

Herpes Zoster infection: Report of three cases with review of literature

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ABSTRACT

The Varicella Zoster virus, an alpha virus can present in two distinct forms. The primary infection, chicken pox or varicella, is a contagious but usually benign illness that occurs in epidemics among the susceptible children. After the initial infection, the virus remains dormant until there is a reactivation, leading to the secondary form of disease called Herpes Zoster. Herpes Zoster (HZ) is a disease that falls within the diagnostic domain of dentists and dental specialists. During the prodromal stage of this disease, the only presenting symptom may be odontalgia; which may pose a diagnostic challenge to the clinician. With an increasing number of elderly and immunocompromised patients attending the dentist, the dental professional can expect to encounter an increasing number of HZ patients. Thus, the clinician must be familiar with the various stages of HZ. This article presents three classical cases of HZ and a detailed review of literature.

Key words: Varicella Zoster, Reactivation, Herpes Zoster, Odontalgia.

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Introduction

HZ is an acute viral infection caused by varicella zoster virus (VZV). Following primary viral infection (chicken pox), typically in childhood, VZV establishes latency in dorsal root or cranial nerve ganglia. Reactivation, though uncommon, results in its spread from the ganglion to the corresponding dermatome(s), producing neurocutaneous signs and symptoms- HZ or shingles. HZ affecting the oral and maxillofacial region poses a significant diagnostic challenge and should be considered in the differential diagnosis of those presenting with atypical odontalgia. Prompt management is required, especially in immunocompromised individuals, to prevent complications, which may cause significant morbidity.

Hereby we present three classical cases of HZ and a detailed review with special emphasis on early diagnosis and prompt treatment.

Case Description

- **CASE 1-** A 40 year old male patient reported to the department with a complaint of painful blisters on the right side of the face since 3-4 days.

History revealed that from past one week patient started experiencing pain on the right side of face, which was severe,

continuous and radiating to the temporal region. Pain was accompanied by low



Figure:1



Figure:2



Figure:3

grade fever and malaise. Three days later, he developed few small blisters on right side of face which progressively increased

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both in size and number. These were accompanied by watery discharge. Patient also reported of ulcers in the mouth and also on right side of the tongue due to which he was unable to consume solid food and was on liquid diet since 3-4 days.

On extra-oral examination, unilateral involvement of right side of face with numerous fluid filled vesicles was noticed affecting the temporal, auricular and preauricular region and the right side of chin. Ulceration and erythema was seen on lips and vermillion border. The right half of lower lip and the right commissure also showed crusting and bleeding. (Figure 1)

Intra-oral examination revealed unilateral diffuse ulcers involving the lower right labial mucosa, right dorsal surface, lateral border of tongue, further extending to the right ventral surface (Figure 2, Figure 3).

On the basis of history of pain, unilateral involvement of lesions and typical clinical picture, a provisional diagnosis of Herpes Zoster of the right trigeminal nerve was put forth. The oral cytologic smear confirmed the viral aetiology of the disease. Patient was prescribed Tab. Acyclovir 800 mg 5 times daily and infectivity and Tab. Paracetamol 500 mg twice daily alongwith topical lidocaine gel three times daily for 5 days. Patient was called after 5 days for review. There was remarkable improvement after 5 days and

at subsequent visit after 2 weeks, good healing of the lesions was evident.

CASE 2- A 75 year old male patient reported to the department with a complaint of pain and blisters on left side of face from past 4 days.

History revealed that patient started developing blisters on left lower half of face since 4-5 days. They were accompanied by unilateral shooting pain and burning sensation, which also caused him difficulty in mouth opening. Patient was already under medication prescribed by a private practitioner, Cap. Amoxicillin 250 mg BD and Tab. Paracetamol 500 mg TDS since 3 days without any relief.



Figure:4

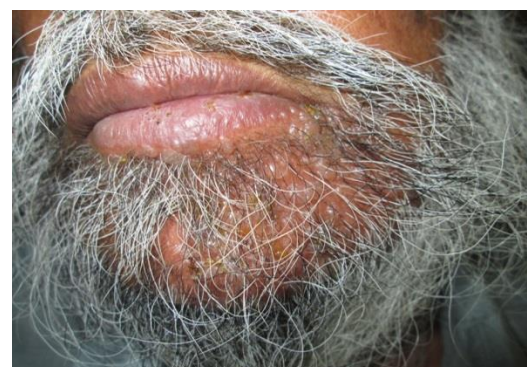


Figure:5



Figure:6

On extra-oral examination, numerous fluid filled vesicles were seen on left side over the chin with some crusting on the mental region and on the left half of the lower lip (Figure 4).

