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Herpes Zoster Infection of the unilateral Maxillary Nerve: Two case reports with review of the literature.

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Abstract
Herpes Zoster infection also known as "shingles" is a viral infection caused by reactivation of Varicella zoster virus [VZV] causing severe pain, and vesicular rash .After primary infection; VZV remains latent in the neurons of sensory ganglion, of the cranial nerves. Dental symptoms due to gasserian ganglion involvement include orofacial pain with vesicular and ulcerative lesions on intraoral mucosa and extra oral sites. This paper reports two cases of early diagnosis and treatment of herpes sine zoster infection involving maxillary nerve and without clinical eruption of vesicular rash in a 32 –year- old female and 23-year old male patient with lesion on palate with its follow up.

Keywords: *Palate Herpes Zoster, Varicella, Trigeminal nerve.*

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I. Introduction

Herpes Zoster infection also known as "shingles" is a viral infection. It occurs due to reactivation of the Varicella zoster virus [VZV].[1] Varicella-zoster is a DNA virus, which belongs to genus varicello – virus, family herpes viridae also known as Human herpes virus-3.[2] Primary VZV infection causes chicken pox and generally occurs in the first two decades. Varicella disease begins with a low-grade fever, malaise, followed by pruritic maculopapular rash and vesicular lesions that begin on the trunk or face and spread centrifugally.[3] It is acquired through inhalation of respiratory droplets from an infected host within the incubation period of 10-21 days. After primary infection, VZV remains latent in the neurons of a sensory ganglion; especially dorsal root ganglion of the spinal nerves and extramedullary ganglion of the cranial nerves. Reactivation is triggered by immune suppression.[4] Reactivation of VZV infection may result in vesicular eruption and pain due to subsequent infection of the epithelium overlying the dermatome where the virus had remained latent. It is often accompanied by deep and severe pain, allodynia or dysesthesia.[13] The commonly affected dermatomes are thoracic [56%], cranial [13%] lumbar [13%], cervical [11%] and sacral nerves [4%]. The trigeminal and facial nerves are commonly affected with involvement of the gasserian and geniculate ganglia. In trigeminal nerve ophthalmic is most commonly affected and rarely involves maxillary and mandibular nerve.[5] There is prodromal phase lasting for 48-72 hours or longer, consisting of throbbing pain and paraesthesia in the affected region.[6] Dental symptoms may include odontalgia and orofacial pain with vesicular lesions on intraoral mucosa and extraoral sites. These articles reports two cases of herpes zoster infection involving right side maxillary nerve, with its treatment and follow up.

II. Case Presentation

Case report 1

A 32-year-old female patient reported with complaint of severe pain in right upper back teeth region and lesions on the palate from last 3 days causing discomfort while chewing, with history of fever one week back . Intraorally multiple small, yellowish ulcers were present on the middle aspect of the palate surrounded with erythema, confined to right side of the palate.

[Figure 1]

Case report 2

A 23-year-old male patient reported with the complaint of severe pain in the right upper molar teeth region from the last 3 days. There was a history of rhinorrhoea 2-3 days back. On intraoral examination there was an irregular yellowish tender ulcer with erythematous margins seen on the right side of the palate. Based on the correlation of history and clinical examination the diagnosis of herpes zoster infection of the right side maxillary nerve with palate involvement was made. [Figure 2]

Both patients reported positive history for primary varicella infection. Patient isolation was advised to avoid cross infection. Antinflammatory, analgesic and antiviral medication was prescribed for both cases. [Table 1]

[Table-1: Prescribed medication for case1 and case 2]

DRUG	DOSE	DURATION
Tab.Valacyclovir	1gram TDS	7days
Tab.Paracetamol	650mg TDS	7 days
Tab.Prednisolone	10mg QID with tapering doses after every 3 days.	7days
Dologel CT [Benzalkonium Chloride 0.01% w/w, Choline Salicylate 8.7% w/w, and Lignocaine 2% w/w]	Topical Application TDS	7 days
Chlorhexidine Mouth wash	Rinse &spit QID	7 days
Benzydamine hydrochloride rinse [0.15%]	Rinse and spit QID	7 days

Patients reported with 20-30% symptomatic relief after two days. Complete resolution of lesions and symptom relief was observed by patients after 7 days.[Figure 3, 4]There was no significant chronic complication after one month follow up of both the cases.

Figure1: Multiple small ulcers on right side of the palate.

Figure3: Showing healed lesion on the right side of the palate.

Figure2: Showing yellow colour ulcer on right side of the palate.

Figure 4: Showing healed lesion of the palate.

