

Hepatic magnetic resonance imaging (MRI) showed anterolateral hepatic capsular enhancement and focal enhancement of the adjacent subcapsular parenchyma (Figure 1). It also revealed a perihepatic effusion slide (Figure 2).

In view of this clinical picture and given the focal enhancement of the liver capsule, Fitz-Hugh–Curtis

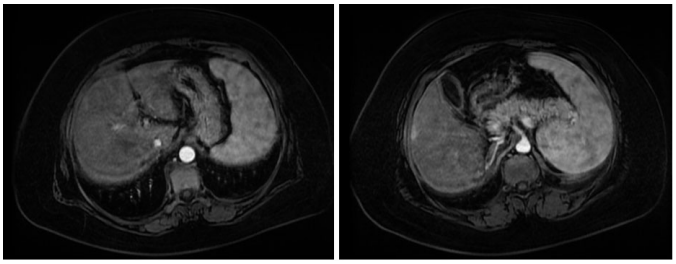

Figure 1: Axial MRI cuts, in T1-weighted sequence after dynamic gadolinium injection, showing a linear enhancement of the hepatic capsule of the predominant right lobe at its anterolateral and inferior part (arrows). It is associated with an extensive enhancement to subcapsular parenchyma (arrowheads).

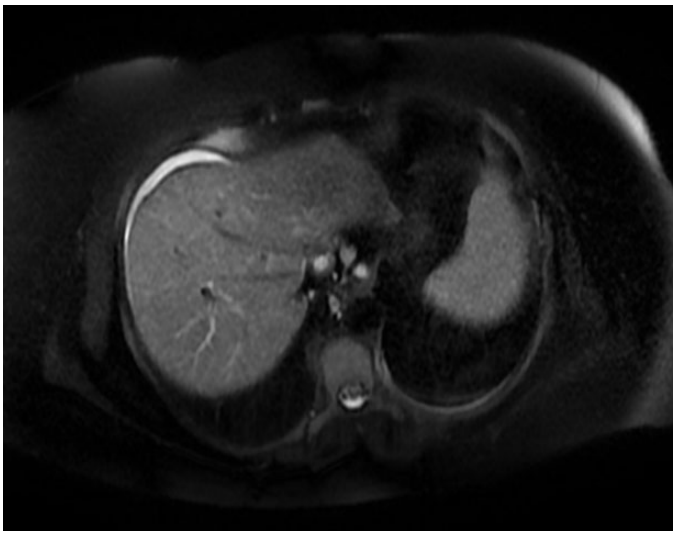

Figure 2: Axial T2-weighted hepatic MRI showing a perihepatic effusion slide (asterisk).

syndrome has been suggested. The interrogation was resumed and revealed a notion of fetid leucorrhea in the patient. The existence of a pelvic infection was confirmed by the detection of *C. trachomatis* on endocervical cultures. The diagnosis of perihepatitis of venereal origin was then retained. Oral antibiotic therapy with doxycycline was initiated in combination with analgesic therapy. She received doxycycline 100 mg twice a day for 14 days. The patient was seen four weeks later and she was in a good clinical condition.

DISCUSSION

Chlamydia infection is associated with a wide range of upper genital tract pathologies, ranging from endometritis to salpingitis, tubo-ovarian abscess, peritonitis. Fitz-Hugh–Curtis syndrome is a perihepatic inflammation related to a sexually transmitted infection (STI), described for the first time by Curtis, and a few years later by Fitz-Hugh [2].

It is characterized by acute perihepatitis secondary to inflammatory pelvic disease and is characterized by acute abdominal pain in the right hypochondrium. The most commonly implicated organisms are *C. trachomatis* and *Neisseria gonorrhoae*, although 30–40% of cases are polymicrobial. Inflammation of the hepatic capsule results from the spread of infection from the pelvis through the right parieto-colic gutter or lymphatic system. Inflammation of the liver capsule causes pain in the right hypochondrium, aggravated by deep breathing or coughing. Other associated signs are fever, vomiting, and leucorrhea.

The diagnosis of Fitz-Hugh–Curtis syndrome can sometimes be difficult because the clinical picture can mimic cholecystitis, perforated ulcer, renal colic, or pneumonia [2–4].

Since Fitz-Hugh–Curtis syndrome is a benign condition, noninvasive diagnostic means should be favored. Abdominal ultrasound is most often normal and is primarily intended to eliminate cholecystitis. It rarely shows perihepatic fluid effusion and a slight thickening of the hepatic capsule. It is the examination of choice for the diagnosis of high genital infection by showing tubal wall thickening and the presence of fluid in the trunk. However, these signs are inconsistent and difficult to interpret [4, 5].

