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POSTHERPETIC ABDOMINAL PSEUDOHERNIA POSSIBLY ASSOCIATED WITH MYASTHENIA GRAVIS: A CASE REPORT

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ABSTRACT

Herpes zoster, caused by the reactivation of the varicella-zoster virus, predominantly affects individuals over the age of 65 and those with compromised immune systems. It may result in both sensory and motor neurological complications. Approximately 95% of postherpetic complications are sensory, whereas motor neuropathy involving abdominal muscles is rarely reported, affecting only 0.17% of cases. We present a case of a 74-year-old male diagnosed with postherpetic right abdominal pseudohernia, due to affection of the motor fibers of the spinal nerves. The dermatological examination revealed a characteristic vesicular rash in the Th 9-11 dermatomal distribution, along with a visible abdominal bulge on the right abdominal flank. The coexistence of myasthenia gravis may have predisposed VZV reactivation. It is essential to distinguish this condition from more common causes such as true abdominal hernias that often require surgical intervention. Continued follow-up is crucial to ensure complete resolution and prevent long-term complications.

Keywords: Herpes zoster, Postherpetic complication, Motor neuropathy, Abdominal pseudohernia, Myasthenia gravis

INTRODUCTION

Herpes zoster (HZ) predominantly affects individuals over the age of 65 and those with compromised immune systems [16]. It results from reactivation of the varicella-zoster virus (VZV), which remains latent in dorsal root ganglia along the entire neuraxis [16]. Clinically, it is characterized by clusters of vesicles on an erythematous base, typically presenting unilaterally and not crossing the midline [1, 14, 16].

HZ infection can cause neurological complications that may affect both sensory and motor nerves, and is often accompanied by pain and sensory disturbances in the affected nerve territory. [1, 12, 14].

It has been reported that approximately 95% of postherpetic complications are sensory in nature [5]. Postherpetic neuralgia is the most common sensory complication of HZ, occurring

in 9–34% of cases [2, 15]. The most commonly affected are sensory roots from the thoracic spinal nerves with symptoms and signs in the territory of the thoracic dermatomes, followed by the cranial (especially trigeminal), lumbar, and cervical spinal nerves, while sacral spinal nerves and their dermatomes are the least frequently involved [2].

Motor complications occurs in approximately 2–3% of HZ cases, typically affecting the face, as well as the upper and lower limbs [2, 5]. Facial nerve palsy, or Ramsay Hunt syndrome, occurs in approximately 1.7% of patients with HZ and in 34.4% of those with motor paresis [9, 13, 15]. Abdominal muscle palsy is a rare manifestation, seen in only 0.17% of all HZ cases and in 3.3% of patients with motor paresis [9, 13, 15]. Motor neuropathy in HZ is believed to result from inflammation extending from the dorsal-posterior to the anterior roots of the spinal nerves, which can disrupt motor pathways and potentially lead to weakness or paralysis in the affected myotomes regions [2, 4, 16]. Abdominal pseudohernia is primarily attributed to segmental motor neuropathy, resulting from involvement of motor fibers within the anterior roots of the thoracic spinal cord [10, 11, 13]. In such cases, impaired innervation of the abdominal oblique muscles may lead to muscular atrophy and functional loss, ultimately causing localized abdominal wall protrusion [10, 11, 14].

The involvement of the visceral nerves in the gastrointestinal or urinary tract is an even rarer complication than motor neuropathy, and can result in conditions such as colonic pseudo-obstruction, constipation, urinary retention, and cystitis [10, 12, 13].

We present a rare case of postherpetic abdominal pseudohernia (PHAP) in a 74-year-old patient with myasthenia gravis (MG), suggesting a potential link between autoimmune neuromuscular disease and motor complications of HZ.

CASE PRESENTATION

A case of a 74-year-old male patient diagnosed with PHAP, possibly associated with MG, who was referred to a dermatologist due to the sudden appearance of a horizontally distributed vesicular rash on the right lateral abdomen, accompanied by mild pain. Five days after the rash appeared, the patient noticed an asymptomatic right-sided abdominal bulge in the same region, which became more prominent in a standing position.