III. Discussion

Clinically HZ may progress from the prodromal to active stage, followed by Chronic stage. The patient may observe burning, tingling, itching, pricking, sensation along the dermatome distribution in prodromal stage and this stage is difficult to diagnose, as the symptoms could be present up to one month before active lesions. The active stage presents clinically as skin rash which progresses from erythematous papules to vesicles in 12-24 hours and to pustules in 1-7 days. Crusted pustules exfoliate over the next 2-3 weeks, that may scar. Intraoral lesions usually manifest after the occurrence of cutaneous lesons.[1] Intraoral lesions may occur without cutaneous involvement known as herpes sine zoster.[3] Both of our cases presented as herpes sine zoster involving palate only. The active or "eruptive" phase of HZ is most contagious phase.10% of all patients advance to the chronic stage of HZ, known as post herpetic neuralgia (PHN) which is a short-lived, deep, shooting, and recurrent pain for a month or 3 months or decades after healing of the mucocutaneous lesions. PHN risk increases with age because of reduced cell-mediated immunity.[1]

Herpes zoster may mimic odontogenic pain during the prodromal stage of the disease. Reactivation of the virus has also been implicated in the pathogenesis of pulpal pathoses .[11] Post herpetic maxillofacial complications have been infrequently documented and it includes periapical lesions, calcified and devitalized pulps, resorption of roots, osteonecrosis, and spontaneous exfoliation of teeth. [12]

Differential diagnosis of HZ includes recurrent aphthae, lichen planus, pemphigus and pemphigoid. Diagnosis of HZ is frequently done by correlating acute history with prodromal symptoms and clinical findings such as characteristic unilateral distribution of the lesion, as seen in our both cases. Adjunctive diagnostic investigation advised for HZ comprises of Cytology (Tzanck smear) which shows multinucleated giant cells, intra nuclear inclusion bodies with numerous lymphocyte, fluorescent antibody staining technique and PCR which shows elevation in the levels of IgG and IgM antibodies against VZV.[7]

Zoster associated complications may include neurologic components such as Guillian–Barre syndrome, encephalitis, myelitis, Ramsey–Hunt Syndrome, Horner's syndrome and Osteomyelitis or osteonecrosis of the underlying bone.[8] Ramsay Hunt syndrome or Zoster oticus involves the ear and it occurs due to virus spread from facial to vestibulocochlear nerve. Herpes zoster opthalimicus involves orbit of the eye causing conjunctivitis, keratitis, uveitis and optic nerve palsies, which may cause chronic ocular inflammation, loss of vision and pain. Oral lesions occur with trigeminal nerve involvement and may be present on the movable or bound mucosa. The oral lesions often extend to the midline and often are present with the overlying cutaneous lesions. The lesions manifest as 1–4 mm vesicles that rupture to form shallow ulcerations. There may be devitalization of the teeth in the affected area.[9]

[Table-2: Recommended treatment for herpes zoster infection.][2,3,9,10]

S.No.	Recommended treatment for herpes zoster
1.	Patient isolation.
2.	Local management of lesions. [Chlorhexidine[1:1] and Benzydamine hydrochloride rinse.
3.	Pain management :Corticosteroids and NSAIDs
4.	Antiviral medication administered within 72 hrs after onset of rash. Acyclovir(800 mgfive times/day), Famciclovir(500mgtds), Valacyclovir(1000mgtds) for 7-10 days
5.	Treatment of postherpetic neuralgia. Topical:- Capsaicin cream, lidocaine patch, three to five times daily. Oral:-Gabapentin[100-300mg], Opiod analgesics, amitriptyline[10-25mg]nortriptyline [10-25 mg] or Anticonvulsants like phenytoin [100-200mg],carbamazepine[100mg]and.
6.	Other treatment modalities • Topical zinc placement [4% zinc sulphate solution in water] QID for four days. • Vit-C 200mg TDS for three days.
7.	Vaccination A live attenuated vaccine can be prescribedto older adults to prevent VZV infection outbreaks and severity.

Recommended treatment for herpes zoster infection includes antiviral, antianalgesic and anti-inflammatory medication [Table 2].[2,3,9,11] These medication provides symptomatic relief and prevent further spread of the lesion. The common adverse effects of antiviral medication are nausea, headache, vomiting, dizziness and abdominal pain.[8, 10]

IV. Conclusion

Herpes zoster is a painful acute viral infection, which can spread through involved neural dermatome and increase in severity. Oral physician should recognise early HZV lesion and prescribe required treatment modalities for herpes zoster to prevent the severity of infection and chronic complication.

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