Fitz-Hugh-Curtis Syndrome in A 15-year-old Adolescent with Right Upper Quadrant Abdominal Pain : Case Report

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INTRODUCTION

Fitz–Hugh–Curtis syndrome (FHCS) is a perihepatic infectious disease, first described by Thomas Fitz Hugh and Arthur Curtis in 1930, that occurs in patients with pelvic inflammatory disease. FHCS is characterized by liver capsular inflammation without direct hepatic invasion, most commonly caused by Neisseria gonorrhea and Chlamydia trachomatis. The pathogens can be directly identified from exudates obtained by laparotomy or laparoscopy during the acute stage. Finding of a distinctive violin string-like pattern of perihepatic adhesions during the chronic stage aids in the diagnosis. Recently, the use of arterial-phase computed tomography (CT) scanning has enabled management of FHCS with antibiotics without the need of invasive procedures. Here, a 15-year-old adolescent presenting with right upper quadrant abdominal pain and FHCS is reported.

CASE

A 15-year-old female visited the emergency room (ER) for relief of right upper quadrant abdominal pain that began one month previously. The right upper quadrant pain extended to the entire abdominal area and had progressively worsened in the 9 days preceding the ER visit. The patient had a history of 10 incidents of sexual intercourse, the last being 5 days prior to presenting to the ER. The medical history was significant for well-controlled type I diabetes treated with insulin. The patient reported a history of
alcohol use that typically involved ingestion of a bottle of Korean whisky one to two times a month. The patient was a freshman in high school. The menstrual cycle was reported to be regular from 28-30 days with six to seven days of bleeding. The last menstrual period prior to the ER visit was 29 days ago. The patient did not experience increased vaginal discharge. Vital signs were within normal range. The patient had a pyuria without pain or right costovertebral tenderness. Laboratory study showed normal liver function test. The urine human choriogonadotropin, which was checked in the ER, was negative. CT scan did not reveal appendicitis or cholecystitis, but lateral peripheral enhancement of the right lobe of liver on the arterial phase and signs of pelvic inflammatory disease were evident (Fig. 1). Ultrasonography for gynecological examination revealed a 3 cm left ovarian cyst and a vaginal swab was positive for C. trachomatis. N. gonorrhea grew in the urine culture. No other pathogens of sexually transmitted diseases (STDs) were recovered. The patient was diagnosed with FHCS and was treated with oral antibiotics, doxycycline and metronidazole, for 4 weeks. The patient improved with medication.

**DISCUSSION**

FHCS is common among sexually active women 30 - 40-years-of-age. C. trachomatis is the most common sexually transmitted disease in developed countries. It is common in women under 25-years-of-age, and the frequency increases with increased sexual activity in the absence of pregnancy. In the last several decades, the

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**Fig. 1.** CT scan showing lateral peripheral enhancement of the right liver and signs of PID (arrowhead). Panel A and B depict axial image and coronal image, respectively.
confirmative diagnosis of FHCS has been the demonstration of a typical “violin-string appearance” in laparotomy or laparoscopical examination or the isolation of causative organisms in the peritoneal fluid or a specimen obtained during procedures. Nowadays, CT is sufficient in diagnosis of FHCS, ruling out acute appendicitis or cholecystitis if added to clinical information. Dynamic CT is a highly sensitive imaging modality for the early detection of FHCS, which shows marked hepatic capsular enhancement at the arterial phase because of increased blood flow at the inflamed hepatic capsule. Ultrasonography may help rule out diseases of the gallbladder and liver.

In the acute phase of FHCS, mild exudative inflammation of the hepatic capsule is apparent in the presence or absence of capsular congestion, punctuate hemorrhage, and fibrinous exudation. In the chronic phase, a violin-string appearance that reflects the adhesion between the hepatic surface and peritoneum develops. Pathophysiologically, enhancement in the arterial phase reflects an increased blood flow at the inflamed hepatic capsule, whereas enhancement in the delayed phase reflects the early capsular fibrosis.

There have been few reports of FHCS in adolescents. About 4% of cases with pelvic inflammatory disease (PID) and Chlamydia infection develop into FHCS in adolescents, which is a lower than in adults. Factors such as poor treatment compliance, unfavorable socio-medical services, and low economic mobility might contribute to the lower frequency detected in adolescents. However, adolescents are more vulnerable to PID and STD due to eversion of the cervix and extrophy of the transformation zone of uterine columnar cells. In addition, the loss of the cervical mucus plug and blood creates a favorable environment for bacterial proliferation, which enhances the risk for an ascending infection with menstruation or intercourse. Recurrence of Chlamydia infection may be very frequent, up to 30-50%, in teenagers. These recurrent infections can interfere with reproduction, leading to infertility due to fibrosis and scarring of reproductive system.

Sexually active adolescents should be educated about protection against STDs and evaluated for such problems once a year. Abdominal pain is the most common symptom of patients presenting to the ER. When patients complain of right upper quadrant pain, diseases such as acute cholecystitis, duodenal ulcer, and varicella zoster are typically considered in the differential diagnosis. However, when sexually active female patients complain of right upper quadrant pain and lower abdominal pain simultaneously, an ultrasound should be promptly performed to rule out diseases.
of the gallbladder and liver, and a CT scan should be performed to confirm the diagnosis. FHCS should be considered as well as a variety of STDs\(^1\).

Conventional treatment for FHCS is similar to therapy for PID. The administration of appropriate antibiotics such as tetracycline, doxycycline, erythromycin, ofloxacin, and azithromycin should be started as soon as FHCS is suspected. The treatment period may have to be extended according to the pain, which subsides with antibiotic therapy\(^4\).

REFERENCES


우상복부 통증을 호소하는 15세 청소년에서 발생한 Fitz-Hugh-Curtis 증후군 1예

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