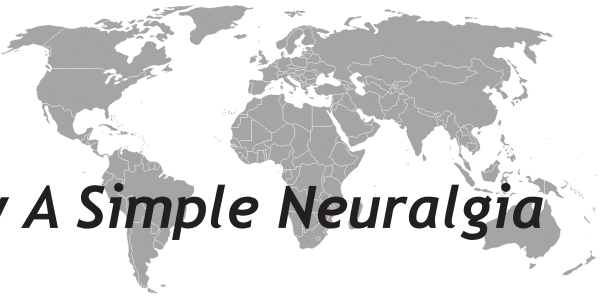

Is Herpes Zoster Merely A Simple Neuralgia Syndrome?

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ABSTRACT

***Aim:** Although, herpes zoster usually presents with postherpetic neuralgia (PHN) localized at single dermatome, it may also manifest with different clinical presentations. To clarify of these rare conditions, we aimed to examine the cases of PHN followed by our clinic in more details.*

***Method:** Medical records of 26 patients in total monitored by the neurology outpatient clinic for PHN between 2008 and 2010 were reviewed.*

***Result:** The mean age of the patients was 61.9±16.4 years, with a female-male ratio of 15/11. Ten of the patients (38 %) had a chronic illness history such as solid cancer, lymphoma, diabetes mellitus, cardiac valve prosthesis and Parkinson's disease. Eight of the patients had trigeminal nerve lesions (ophthalmic in 7 and mandibular in 1), 3 had spinal cervical lesions, 8 had spinal thoracic lesions and 7 had spinal lumbar dermatomic lesions. Three (11.5%) patients had motor involvement (C7 in one and L4-L5 innervated muscles in two). Four patients (15.3%; symmetric sides of the same dermatome in two and at different dermatomes in another two) had multiple dermatomal involvements.*

***Conclusion:** Immunosuppression and advanced ages are known to facilitate varicella reactivation. By reviewing patients with zona zoster monitored by our clinic for accompanying conditions, anatomical localizations and presence of multiple dermatomal involvements, the present study emphasizes that zona may also cause 'motor involvement' besides sensory involvement. Our findings demonstrate that zona is a complex syndrome which may manifest as varying clinical presentations.*

***Key words:** Herpes zoster, neuralgia, complications, motor involvement*

Herpes Zoster Sadece Basit Bir Nevralji Sendromu Mudur ?

Amaç: *Herpes zoster sıklıkla tek dermatomu tutan postherpetik nevralji (PHN) tablosu ile kliniğe yansımasına rağmen, nadiren farklı klinik görünümler ile de ortaya çıkabilmektedir. Bu nadir durumları daha net ortaya koyabilmek için kliniğimizce izlenen PHN olgularının ayrıntılı olarak incelenmesi amaçlanmıştır.*
Metod: *2008-2010 yılları arasında nöroloji polikliniğince PHN nedeni ile izlenen toplam 26 olgunun kart bilgileri taranmıştır.*
Bulgular: *Olguların yaş ortalaması 61,9±16,4 yıl olup, kadın/erkek oranı 15/11'di.Olguların 10'unda (%38); lenfoma, solid kanser ve diyabetes mellitus, protez metal kalp kapağı, ve Parkinson hastalığı gibi kronik hastalık öyküsü saptandı. Lezyon dağılımı; olguların 8'inde trigeminal sinirde (7'sinde oftalmik, 1'inde mandibular), 3'ünde spinal servikal, 8'inde spinal torakal, 7'sinde spinal lomber dermatomlardaydı. Toplam üç olguda (%11,5) motor tutulum saptandı (bir olguda C7, iki olguda L4-L5 innervasyonlu kaslarda). Dört olguda (%15,3; iki olguda aynı dermatomun simetrik tarafında, 2'sinde farklı dermotomlarda) birden fazla dermatomal tutulum gözlendi.*
Sonuç: *İmmünsupresyon ve ileri yaşın varisella reaktivasyonunu kolaylaştırdığı bilinmektedir. Makalemizde kliniğimizde izlenen zona zoster olguları gözden geçirilerek eşlik eden hastalıklar, görüldüğü anatomik lokalizasyonlar, birden daha fazla dermatomal tutulumlu zoster olguları incelenerek zonanın duysal tutulum dışında motor tutuluma da sebebiyet verebileceği vurgulanmıştır. Bulgularımız zonanın multifaktöryel farklı klinik görünümleri olabilecek kompleks bir sendrom olduğuna işaret etmiştir.*
Anahtar kelimeler: *Herpes zoster, nevralji, komplikasyonlar, motor tutulum.*