The multi-detector scanner with injection is the key examination. It most often shows an enhancement of the liver (Glisson's capsule) all the more visible that the acquisition occurs at an early time after injection. A biphasic study is recommended by some authors, including a delayed arterial time at 35–40 seconds after injection followed by a portal-time helix at 70 seconds. It is essential to perform a console reading using tight windows for the study of the liver in order to optimize the capsule-parenchyma contrast [6, 7].

Capsular enhancement may be linear and regular, sometimes thicker, and may be associated with greater enhancement of the adjacent subcapsular parenchyma. This enhancement of the hepatic capsule is most frequently observed on the anterolateral surface of the lower part of the liver, whereas the right posterior part of the nonperitonized liver, the area nuda, is never involved, suggesting a preferential transperitoneal dissemination of the infectious process. Other more inconsistent signs have been described: adjacent parenchymal perfusion disorders, splenic capsule enhancement, subcapsular per hepatic collections, thickening of the vesicular wall, thickening of the right prerenal fascia. Computed tomography (CT) signs of pelvic inflammatory disease are frequently observed concomitantly during the acute phase.

Taking into account the risk of irradiation of the CT, MRI can also be considered to detect perihepatitis, as it is in our case [5, 8, 9].

The diagnosis of certainty is carried out during a laparoscopy or laparoscopy that allows to see adhesions between the surface of the liver and the abdominal wall, more or less associated with a peritoneal reaction or a pelvic inflammation with or without salpingitis.

Samples during laparoscopy allow bacteriological diagnosis. But, in the presence of a clinical, radiological, and biological picture compatible with the diagnosis of Fitz-Hugh–Curtis syndrome, the search for the germ in other noninvasive samples, endocervix, vagina, or urine, should allow a rapid diagnosis and avoid unnecessary laparoscopy [2, 4, 10].

CONCLUSION

When differential diagnosis of febrile pain in the right hypochondrium in a young woman is eliminated, the possibility of Fitz-Hugh–Curtis syndrome must be evoked and any radiologist must recognize the signs in imaging to evoke this diagnosis to avoid exploratory laparoscopy.

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Author Contributions

Kaoutar Imrani – Conception of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Souad Maher – Conception of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

VA Blata – Conception of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Khadija Benelhosni – Conception of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Ittimade Nassar – Conception of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Guarantor of Submission

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Source of Support

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Written informed consent was obtained from the patient for publication of this article.

Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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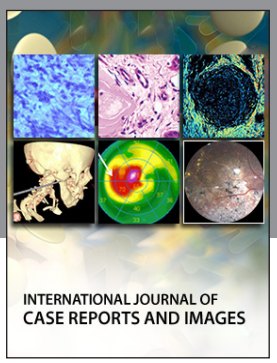

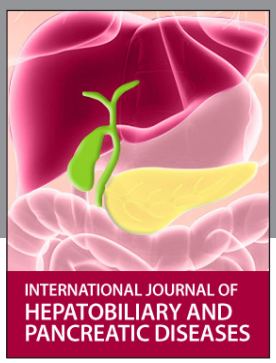

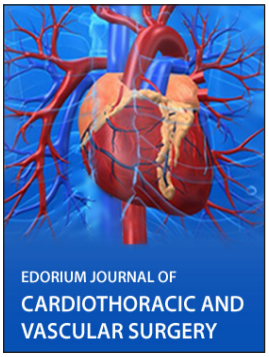

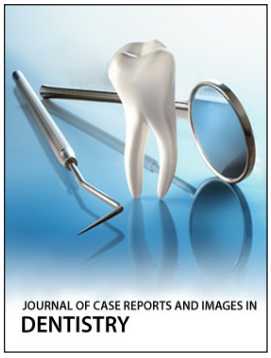

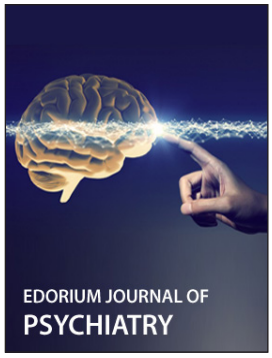

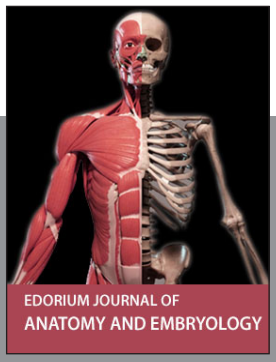

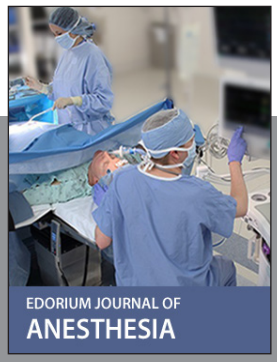

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