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Case Report

Herpes zoster mimicking as acute appendicitis: a case report

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Abstract: Herpes zoster (HZ) is a kind of localized disease induced by varicella zoster virus (VZV). Primary infection of VZV results in chickenpox and VZV remains latent in the sensory ganglia after an earlier period of chickenpox. Pain and itching are often the presentation of HZ. HZ usually concerns with geographic location, age and immunodeficiency. There have been no reports of herpes zoster presented as acute appendicitis in English literature. We report a 62-year-old female who came to our department complained of obvious right lower abdominal pain and then was diagnosed with acute appendicitis. The inflammation of appendix was not serious intra-operatively and the pain of right lower abdomen was not distinct catabatic post-operatively. A vesicular rash appeared on the right lateral abdomen after laparoscopic appendectomy 2 days, the final diagnosis was HZ. HZ was diagnosed by dermatology department through the presentation. Ganciclovir and vitamin B12 were applied to therapy the disease for 10 days. Pseudoappendicitis was induced by HZ. Coming across pain of right lower abdomen, HZ should be considered.

Keywords: Herpes zoster (HZ), varicella zoster virus (VZV), acute appendicitis

Background

Herpes zoster (HZ) is a secondary infectious disease caused by varicella zoster virus (VZV). During the early stage of infection, VZV comes into cutaneous nerve endings and remains latent in the nerve cell bodies. VZV can be activated and HZ results from VZV infection [1, 2].

Pain and itching are common presenting symptoms of HZ [3]. HZ is associated with gender, geographic location, age, and immunodeficiency [4-7].

In young people, the incidence of HZ is 1.2-3.4 per 1000 persons/year, while in people >65 years of age, the incidence of HZ is 5.1-15.2 per 1000 persons/year [8-10].

Case presentation

A 62-year-old female presented to the Department of General Surgery (the Third People's Hospital of Dalian) with a complaint of right lower abdominal pain and nausea for 6 h. All of the vital signs were normal. Physical examination of the abdomen was significant for pain and rebound tenderness in the right lower quadrant upon palpation. There was part muscle rigidity. Laboratory testing, including a white blood cell count, neutrophilic granulocyte count, hemoglobin concentration, platelet count, and kidney function, were normal. Computed tomography (CT; **Figure 1**) revealed pneumatosis in the appendix. It was thought that blood cell count and neutrophilic granulocyte count were not response. Therefore, an acute appendicitis was diagnosed. A laparoscopic appendectomy was then carried out. Intra-operatively we noted that the appendix was adherent to the right pelvic cavity and the degree of inflammation was mild. Although the appendix was excised successfully, the pain in the right lower abdomen was not distinct catabatic post-operatively. Two days post-operatively, a vesicular rash appeared on the right lower abdominal wall (**Figure 2**). The diagnosis of HZ was confirmed in the Dermatology Department. Ganciclovir (250 mg i.v. per day) and vitamin

Figure 1. CT show pneumatosis in the appendix.

Figure 2. A vesicular rash appeared on the right lower abdominal wall.

B12 (0.5 mg i.m. per day) were administered for 14 days and pain in the right lower abdominal wall resolved. The patient was stable and asymptomatic at the 4-month follow-up evaluation.

Discussion

Acute appendicitis is a common disease requiring emergency surgery. The classical symptom of acute appendicitis is pain in the right lower abdomen; however, a number of other diseases could lead to similar pain mimicking the diagnosis of appendicitis. We have presented such a patient who was thought to have acute appendicitis pre-operatively, and after a laparoscopic appendectomy was performed, the diagnosis was revised to HZ. This case is the first report of HZ mimicking acute appendicitis in the English literature, although Belea [11] reported two cases of HZ simulating acute appendicitis in the Russian literature.

HZ is a neurocutaneous viral disease which is caused by VZV [12]. Primary infection with VZV results in chickenpox, and when the chickenpox resolves, VZV persists in the nerve. Latent infection could reactivate the VZV, inducing HZ [4].

Sharifi et al [12] reported that in the tropics the transmission of VZV can be inactivated by high ambient temperature and humidity. Brănişteanu et al [6] reported that female patients were more often affected by HZ than males, and the prevalence was slightly increased in rural cases. Buchbinder et al [14] reported that patients with immunodeficiency diseases are more likely affected by HZ and Babamahmoodi et al [8] proposed that there is a high incidence of exposure to immunosuppressive drugs and immunotoxins.

HZ often presents as a unilateral radicular vesicular eruption and pain [3]. The characteristic symptom [15] is a varicella rash over a single dermatome that lasts for 3-5 days. The most common dermatomes affected by HZ are T3-L3 [16], and the effects manifest as mild-to-moderate burning or tingling [16]. HZ is frequently accompanied by fevers, chills, headaches, abdominal pain, and general malaise [16]. In the present case, the patient had nau-

sea, which was similar to the symptoms associated with appendicitis. HZ pain has three stages (acute herpetic neuralgia, subacute herpetic neuralgia, and post-herpetic neuralgia) [17]; the pain presented by the patient herein was the former.

In addition to an eruption and pain, Wung et al [18] concluded that serologic testing is not helpful to diagnose HZ. For patients without a typical rash, HZ can be diagnosed by measuring serum immunoglobulins M and A titers against VZV [19].

The polymerase chain reaction (PCR) technique and a direct immunofluorescence assay can detect VZV DNA in fluid from the vesicle [16, 20].

In the present case, the patient sought evaluation in our department for persistent right lower abdominal pain and neuropathy, which are common symptoms of appendicitis. Moreover, a CT scan supported this diagnosis. Even though the WBC count was in the normal range, all of the other indices indicated acute appendicitis. Therefore, a laparoscopic appendectomy was performed. Intra-operatively, the appendix did not appear inflamed, thus the symptom of right lower abdominal pain seemed out of proportion to the surgical findings.

Following laparoscopic surgery, the right lower abdominal pain seems not obviously catabatic. Two days post-operatively, skin lesions appeared and the diagnosis was revised. Following appropriate therapy, this patient recovered well.

Roxas [16] reported a phenomenon referred to as “zoster sine herpete”, in which the patients had no prodromal symptoms and a telltale rash.

The differential diagnosis of acute appendicitis includes terminal ileitis, Crohn’s disease, and Henoch-Schonlein Purpura [21]. Based on this case, HZ should be considered when a patient has pain in the right lower abdomen.

There are several treatments available for HZ [16], as follows: conventional treatment options (antiviral agents, corticosteroids, analgesics and NSAIDs, and tricyclic antidepressants) and natural treatment options (dietary/multiple-nutrient effects, vitamin A, enzyme therapy, and botanicals with specific efficacy). Acupuncture and moxibustion are also regarded as effective therapies for HZ.

Lal et al [22] recently concluded that a vaccine for VZV glycoprotein E and the AS01B adjuvant system can reduce the risk of HZ in people >50 years of age.

Conclusion

HZ is a disease caused by a viral infection, which can lead to abdominal pain. When we encounter atypical appendicitis, HZ should be considered to avoid misdiagnosis.

Disclosure of conflict of interest

None.

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