INTRODUCTION

Herpes zoster (HZ) is caused by reactivation of a latent varicella zoster virus that remains in the sensory ganglion of the cranial or spinal nerves. The incidence rate of HZ is approximately 10–30% over a lifetime (1, 2). The prodromal symptoms include pain, dermatomal paresthesias (abnormal sensations that are not unpleasant, for example, tingling) and dysesthesias (abnormal sensations that are unpleasant, for example, numbness), itching, fatigue, headache and fever, which are followed by the eruption of vesicles. It is characterized by unilateral herpetic vesicles and neuralgia (3). The diagnosis of HZ is generally characteristic and is established by presence of unilateral, dermatomal and vesicular rash. Important considerations in the diagnosis of HZ include: 1. The presence of a painful prodrome, 2. A unilateral dermatomal distribution, 3. Grouped vesicles or papules, 4. A history of a rash in the same distribution, 5. Pain and allodynia (3,4). The observation that patients with HZ are more likely to have a first-degree relative with the virus than matched controls without it (39.3% in cases vs. 10.5% in controls) suggests that genetics plays a role (5).

A number of complications of zoster disease have been described in the literature. Post herpetic neuralgia (PHN) is characterized by persistent pain. Pain can last long after the rash has cleared and sometimes it may last for months or even years. It affects about 10–20% of patients with HZ and is generally rare under 40 years of age. The incidence of PHN increases with age; in patients above 70 years of age with HZ, the risk of PHN is close to 50% (6, 7). The occurrence of HZ and accompanying pain can significantly impair quality of life for affected individuals and this can result in high medical costs (8). This study reviews the clinical manifestations and symptoms of HZ in 26 patients with a view to the current literature.

MATERIALS AND METHODS

Medical records of 26 patients in total monitored by the neurology outpatient clinic for postherpetic neuralgia between 2008 and 2010 were reviewed. Patients' histories and familial histories, physical examination findings and biochemistry reports were studied. Those with single or multiple dermatomal involvements and those with motor involvement were identified. Underlying causes were investigated and complications secondary to zona were reviewed. Before enrollment, patients received detailed written and verbal information regarding the aims and protocol of the study and signed informed consent. Descriptive statistics (using excel's data analysis tool) were performed.

RESULTS

The mean age of the patients was 61.9±16.4 years, with a female-male ratio of 15/11. The time between the onset of symptoms and their presentation to our clinic ranged between 1 week and 9 years. Ten of the patients (38%) had lymphoma (n:2), diabetes mellitus (n:2) and bladder cancer (n=1) and rheumatoid arthritis on corticosteroid treatment (n:1), while 2 patients had cardiac valve l prosthesis and 2 had Parkinson's disease.

