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Case Report

Helicobacter Pylori Induced Interstitial Cystitis

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Abstract

Helicobacter-H pylori was found to have a significant role in urological diseases, prevention of bladder and prostate cancers by eradication of H-pylori infection may become a reality like what happened in the treatment of peptic ulcer disease and gastric cancer. Chronic gastritis has compelling similarities to interstitial cystitis (IC), which causes chronic bladder pain like a urinary tract infection. This is, also, known as the bladder pain syndrome (BPS). Histologically, epithelial damage, inflammatory response in the lamina propria and epithelial ulcerations are seen. It has been reported that H-pylori is relevant to several renal diseases rather than cystitis such as diabetic nephropathy, membranous nephropathy, Henoch–Schoenlein purpura nephritis, immunoglobulin A (IgA) nephropathy, etc. We present A 24 years and A 36 years ladies had chronic H-pylori in gastrointestinal tract, which is regard as common alimentary bacteria resulting into chronic infection as peptic ulcer sharing a similar pathogenesis to recurrent cystitis.

Introduction

Helicobacter pylori (H-pylori) is a gram-negative bacterium colonized in gastrointestinal tract, which is regard as common alimentary bacteria resulting into chronic infection [1]. Other than gastrointestinal diseases, the infection with H-pylori also involves cardiovascular diseases, respiratory diseases, hematological diseases, metabolic dysfunction diseases, urogenital diseases, skin diseases, etc. [2,3]. A small but interesting study did appear in the journal, Infections in Urology. Researchers found that about 87% of the patients with interstitial cystitis (IC), Trigonitis of unknown cause and/or urethral syndrome (but no bladder infection) tested positive for H-pylori, whereas only about 62% of those with diagnosed bladder infections did [4]. Interstitial cystitis is characterized by over 6 months of chronic pain, pressure and discomfort felt in the lower pelvis or bladder. It is often relieved with voiding, along with daytime frequency and nocturia in the absence of a urinary tract infection.

Case Report 1

A 36- Year- lady, known case of hypertension, hypothyroidism on Hormonal Replacement Therapy (HRT)and recurrent H. pylori infection complicated with gastric ulcer which diagnosed by OGD outside Oman ten years back. Referred to the CKD clinic, as deranged renal function and complaining of 24 months of suprapubic and pelvic pain, which is occasionally exacerbated by frequent urination, associated with intermittent gross hematuria and dysuria, no fever at any time. Many courses of antibiotic treatment were based on the patient symptoms: dysuria, pain and increased urinary frequency. The symptoms of the patient worsened before menstruation and after sexual intercourse; finally, suprapubic pain/pressure/discomfort related to bladder filling and an increased daytime and night-time frequency.

Informative past medical history

At the age of 10-years, patient was diagnosed as Von Willebrand disease (Heavy and long menstrual bleeding) autosomal recessive form as two of her sisters were carriers.

a. At the age of 16-yers, she underwent appendicectomy procedure.

b. At the age of 24-years, she underwent cholecystectomy procedure.

c. At the age of 26-years, she was diagnosed with hypothyroidism during pregnancy and started Hormonal Replacement Therapy (HRT).

d. At the age 0f 31-years, she was diagnosed with peptic ulcer by endoscope and biopsy revealed H-pylori bacteria.

e. She improved after starting the triple therapy for two weeks and continue with proton pump inhibitor (PPI) treatment, but in the same year had recurrent dysuria and pelvic pain on/off till now.

f. At the age of 33-years she underwent hemorrhoidectomy procedure, which was performed in Thailand.

g. At the age of 34-years, she underwent right ovariectomy procedure for a huge ovarian cyst.

h. At the age of 36-years, she was diagnosed with Uterine Fibroid Tumor and she had Myomectomy.

Laboratory investigations

Urine analysis was bland, with no proteinuria (UPCR 3,6 mg/mmol), negative for white blood cells and bacteria and urine PH was 6 (normal range <6). Urine cultural analysis showed no bacterial growth. CRP was negative (<4 mg/l), S. creatinine was 79umol/l, with eGFR, by MDRD equation, of 75.5 ml/min/m2.

3.2.1. The Urea Breath Test was Performed and Revealed A Positive Result: K.U.B ultrasound showed that both kidneys were normal in size, site and shape, normal echogenicity, and good corticomedullary differentiation, with no stones or focal lesions or hydronephrosis. The urinary bladder was adequately filled with normal wall thickness. There were no calculi or gross masses observed during the radiological examination. Also, computed tomography was performed and showed normal finding.

