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CASE REPORTS

AN UNEXPECTED CAUSE OF RIGHT UPPER QUADRANT ABDOMINAL PAIN IN A TEENAGER

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ABSTRACT

A previously healthy, sexually active 17-year-old female was admitted to our hospital with a 4-day history of right upper quadrant abdominal pain associated with high fever, vomiting and diarrhea. On examination there was tenderness in right hypochondrium. Gynecological exam revealed sparse vaginal bleeding and pain on deep palpation and mobilization of the cervix and adnexa. Abdominal computed tomography scan showed signs of inflammation of the pelvic adipose tissue. While other etiologies were excluded, identification of Neisseria gonorrhoeae using the PCR method in the urine lead to the diagnosis of Fitz-Hugh-Curtis syndrome. Fitz-Hugh-Curtis syndrome is an association between pelvic inflammatory disease and peri-hepatitis, and usually manifests as pain in the right hypochondrium. Right hypochondrium pain has an extensive differential diagnosis, however this syndrome should be considered in sexually active adolescents, which is essential for a targeted treatment and prevention of complications.

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Case Report

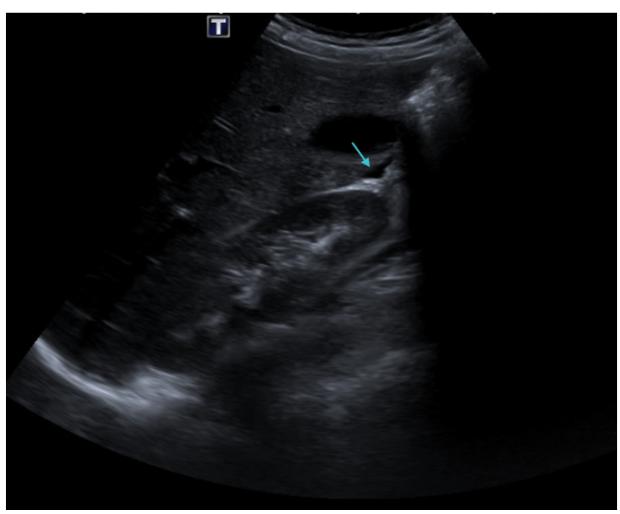
A previously healthy, 17-year-old female, presented to the emergency department with intense right upper quadrant abdominal pain. Four days before admission she noticed a persistent right upper quadrant abdominal pain, along with high fever, vomiting and diarrhea. She had started vaginal bleeding day before admission.

Her menarche was at 11 years of age, and she had started unprotected sexual activity 6 months before this observation. She took no medication and had never experienced similar symptoms.

On palpation, there was tenderness in right hypochondrium. A gynecological exam revealed sparse vaginal bleeding and pain on deep palpation and mobilization of the cervix and adnexa. Blood analyses revealed hemoglobin of 11.8 g/dL, mild leukocytosis (16.9 x 10^9/L) and neutrophilia (87.5%; 14.79 x 10^9/L) and an elevated C-reactive protein of 259 mg/L, with a normal amylase, lipase, and renal and liver function tests. Urinalysis revealed countless erythrocytes, rare leukocytes and no nitrites. Endocervical culture was negative and Neisseria gonorrhoeae was isolated using the PCR method in the urine sample. The chest X-ray was normal. Abdominal and pelvic computed tomography (CT) scan, was suggestive of signs of inflammation of the pelvic adipose tissue. Pelvic inflammatory disease (PID) was suspected so the patient was started on intravenous ceftriaxone and metronidazole plus oral doxycycline. During hospitalization, a repeated pelvic and abdominal ultrasound revealed mild hepatomegaly and perihepatic fluid (Figure 1). Serologies performed for other sexually transmitted diseases were negative (HIV, syphilis, B and C hepatitis). Considering the clinical presentation, laboratory and imaging findings, the patient was diagnosed with a PID complicated with peri-hepatitis, hence Fitz-Hugh-Curtis Syndrome (FHCS).