On intra-oral examination, numerous yellowish fluid filled vesicles were seen on the complete left half of the oral mucosa involving left labial mucosa, buccal mucosa and left lateral border of the tongue (Figure 5).

On the basis of characteristic history of prodromal pain, unilateral vesicular eruptions and associated symptoms, a provisional diagnosis of Herpes Zoster involving the mandibular division of left trigeminal nerve was put forth. The viral aetiology was evident on the cytologic smear obtained from left buccal mucosa. Patient was prescribed Tab. Acyclovir 800 mg five times a day, Tab. Paracetamol 500 mg BD, Cap. Becosule-Z (multivitamin) once daily. Patient was also prescribed topical anaesthetic (benzdyamine) three

times daily for local application and was recalled after 5 days. The patient reported back after 5 days showing significant improvement and complete healing after 10 days (Figure 6). Patient was followed up for subsequent visits.

CASE 3- A 65 year old male patient reported to the department with the chief complaint of mobility of left lower back tooth and wanted removal of same. Patient also complained of severe pain on left lower side of face from past 3 days.

History revealed that patient noticed mobility with lower left back tooth since one week. From last 3 days, patient was also experiencing pain which was severe, continuous and radiated to the lower jaw, ear and eye region on the left side of face.

No obvious abnormality was detected on general physical examination and on extra-oral examination. When examined intra-orally, partially edentulous upper and lower arches were noted. There was grade I mobility in left lower posterior tooth which did not correlate with the intensity of pain reported. Hence, patient was advised not to undergo extraction of the tooth and an anti-inflammatory drug (Diclofenac sodium) was prescribed and was asked to report after 3 days for review. On the very next day, patient reported with high grade fever and unilateral vesicular eruptions on the skin overlying lower jaw,

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multiple small to moderate ulcers over labial mucosa, buccal sulcus, gingiva of lower left jaw and over left side of tongue (Figure 7, Figure 8).



Figure:7



Figure:8

Considering the history and clinical presentation, a provisional diagnosis of Herpes Zoster of mandibular division of left trigeminal nerve was put forth. Patient was prescribed Tab. Acyclovir 800 mg five times and an anti-inflammatory Diclofenac sodium 50 mg three times a day and was advised to take large amount of fluid. Patient was then recalled after 5 days for review. He reported back with significantly evident improvement and was asked to continue the same medication for the next 5 days. Patient was kept on follow

up and reported 15 days later with complete healing of the lesions.

Discussion

Primary infection with Varicella Zoster Virus (VZV) leads to varicella (chicken pox). Reactivation of this virus causes Herpes Zoster Infection (HZI). HZ is more commonly known as Shingles, from the Latin cingulum, for “girdle”.^{1, 4} This is because a common presentation of HZ involves a unilateral rash that can wrap around the waist or torso like a girdle. Similarly, the name zoster is derived from classical Greek, referring to a belt-like binding (known as a zoster) used by warriors to secure armor.⁷

There is no way to predict who will develop HZ, when the latent virus will reactivate, or what may trigger its reactivation. However, the elderly and those with compromised immunity are at greater risk of developing HZ.^{2,3} 10-20 percent of normal adults will get shingles during their lifetime. This figure increases dramatically to 50 percent for those over age 85 years.^{7,8}

VZV is a ubiquitous DNA virus which is one of the eight known herpes viruses that infect humans.^{5, 7} The first association between varicella and herpes zoster was made in 1892.^{5,8} The first indication that chickenpox and herpes zoster were caused by same virus was noticed in the beginning

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of the 20th century. The idea of an association gained strength when it was shown that lymph from a sufferer of herpes zoster could induce chickenpox in young volunteers. This idea was finally proved by the first culture isolation of the virus in cell cultures, by the Nobel laureate, Thomas Huckle Weller, in 1953.⁸

Patients with HZ infection usually progress through three stages: (i) prodromal stage, (ii) active or acute stage and (iii) chronic stage. However, some patients are not symptomatic at all stages. In few cases, vesicular eruptions of active stage are not present though the patient complains of pain restricted to a particular dermatome. This condition has been referred to as *Zoster sine herpette* or *Zoster sine eruptione*. The diagnosis in such cases, which lacks the clinical finding, is difficult and challenging for the clinician.^{1,5}

The prodromal stage may present with burning, tingling, itching, boring, prickly or knife-like sensations in the skin over the affected nerve distribution.⁵ Patient may also experience headache, malaise and acute photophobia before the rash appears.³ This usually precedes the rash of the active stage by few hours to several days.¹ Sometimes, odontalgia may be the only prodromal symptom that the patient may present with.^{1,5}