Impression: Interstitial cystitis (IC) in co-existence with H-pylori infection.

Medications

The patient was started on triple therapy (for eradications of H. pylori) for 2weeks:

1-Proton pump inhibitor (PPI) (Omeprazole 20 mg BID)

2-Clarithromycin 500 mg BID

3-Amoxicillin 1000 mg BID

Then, the patient was seen as follow up after one month. She reported disappearance of her symptoms after the two weeks of H-pylori triple therapy with no more pelvic pain, no dysuria, no urinary frequency, or pain after sexual intercourse.

Case Report 2

A 24-year-old woman was diagnosed with chronic gastritis as complications of H-pylori infection, 4-years ago. She had no other comorbidities and no surgical operations. She was suffering from lower abdominal pain on/off since 3-year-associated with nausea but not vomiting. She was referred to chronic kidney disease-CKD clinic with recurrent lower abdominal pain associated with dysuria and frequency. The symptoms of the patient worsened before menstruation in the past 36 months. She received many courses of antibiotic treatments that were based on the patient symptoms despite urine analysis was clear and negative cultures. There was no past history of trauma or surgical operations. There was no family history of similar conditions.

Laboratory Investigations

Urine analysis was clear without proteinuria (UPCR 4,2 mg/mmol). It was also negative for white blood cells and bacteria. The urine PH was 5.0 (normal range <6). The urine cultural analysis showed no bacterial growth. CRP was in normal range (<4 mg/l). The S. creatinine was 65umol/l, and the eGFR, MDRD, was >90 ml/min/m2.

The Urea Breath Test Was Performed and Reported Positive

K.U.B ultrasound reported that both kidneys were normal in size (RK=10.3 cm and LK=10.2 cm), site and shape. Both kidneys had normal echogenicity and good CM differentiation, with no stones or focal lesions or hydronephrosis. The urinary bladder was adequately filled with normal wall thickness. There were no calculi or gross masses seen during the radiology examination.

Impression: Interstitial cystitis (IC), in relation to H-pylori infection.

Medications

She was started on triple therapy (for eradications of H- pylori) for 2weeks.

1-Proton pump inhibitor (PPI) (Omeprazole 20 mg BID)

2-Clarithromycin 500 mg BID

3-Amoxicillin 1000 mg BID

Then, she was seen on a follow up clinic after one month. She reported improvement in her previous symptoms with no lower abdominal pain, dysuria, urinary frequency or pain before menstruation.

Discussion

With >50 % of the world's population suffering from helicobacter pylori, it is one of the most prevalent human pathogens [5]. Infection with H-pylori is associated with chronic gastritis, duodenal ulcer, gastric cancer, and even gastric adenocarcinoma [6]. Other than gastrointestinal diseases, the infection with H-pylori also involves into cardiovascular diseases, respiratory diseases, hematological diseases, metabolic dysfunction diseases,

urogenital diseases, skin diseases, etc. [2,3]. Infection is usually acquired in childhood via person-to-person fecal-oral, oral-oral, or gastro-oral transmission being the most likely route of infection [7]. Unfortunately, there is no definitive diagnostic test for IC. The diagnosis is usually based upon a patient's symptoms, a cystoscopy examination of the bladder under anesthesia and exclusion of other bladder diseases [8].

Only one study specifically addressed the issue of Helicobacter infection in IC. English et al. [9] assessed 23 patients with IC and 23 control subjects and examined their serum for the presence of H-pylori IgG antibodies. They found positive antibodies in 22% of the patients and 35% of the controls. The controls were the relatives of patients attending various urology clinics and the presence of antibodies in them was explained by the fact that 11–24% of the USA population are seropositive for H-pylori, but few of them are symptomatic. The authors concluded that as the incidence of H-pylori infection was not greater in IC, it is unlikely to be the cause of IC [9].

Treatment options are further reduced as effective therapeutic regimen requires a combination of two or three antibiotics and a gastric acid suppressive drug [10]. Only anti H-pylori therapies that can achieve eradication rate ≥90 % are considered effective, but increasing resistance blocked the efficacy of prescribed regimens [11].

Our two cases are dramatically improved after two weeks of H-pylori triple therapy: no pelvic pain, dysuria, urinary frequency, or pain after sexual intercourse.

Conclusion

Patients with documented H-pylori may present with symptoms mimicking UTI. This association is involved in etiology of IC with inflammation of cells in the bladder wall. Treatment ameliorates the symptoms of patients dramatically after two weeks of H-pylori triple therapy.

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