The patient has a 20-year history of seropositive generalized MG with bulbar symptoms and signs, actively monitored by a neurologist. He

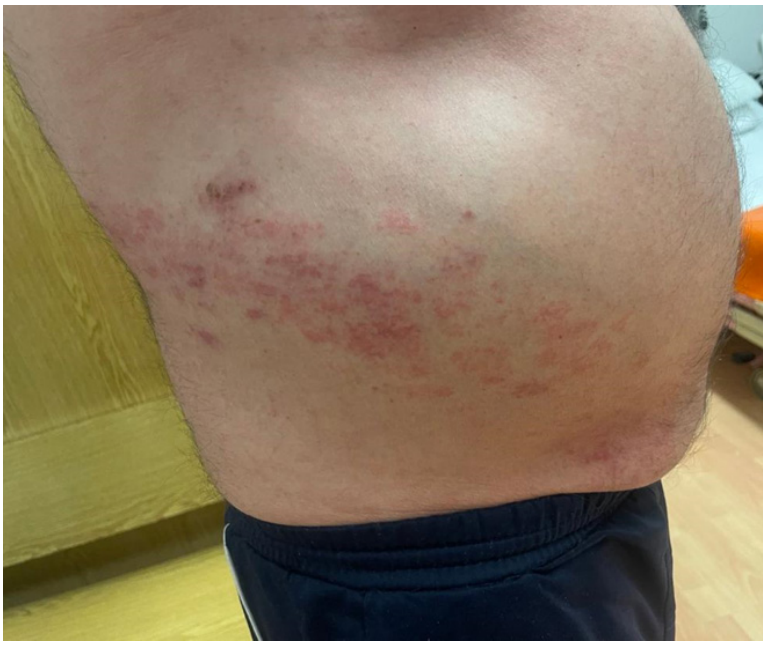

Figure 1. *Herpetic cutaneous lesions on the right flank, distributed along the Th9-11 dermatomes*

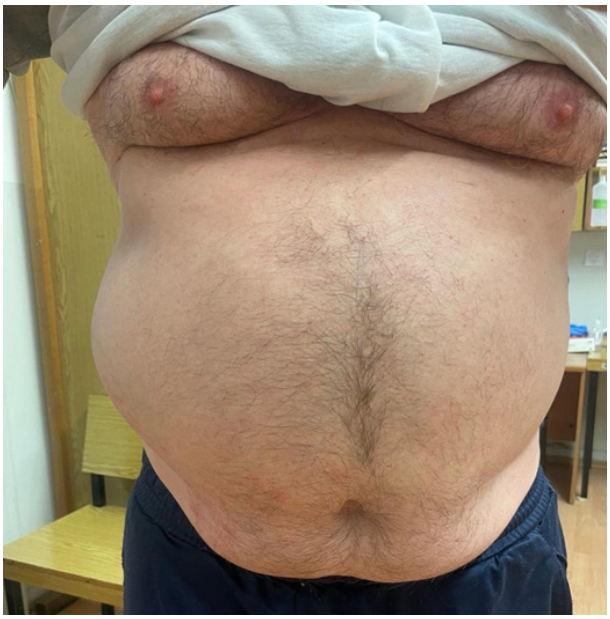

Figure 2. *Right-sided abdominal wall bulge in a patient with a characteristic HZ rash.*

is currently on treatment with azathioprine, pyridostigmine, prednisolone, B complex vitamins, and potassium chloride tablets. Additional comorbidities include: Hashimoto's thyroiditis, hypertension, and chronic congestive heart failure.

At the dermatological examination, a HZ rash was observed, consisting of grouped vesicles on an erythematous base, distributed in the Th9-11 dermatomes on the right side of the abdomen (Figure 1). The inspection revealed a visible abdominal bulge on the right flank (Figure 2).

On palpation, the abdomen was soft, non-tender, with no signs of visceromegaly. The abdominal protrusion became more prominent during the Valsalva maneuver, suggesting abdominal wall muscle weakness rather than a true hernia.

Laboratory tests were made, all within the normal reference range. The X-ray findings were unremarkable, with no evidence of free subdiaphragmatic air, bowel distension, or air-fluid levels. The abdominal ultrasound was normal, with the exception of the mild intestinal meteorism observed in the epigastric region.

The diagnosis was established based on the clinical presentation, the characteristic HZ rash, and the exclusion of other potential causes.

The treatment included oral virostatic and analgesic therapy accompanied by topical antiseptic therapy.