She had a gradual clinical and laboratory improvement and was discharged after 5 days, with a 14-day course of oral doxycycline and metronidazole. Advice was given on treating previous sexual partners. Two months later, on follow-up consultations the patient was asymptomatic and had a negative endocervical PCR test for *Neisseria gonorrhea* and *Chlamydia trachomatis*.

Figure 1. Abdominal ultrasound showing peri-hepatic fluid in hepatorenal recess (blue arrow).



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Discussion

FHCS is an association between PID and perihepatitis, occurring in about 10-30% of PID cases. Classically it manifests as right hypochondrium pain, worsening during deep breathing. Patients may also complain of lower abdominal, pelvic, or back pain with varying degrees of severity. Other symptoms include fever, chills, vaginal discharge and dyspareunia.[1,2,3,4,5,6]

Differential diagnosis is wide and includes cholecystitis, peptic ulcer, appendicitis, pancreatitis, urinary tract infection, renal colic and pneumonia.[2,3,4,5,6,7] Although the diagnosis is clinical, some exams are helpful to exclude other diseases, namely imaging exams, and to identify the pathogen. In this syndrome there is perihepatitis without involvement of the hepatic parenchyma, so there is an absent or discreet elevation of liver transaminases.[1,2,3] White blood cells count and inflammatory parameters may also be elevated. Initially it was associated mostly with Neisseria gonorrhoeae infection, but currently Chlamydia trachomatis is considered its main agent.[2,3] Cultures are widely used for pathogen identification, but use of polymerase chain reaction (PCR) tests is increasing due to their high sensitivity and specificity (including vaginal swab, cervical swab and urine samples).[1] Laparoscopy is the gold-standard exam for diagnosis, but it is seldom used for its invasiveness. It allows identification of the characteristic "violin-string adhesions" between the liver and the diaphragm or the anterior wall of the abdomen, as well as the presence of edema, exudate or fluid collections.[2,3] Abdominal and pelvic ultrasounds are the most frequently used exams, making it possible to exclude other diagnosis and identify signs of PID and its complications, including fluid in the subcapsular/hepatorenal space, compatible with FHCS.[1] Abdominal and pelvic CT may also be useful in the differential diagnosis and the visualization of findings suggestive of FHCS – thickening of the hepatic capsule and fluid in the subcapsular/hepatorenal space.[3,4,5,6,7,8]

FHCS treatment consists of antibiotic therapy for PID. Mechanical lysis of the adhesions may be performed laparoscopically if conservative treatment fails.[1,2] Patients should be advised on the importance of safe sex practices to avoid PID and once the diagnosis is made, sexual partners should be treated to halt disease transmission.[7,9,10]

In our case, Neisseria gonorrhoeae was identified in the urine sample by PCR test, which lead to the diagnosis. Despite the isolation of Neisseria gonorrhoeae, the treatment is targeted at most likely pathogens, since isolation of all agents is unlikely. Therefore, due to the clinical severity, with need for hospitalization, she was started on intravenous antibiotic therapy with ceftriaxone and metronidazole plus oral doxycycline, switching for oral antibiotic therapy 5 days later, completing a 14-day course of oral doxycycline and metronidazole, in accordance with the Centers for Disease Control and Prevention guidelines.[9,10] A favorable clinical response was observed, with complete symptomatic resolution and on follow-up, she remained well and had a negative vaginal PCR for Neisseria gonorrhoeae and Chlamydia trachomatis.

The nonspecific presentation of FHCS as a complication of PID makes it a challenging diagnosis, delaying treatment initiation, which can lead to long-term complications, including chronic pelvic pain, ectopic pregnancy and infertility.[1,9] Clinicians should consider this syndrome in the differential diagnosis of right upper quadrant pain in the sexually active adolescent, as in the described case.

Compliance with Ethical Standards
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Conflict of Interest: None

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