

Journal of Surgery and Medicine

e-ISSN: 2602-2079

Spontaneous pneumothorax as an uncommon complication of herpes zoster infection

Herpes zoster enfeksiyonunun nadir bir komplikasyonu olarak spontan pnömotoraks

Timuçin Alar¹, İsmail Ertuğrul Gedik¹

¹ Çanakkale Onsekiz Mart University, Faculty of Medicine, Department of Thoracic Surgery, Çanakkale, Turkey

Abstract

Varicella zoster virus (VSV) is a neurotropical alpha-herpesvirus. Although many complications may be observed in VZV infections during adulthood, pneumothorax is one of its rare complications. It should be kept in mind that the easiest way to protect the patient from a complication that may be mortal, such as tension pneumothorax, is prompt diagnosis using physical examination and chest x-ray and immediate removal of air in the pleural cavity.

Keywords: Pneumothorax, Varicella zoster, Herpes zoster

Öz

Varisella zoster virüsü (VSV), nörotropizm gösteren alfa-herpes virüslerindedir. Erişkin yaş grubundaki VZV enfeksiyonlarında birçok komplikasyon gözlenmekle birlikte pnömotoraks, VZV'nin ender rastlanan komplikasyonlarından biridir. Tansiyon pnömotoraks gibi mortal seyredebilecek bir komplikasyondan hastayı korumanın en kolay yolu ise, akciğer grafisi ve fizik muayene ile bu tanıyı hızlıca koyup, mevcut havanın tahliyesi olduğu akıldan çıkarılmamalıdır.

Anahtar kelimeler: Pnömotoraks, Varisella zoster, Herpes zoster

Introduction

Varicella zoster virus (VSV) is a neurotropical alpha-herpesvirus. Varicella, which is the primary infection of VZV causes vesicular skin lesions during childhood period. Following primary infection, the virus remains latent in neuron ganglia. Secondary infection, known as Herpes Zoster (HZ), is an infection that occurs years after the primary infection. It occurs due to the viral reactivation in the ganglion. HZ presents as painful vesicular lesions along the associated neuronal dermatome, usually occurring in adulthood [1,2]. Although many complications may be observed in VZV infections during adulthood, pneumothorax is one of its rare complications. In this article, we present a male patient diagnosed with unilateral spontaneous pneumothorax that developed secondary to VZV.

Case presentation

A 47-year-old male patient admitted to our emergency department with the complaint of right-sided chest pain beginning 2 days ago. His medical history revealed that it was a sudden onset pain with pleuritic character. Dyspnea accompanied the pain. On physical examination, bilateral respiratory sounds were diminished particularly on the right side. His blood pressure was 135/80 mm Hg, fever was 36.1 °C and pulse was 89 / min. The patient's past medical history revealed that he was prescribed 500 mcg fluticasone + 50 mcg salmeterol discus 2x1, tiotropium bromide inhaler 18 mcg 1x1 for chronic obstructive pulmonary disease (COPD) and he was an active smoker for 30 pack*years. Patient was consulted with our clinics with the pre-diagnosis of right-sided spontaneous pneumothorax after posterior-anterior (PA) chest radiographs were analyzed. Our physical examination revealed crusted millimetric multiple lesions that were located on the intersection of right 5th intercostal space (ICS) and posterior axillary line (Figure 1).

Corresponding author / Sorumlu yazar:
Timuçin Alar

Address / Adres: Çanakkale Onsekiz Mart
Universitesi, Tıp Fakültesi, Göğüs Cerrahisi
Anabilim Dalı, Çanakkale, Türkiye
e-Mail: timucinalar@gmail.com

Informed Consent: The author stated that the
written consent was obtained from the patient
presented in the study.

Hasta Onamı: Yazar çalışmada sunulan hastadan
yazılı onam alındığını ifade etmiştir.

Conflict of Interest: No conflict of interest was
declared by the authors.

Çıkar Çatışması: Yazarlar çıkar çatışması
bildirmemişlerdir.

Financial Disclosure: The authors declared that
this study has received no financial support.

Finansal Destek: Yazarlar bu çalışma için finansal
destek almadıklarını beyan etmişlerdir.

Received / Geliş tarihi: 13.03.2018

Accepted / Kabul tarihi: 12.04.2018

Published / Yayın tarihi: 12.04.2018

Copyright © 2018 The Author(s)

Published by JOSAM

This is an open access article distributed under the terms of the Creative
Commons Attribution-NonCommercial-NoDerivatives License 4.0 (CC
BY-NC-ND 4.0) where it is permissible to download, share, remix,
transform, and build up the work provided it is properly cited. The work
cannot be used commercially without permission from the journal.