The patient was monitored regularly over a period of three months. However, no significant improvement in the abdominal protrusion was observed. Given the persistent muscle weakness and the presence of underlying MG, the patient was advised to continue long-term follow-up, as neuromuscular impairment may delay full recovery.

DISCUSSION

PHAP is a rare complication resulting from HZ infection [4, 13]. It is characterized by a localized bulging of the abdominal wall without any structural defect, fluid collection, or mass [4,9]. This condition is caused by unilateral motor denervation and paralysis of the abdominal muscles, secondary to viral involvement of the thoracic spinal nerves, particularly affecting the motor fibers [4, 9, 13].

The earliest documented case of PHAP was reported by Taylor in 1885, who described a case of segmental abdominal wall paresis following HZ [6]. Taylor's report is historically significant because it represents the first clinical description of this rare and underreported motor complication. Although detailed information about this case is limited, his observation was the first to suggest that HZ can affect not only the sensory,

but also the motor components of spinal nerves, resulting in muscle paralysis.

We conducted a comprehensive literature review on the pathophysiology, diagnosis, and dermatological role in identifying this uncommon HZ complication, based on a PubMed search with keywords such as: Herpes zoster, Post herpetic complication, Motor neuropathy, Abdominal pseudohernia, and Myasthenia gravis.

The first extensive literature review on PHAP was conducted by Chernev et Dado (2013), who analyzed 35 studies including 36 individual cases [7]. The average patient age was 67.5 years, with a male-to-female ratio of approximately 4:1 [7]. Both sides of the abdomen were involved with similar frequency, and the most commonly affected dermatome was T11 [7]. In the majority of cases, the herpetic rash preceded the development of the PHAP [7]. The time from the appearance of the characteristic rash to the onset of PHAP ranged across cases, with a mean interval of 3.5 weeks [7]. In one case, the PHAP preceded the rash, whereas in three cases, no rash was present [7]. Conservative treatment resulted in full recovery, with recovery time ranging from 1.5 to 12 months [7].

Chiew et Pawa (2023) analyzed 34 cases of PHAP secondary to HZ infection from 2001 to 2021 [8]. The median patient age was 71.5 years, with a male-to-female ratio of approximately 4:1 [8]. The median onset of PHAP after rash appearance was 14 days [8]. Notably, in four patients, PHAP developed before the onset of the HZ skin rash [8]. The thoracic dermatome T11 was the most commonly affected [8]. Most patients experienced full recovery, with an average follow-up duration of 3 months [8]. These results are consistent with the observations of Chernev et Dado (2013). However, Chiew et Pawa (2023) were the first to perform a statistical analysis identifying factors associated with poor recovery, such as pre-existing conditions like diabetes mellitus and hypertension [8]. Limitations include the retrospective design and small sample size, as well as insufficient documentation of underlying medical conditions.

Kishimoto et al. (2025) identified 94 individual cases of PHAP [16]. The mean patient age was 65 years, with a male predominance (male-to-female ratio approximately 2.5:1) [16]. The most commonly affected neurosegment was Th11, involved in 54% of cases [16]. In 73% of patients, abdominal wall paralysis occurred after the onset of HZ [16]. The average interval between rash appearance and PHAP onset was 26.7 days [16]. Only 7.4% of cases presented with simultaneous onset of typical HZ and PHAP, while another 7.4% presented with PHAP alone [16]. A complete recovery with conservative medical management was reported in 79.3% of patients, with a mean recovery period of 4.9 months (based on a subgroup of 36 cases) [16].

Establishing a clear association between pre-existing medical conditions and the risk of developing PHAP is challenging owing to the limited clinical data. Dobrev HP et al. (2012) reported the first case of a 75-year-old female patient with rheumatoid arthritis associated PHAP [2]. The patient had a 45-year history of rheumatoid arthritis and was on long-term immunosuppressive therapy, making the body more susceptible to infections [2]. Przygocka et al. (2024) reported the first known case of PHAP in a patient on peritoneal dialysis [3]. Chronic kidney disease patients, especially those on dialysis, have weakened immune systems due to uremia, which impairs both B and T lymphocyte function [3]. As a result, these individuals are at a higher risk of infections, including reactivation of the VZV [3].