Table 1*. Presence of comorbidities was identified in 13 of 26 patients (50%).*

	n
Dermatomal distribution	
Trigeminal nerve	
Ophtalmic division	*7*
Mandibular division	*1*
Cervical	
C3-4	*2*
C5-6	*1*
Thoracic	
T1	*1*
T5	*2*
T6	*2*
T7	*2*
T12	*1*
Lumbar	
L2-3	*2*
L4-5	*3*
L5-S1	*2*
Types of involvement	
Multiple dermatomal involvement	*4*
Motor involvement	
Drop hand	*1*
Drop feet	*2*
The comorbidities	
Lymphoma	*2*
Bladder cancer	*1*
Rheumatoid arthritis	*1*
Diabetes mellitus	*2*
Glaucoma	*1*
Parkinson's Disease	*2*
Alzheimer's Disease	*1*
Prosthetic heart valve	*2*
*Tooth extraction**	*1*

** Tooth extraction at the same dermatome (mandibular area).*

A patient had a history of tooth extraction at the same dermatome ten day before. Dermatomal distributions and comorbidities are presented in Table 1. The most frequent anatomical localizations were trigeminal nerve (ophthalmic involvement in 7 and mandibular involvement in 1) and cervical, thoracic and lumbar localizations were observed in 3, 8 and 7 cases, respectively. Motor involvement was noted in three (11.5%) patients (paralysis in C7 innervated muscles and drop hand in one and paralysis in L4-L5 innervated muscles and drop feet in Figure 1). Four patients (15.3%) had multiple dermatomal involvements, of whom two had involvements at symmetric sides of the same dermatome in two (bilateral ophthalmic dermatomes in one (Figure 2) and bilateral thoracic in the other) and at different dermatomes in another two (thoracic and lumbar). One patient with multiple dermatomal involvements (the patient with rheumatoid arthritis on corticosteroid treatment) had no history of immunosuppression. Magnetic resonance imaging studies of patients with motor involvement showed no discopathy finding or similar lesion to explain that situation. Electroneuromyography (ENMG) was performed in a patient with motor disability (drop hand). ENMG could not be performed for the other patients with motor involvement because they did not get a permit for this study. Radial nerve conduction study demonstrated demyelination findings characterized by prolonged latency and decreased conduction velocity in patient with drop hand. Other nerve conduction studies were found in normal limits. Needle electromyography showed acute denervation potentials and decreased motor unit frequency during maximum contraction at muscles innervated by the radial nerve.

DISCUSSION

HZ is a common disease caused by reactivation of dormant varicella-zoster virus in the dorsal root ganglia, which may affect motor and/or sensory nerves. Older age further increases the risk: most zoster diseases occur after the age of 45 years and half of all cases reported are in individuals older than 60 years (8, 9). The mean age of patients in our study was 61.9±16.4 years and was consistent with the literature. It is unclear whether the risk of zoster is increased in females. Women might be more likely to seek medical advice for their zoster compared with men or may have increased prevalence of risk factors or women might be expected to have more social contacts with children compared with men (10, 11). Similar to previous reports, the incidence of zona zoster was higher in women in our study (female/male: 15/11). However, a definitive conclusion could not be reached since our study was not a population-based study but an outpatient clinic-based one.

Local pain is severe in zona. Inflammation of pain receptors is attributed to the stimulation of primary neurons of the skin via tissue damage (12). The persistent pain is defined as post-herpetic neuralgia and is an important cause of stress and disability with impairment of the patients' quality of life (13). Its incidence is generally estimated between 10 and 20% of Zoster cases (7, 13). It is commonly defined as pain persisting at least 1 to 3 months after the onset of the herpes zoster rash. Our patients had burning sensation and severe pain before the onset of lesions. The time between the onset of symptoms and their presentation to our clinic ranged