Figure 1: Skin lesions of the patient

His medical history revealed that those lesions appeared 2 weeks ago and they were severely painful. He also mentioned that he felt malaise and fatigue 1 week prior to the appearance of these lesions. Pulmonary auscultation revealed decreased pulmonary sounds on the right lung, and sub-total right sided pneumothorax was detected on chest x-ray. Tube thoracostomy was performed through the intersection of 6th ICS and mid-axillary line using a 32 Fr chest tube under local anesthesia (Figure 2). Case was consulted with the dermatology clinics for the differential diagnosis of the skin lesions. The dermatologic examination revealed that the skin lesions were concordant with VZV and no additional diagnostic tests were required. Chest tube was removed on the postoperative 4th day and the patient was discharged. Patient's physical examination at our outpatient clinics 1 week after his discharge was normal. He is admitting to our outpatient clinics regularly for follow up.



Figure 2: Chest x-ray before (a) and after (b) of the patient

Discussion

It has been reported that HZ secondary to VZV is diagnosed in about 1 million people in the United States of America (USA) annually. HZ is generally seen in adults and male to female ratio is equal [3]. The thoracic nerve ganglia are one of the regions where VZV remains latent and viral reactivations that cause HZ occur. Immunosuppression plays an important role in reactivation [4]. HZ vesicles appear attributable to the reactivation of VZV after a variable prodromal period.. This prodromal period may include symptoms of fatigue, headache, photophobia, as well as pain with variable frequency and severity. Vesicles are crusted in about one week. Contagiousness begins with the formation of HZ vesicles and ends with the crusting. However, the contagiousness of HZ is considered to be less than that of varicella due to the infrequent respiratory transmission [3,5]. No factor that could lead to immunosuppression as detected in our case. However, similar to the literature, the lesions appeared one week after the onset of fatigue and the resulting vesicles were crusted within one week

period. Our case mentioned he had severe pain around the skin lesions lasting about one week, however he had no complaint of pain at the time of admission.

Typical skin lesions accompanied by characteristic signs and symptoms are usually adequate for the diagnosis of HZ. Laboratory tests are necessary for immunocompromised patients due to the presence of atypical findings [3]. Our patient was diagnosed with HZ because he presented with the typical signs and symptoms of HZ on admission.

Various complications of HZ infection such as pneumonia, keratitis, uveitis, pleuritis and cranial nerve paralysis have been reported. The likelihood of occurrence and severity of these complications increase with age [4,6]. Pneumothorax is also reported among the complications of HZ. Although the exact incidence is unknown, the majority of cases with secondary pneumothorax in HZ are those accompanied with VZV pneumonia and smoking. It has been argued that the development of pneumothorax secondary to VZV pneumonia is attributable to the rupture of subpleural necrotic nodules or the rupture of preexisting bleb due to inflammation caused by pneumonia [7]. In some cases, however, there is no examination or radiological findings to prove the presence of an underlying pneumonia [8]. In our case, clinical diagnosis of HZ could be established but the presence of pneumonia could not be clinically identified. However, we believe that inflammation due to HZ which is localized in the thoracic region may have caused the rupture of bullae secondary to the long-standing underlying COPD and active smoking and thus causing pneumothorax.

As a result, secondary spontaneous pneumothorax is a rare complication of HZ. It should not be forgotten that pneumothorax may develop rarely in these patients who present with dyspnea even with or without the presence of pneumonia. The easiest way to protect the patient from a complication that may be mortal, such as tension pneumothorax, is prompt diagnosis using physical examination and chest x-ray and immediate removal of air in the pleural cavity.

References

1. Birlea M, Cohrs RJ, Bos N, Mehta SK, Pierson DL, Gilden D. Search for Varicella Zoster Virus DNA in Saliva of Healthy Individuals Aged 20–59 Years. *J Med Virol*. 2014;86:360–2.
2. Yawn BP, Gilden D. The global epidemiology of herpes zoster. *Neurology*. 2013;81:928-30.
3. Harpaz R, Ismael R, Sanchez O, Seward JF. Prevention of Herpes Zoster: Recommendations of the Advisory Committee on Immunization Practices (ACIP). *Morb Mortal Wkly Rep*. 2008;57:1-30.
4. Gershon AA, Gershon MD, Breuer J, Levin MJ, Oaklander AL, Griffiths PD. Advances in the understanding of the pathogenesis and epidemiology of herpes zoster. *J Clin Virol*. 2010;48 Suppl 1:S2-7.
5. Schmid DS, Jumaan AO. Impact of varicella vaccine on varicella-zoster virus dynamics. *Clin Microbiol Rev*. 2010;23:202-17.
6. Cesario TC. Viruses Associated With Pneumonia in Adults. *Clin Infect Dis*. 2012;55:107-13.
7. Badri T, Zendah I, Taktak S, Ghedira H. Spontaneous pneumothorax in adulthood varicella. *Acta Dermatovenerol Alp Panonica Adriat*. 2009;18:71-2.
8. Park SW, Kang SH, Lee D, Wang HY, Sung HS. Pneumothorax Secondary to Ipsilateral Herpes Zoster Pectoralis. *Acta Derm Venereol*. 2003;83:298-9.