Our case is the first reported case of MG associated PHAP. MG is an autoimmune neuromuscular disorder that affects postsynaptic cholinergic receptors, resulting in symptoms of muscular fatigue [17]. Patients with MG have compromised neuromuscular transmission due to autoantibodies against acetylcholine receptors or associated proteins [17]. A thorough review of the literature reveals no previously documented cases explicitly describing the coexistence of MG and PHAP. This rarity highlights a significant knowledge gap regarding how autoimmune neuromuscular disorders influence the clinical course and complications of HZ. Given the immunosuppressive treatments commonly administered in MG and the underlying neuromuscular weakness, this patient may be at heightened risk for severe or atypical manifestations of HZ, including the motor neuropathy. Further investigation is necessary to elucidate the pathophysiological mechanism underlying this association.

Diagnosis is primarily clinical, relying on the characteristic herpes zoster rash and its dermatomal distribution, together with the appearance and location of the abdominal protrusion [3, 7, 12]. In atypical presentations lacking char-

acteristic cutaneous manifestations, clinicians should carefully consider a multidisciplinary approach involving dermatology, gastroenterology, and neurology [16]. A careful examination and differential diagnostic approach are crucial to exclude structural, metabolic, and neurological conditions [16]. Therefore, imaging techniques such as ultrasound, computed tomography, or magnetic resonance should be performed to rule out true abdominal hernias, and intra-abdominal masses [3,10]. Although electrophysiological tests are not commonly used, they can provide valuable insights into the degree of muscle weakness or can help resolve any diagnostic uncertainties [3, 7].

To date, there are no established treatment protocols or evidence-based guidelines for the management of PHAP [16]. The treatment approach is primarily conservative, focusing on managing the underlying infection with virostatic therapy, neuropathic pain medications, muscle rehabilitation, and waistbands [1, 8, 16].

The prognosis is generally favorable, with patients typically showing gradual recovery, often restoring ad integrum without any sequelae [7, 10, 15]. However, long-term follow-up is recommended, especially for elderly patients with underlying comorbidities, to monitor for any recurrence or potential complications arising from persistent neuropathy or visceral involvement [1, 11]. Further investigations are necessary to elucidate the underlying pathophysiological mechanism and its associations with underlying conditions, such as myasthenia gravis in our case, as well as to establish evidence-based guidelines for its definitive diagnosis and management.

CONCLUSION

This case highlights the crucial role of dermatologists in recognizing PHAP as a rare complication of HZ. Given the rarity of the condition, it is essential to include it in the differential diagnosis of patients with a history of HZ rash. It is also crucial to distinguish it from more common causes, such as true abdominal hernias, which may require surgical intervention. Raising awareness of this clinical entity can help reduce unnecessary invasive procedures and promote more conservative management. Continued follow-up is vital to ensure full resolution and prevent long-term complications. Definitive treatment guidelines have not yet been established due to the limited available data and case reports. Further investigation is required to establish standardized diagnostic and treatment approaches, and to gather data on the pathophysiology and its potential association with myasthenia gravis.

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Резиме

ПОСТХЕРПЕТИЧНА АБДОМИНАЛНА ПСЕВДОХЕРНИЈА И МОЖНА АСОЦИРАНОСТ СО МИЈАСТЕНИЈА ГРАВИС: ПРИКАЗ НА СЛУЧАЈ

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Херпес зостер, предизвикан од реактивација на вирусот варичела зостер, претежно се јавува кај лица над 65 години и кај оние со компромитиран имунолошки систем. Може да предизвика сензорни и моторни невролошки компликации. Приближно 95 % од постхерпетичните компликации се сензорни, додека моторната невропатија, која ги зафаќа абдоминалните мускули, ретко е пријавена, со застапеност од само 0,17 %. Прикажуваме случај на 74-годишен маж дијагностициран со постхерпетична псевдохернија на десната страна од абдоменот и можна поврзаност со мијастенија гравис. Дерматолошкиот статус со присуство на карактеристичен везикуларен осип во (Th9-Th11) дерматомална дистрибуција, заедно со видлива протрузија на десниот абдоминален sид. Коегзистенцијата со мијастенија гравис можеби го предиспонирала пациентот кон развој на оваа ретка компликација. Од особена важност е да се направи разлика од почести причини, како што се вистинските абдоминални хернии, кои често бараат хируршка интервенција. Континуираното следење е неопходно за комплетна резолуција и превенција на долгорочни компликации.

Клучни зборови: херпес зостер, постхерпетична компликација, моторна невропатија, абдоминална псевдохернија, мијастенија гравис