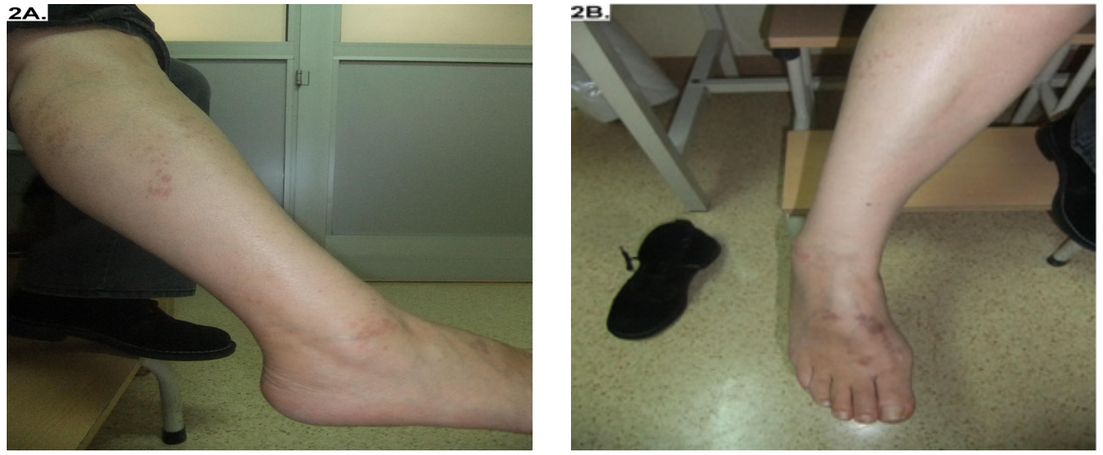

***Figure 1**. A;Faded maculopapular rash on lateral and B; Anterior aspects of leg at the L5 dermatome, one month after the treatment in a 52-year-old female who has no previous known medical illness history.*

between 1 week and 9 years in these 26 patients. Immunocompromised people or those receiving immunosuppressive drugs are also at increased risk for zoster. Thus, HIV-positive individuals, patients undergoing bone-marrow or organ transplantation, steroid therapy, persons with rheumatoid arthritis or lupus, trauma and stressful life circumstances have been suggested to play a role in development of herpes zoster (8,11,13). Immunosuppression history was identified in 15% of patients [lymphoma (n=2), bladder cancer (n=1) and rheumatoid arthritis on corticosteroid treatment (n=1)] in our study, which was consistent with the literature.

Thoracic dermatomes are the most commonly affected sites in herpes zoster and account for up to 50% of all cases. Cranial (especially the ophthalmic division of the trigeminal nerve), cervical, and lumbar dermatomes each account for 10% to 20% of cases, and sacral dermatomes are affected in 2% to 8% of cases (10). In our study, eight of the patients had trigeminal nerve lesions (ophthalmic in 7 and mandibular in 1), 3 had spinal cervical lesions, 8 had spinal thoracic lesions and 7 had spinal lumbar dermatomic lesions. The pathophysiological mechanism of segmental zoster paresis remains unclear. Primarily affecting sensory ganglions and sensory

***Figure 2**. 1A. Faded maculopapular rash in bilateral ophthalmic dermatomes (prominent on the right side); one week after acyclovir treatment, 1B. Complete recovery; three months after treatment in 71-year-old male patient who has a prosthetic metal heart valve.*

nerves, herpes zoster may also result in motor loses in adjacent structures at the anterior horn of medulla spinalis and motor stems (14). The incidence of segmental or nonsegmental motor nerve involvements, such as muscle weakness and partial motor paralysis has been reported to be between 0.5% and 31% (15,16). Motor involvement was noted in three patients (11.5%) in our study; C7 in one and L4-L5 innervated muscles in two.

HZ mainly affects a single dermatome of the skin. But, especially in the immunosuppressed patients, the infection may spread to multiple dermatomes (8). Apart from the skin, the disseminated form of the disease may even involve internal organs like lungs, liver or brain (17). However, unlike the previous reports, only one patient with multiple dermatomal involvements in this study has immunosuppression history.

HZ is a very common disease that can be severe. With the increasing elderly population, the incidence and epidemiology of HZ will be expected to change. The present study emphasizes that zona may also cause motor involvement besides sensory involvement by reviewing patients with herpes zoster monitored by our clinic for accompanying conditions, anatomic localizations and presence of multiple dermatomal involvements.

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