The active stage is characterized by the emergence of the rash that may be accompanied by generalized malaise, headache, low-grade fever, nausea, pain and altered sensitivity to touch.^{1,3} The rash progresses from erythematous papules and oedema to vesicles in 12 to 24 hours and finally progresses to pustules within 1 to 7 days. The pustules begin to dry with crust formation that fall off in 14 to 21 days leaving erythematous macular lesions that result in hyperpigmented or hypopigmented scarring. When considering the oral manifestations, the ophthalmic division of trigeminal nerve is most commonly involved. Pain and dysaesthesia during the active stage are reported to be minimal when the rash is most active. However, there is a return of pain during the crusting phase of the active stage but the pain subsides as the crusts clear.⁵

The chronic pain syndrome stage is termed post herpetic neuralgia (PHN). It is defined as pain lasting beyond the period of healing (1-3 months) of the active skin lesions but may in fact last for years and decades. PHN pain may be described as pain consisting of three distinct components: (i) a constant, usually deep pain (ii) a brief recurrent shooting or shocking tic-like pain and (iii) a sharp radiating dysaesthetic sensation evoked by

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a very light touch of the skin, termed allodynia.⁵

Definitive diagnosis usually involves a process of elimination. The differential diagnosis includes trigeminal neuralgia, maxillary sinusitis, periodic migrainous neuralgia, myocardial pain, atypical facial pain and Munchausen’s syndrome. Also, HZV infection may also be confused with impetigo, contact dermatitis, insect bite, folliculitis, dermatitis herpetiformis or drug eruptions. Most frequently, it presents with a rash similar to that of herpes simplex.⁸ Physicians should keep in mind that a rash that is recurrent in the same dermatome is most likely Herpes Simplex Virus (HSV) infection.³

In some cases, particularly in immunosuppressed persons, the location of appearance of rash might be atypical, or a neurologic complication might occur well after resolution of the rash. In these instances, laboratory testing might clarify the diagnosis. Tzanck smears, Direct fluorescent antibody (DFA) staining of VZV-infected cells in a scraping of cells and Polymerase chain reaction (PCR) technique can be used to detect VZV–DNA rapidly and sensitively.⁸

Early diagnosis and prompt treatment of the disease in the prodromal phase by the use of anti-viral agents should probably be the mainstay of its management. Anti–viral agents have been shown to decrease the

duration of herpes zoster rash and the severity of pain associated with the rash. However these benefits have only been demonstrated in patients who receive antiviral agents within 72 hours after the onset of the rash.⁶ The various drugs alongwith their dosages are summarized in Table 1.

GENE RIC NAME	ACYCL OVIR	VALACYC LOVIR	FAMCICL OVIR
DOSA GES	800 mg four times a day for 7- 10 days.	1 g three times a day for 7 days.	500 mg three times a day for 7 days.
BRAN D NAME	ZOVIRA X	VALTRESX	FAMVIR

Table 1: Recommended dosages of various anti-viral drugs.

The acute pain can be reduced during the prodromal and acute phases. Generally, individuals with mild-to-moderate pain find sufficient relief via over-the-counter available topical or oral analgesics and anti-inflammatories such as aspirin, acetaminophen and ibuprofen. These can provide effective temporary relief in cases of acute herpetic neuralgia as well as PHN. In patients with severe pain, use of narcotics may be indicated. The effectiveness of nerve blocks for reducing or preventing PHN is questionable.⁷

Clinical control trials have shown that patients receiving corticosteroids in combination with acyclovir had a moderately significant acceleration in the

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rate of cutaneous healing and alleviation of acute pain. Corticosteroids should not be used in patients at risk for corticosteroid induced toxicity and also their use without concomitant antiviral therapy is not recommended.^{2, 10.}

The treatment of PHN includes the topical use of capsaicin cream, reishi mushroom, honey, aloe vera, transcutaneous nerve stimulation, topical anaesthetics and low dose amitriptyline, a tricyclic antidepressant. But no single treatment is universally effective for all PHN patients.^{1,11.}

Also, the varicella zoster virus Oka strain vaccine is currently recommended by the Advisory Committee on Immunization Practices for universal childhood vaccination in USA. The vaccine increases cytotoxic lymphocyte responses specific for varicella zoster virus in seropositive elderly people. HZ vaccine has been shown to reduce the incidence of shingles by 51% and PHN by 66%. The National Advisory Committee on Immunization (NACI) recommends the vaccine for all adults aged 60 years and above and also to be considered in those older than 50 years of age. But, the recommendation of the vaccination schedules in India is still awaited.⁹

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