**Oral Complications of Herpes Zoster Infection- Report of 3 Cases**
Manjunath Reddy Bandral, Chidambar Y.S, Swaroop Telkar, sharnbasappa Japatti, Lalit choudary, Arun Dodamani

**Abstract**
Herpes zoster or ‘shingles’ results from reactivation of the varicella-zoster virus and one of its most common chronic is post herpetic neuralgia. Developmental anomalies, osteonecrosis of jaw bones and facial scarring are the other complications associated with it. Early diagnosis and prompt treatment of the disease in the prodromal phase by the use of antiviral agents should be the mainstay of its management. This paper report three cases of herpes zoster infection of trigeminal nerve.

**Key Words:** Herpes Zoster; Osteonecrosis; Diagnosis; Management; Trigeminal Nerve.

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**Introduction**
Herpes zoster is an acute infectious viral disease of extremely painful and incapacitating nature which is characterized by inflammation of dorsal root ganglia or extra medullary cranial nerve ganglia, associated with vesicular eruptions of the skin or mucous membrane in an area supplied by the affected nerve(1). The most commonly affected dermatomes are the thoracic (45%), cervical (23%) and trigeminal (15%)(2). It is believed that herpes zoster is caused by reactivation of the latent V-Z virus which had been acquired during a previous attack of chicken pox(3). Reactivation of the virus causes some serious complications of the areas supplied by these dermatomes. The triggering factors initiating the onset of an attack of herpes zoster are varied and may include trauma, development of malignancy or tumor involvement of dorsal root ganglia, local X ray radiation or immunosuppressive therapy(3). Herpes Zoster is very common, especially in elderly. The annual incidence of latent herpes zoster, which is approximately 1/1000 before the age of 20, increases 5-10 fold after the age of 80 years(4).

Post herpetic neuralgia is the most common complication of herpes zoster infection. Less well recognized maxillofacial complications include developmental anomalies such as irregular short roots and missing teeth, periodontitis and calcified and devitalized pulps(4). There are also reports of herpes zoster associated with periapical lesions and resorption of roots(5).

**Case Report**

*Case 1:* A 55 year old man reported to the department with pain and scars on the left side of upper face, he also complained about nasal regurgitation on drinking liquids. Patient visited a local dental doctor with pain in his 26 tooth region 3 months ago for which extraction of the tooth was done, but however the pain was not relieved and was referred to our department. On examination, healed scars were present on the left side of upper face involving the malar region, the left side of nose, zygoma and upper part of left lip. Intraoral examination revealed unhealed sockets of 24, 25, 26 and 27 and an oroantral communication in the region of 26 and 27 regions. Based on the clinical presentation, a provisional diagnosis of herpes zoster infection of left maxillary nerve with post herpetic osteonecrosis was given. Patient was immediately started on antiviral medications and posted for a surgical closure of the oroantral communication.

*Case 2:* A 28 year old lady reported to our department with multiple vesicular eruptions containing clear fluid on her right side of face associated with severe pain along the affected area. On examination there were multiple pin headed active vesicular lesions on right side of face involving the malar region, zygoma region, the upper and lower lips and lower border of face. Intraorally the labial mucosa of upper lip, lower lip and the right side of the hard palate were also involved. A provisional diagnosis of herpes zoster involving the right maxillary and mandibular nerve, division of V nerve was given and antiviral treatment instituted immediately.

*Case 3:* A 24 year old man reported with a complaint of pain in the left lower back tooth region and vesicular eruptions on the left side of upper face. On examination, multiple pinheaded vesicles, some of them healed, were present on the left side of face involving the zygoma region, malar region, ala of nose and the upper lip. Intraorally, no eruptions were seen but his 38 was partially erupted and an inflamed...
operculum was present which was causing pain and discomfort for the patient. Based on the clinical observations, a provisional diagnosis of pericoronitis with 38 and Herpes zoster infection of the left maxillary division of V nerve was given. Antiviral medications were prescribed and the patient was instructed to get his tooth extracted. Routine blood investigations along with HIV 1 & 2 antibody tests were performed for all the three cases, and the blood values were within normal limits and none of them were positive for HIV.

Discussion

Herpes zoster is a sporadic disease with an estimated life time incidence of 10-20%. The incidence of herpes zoster is up to 15 times higher in HIV infected patients than in uninfected patients and as many as 25% of patients with Hodgkin’s lymphoma develop herpes zoster. Household transmission rates have been noted to be approximately 15% (6).

20% of the cases of herpes zoster infect the trigeminal nerve; therefore oral physicians should have a thorough knowledge about the presentation of this condition, its treatment and the possible complications. The most common oral complications associated with this condition are post herpetic neuralgia, developmental anomalies, facial scarring, and osteonecrosis of the underlying jaw bone (NICO-neuralgia induced cavitational osteonecrosis) and exfoliation of teeth.

Schwartz and Kvoring reported 10 cases of herpes zoster with post herpetic complications including osteonecrosis of jaw, exfoliation of teeth, severe periodontitis and scarring of the skin(7). Wadden reported a 70 year old woman with a history of excellent oral health, who within 3 years of an attack of Shingles affecting the maxillary division of the left trigeminal nerve had multiple devitalization of four of the five teeth in the left maxillary quadrant suggesting a central source of injury rather than a local cause(8).

The most noted complications in case 1 of our report was facial scarring on the left side, exfoliation of 22, 23, 24, 25, and 27; the empty sockets of the above teeth showed no signs of healing and there was a communication between the oral cavity and the left maxillary sinus. This case reported to us, after development of all the complications, as he was undergoing treatment from a local dental doctor, who was unable to diagnose the condition, and which landed up in complications, but in case 2 and 3, there were no such complications seen because treatment was instituted very early. In case 1, we had to plan for a surgical procedure for closure of the oroantral fistula, and the post-operative follow of the patient was uneventful.

Edmunds et al suggest varicella vaccination as a double edged sword. 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 (9).

Early diagnosis and prompt treatment of the disease in the prodromal phase by the use of antiviral agents should probably be the mainstay of its management. The treatment of herpes zoster has three main objectives: (1) treatment of the acute viral infection, (2) treatment of the acute pain associated with herpes zoster and(4) prevention of post herpetic neuralgia. Antiviral 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 demonstrated in patients who received antiviral agents within 72 hours after the onset of the rash (6). The recommended dosages of antiviral agents used in the management of herpes zoster infection are given in table1(6).

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage</th>
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<tbody>
<tr>
<td>Acyclovir</td>
<td>800 mg orally five times daily for 7 to 10 days, 10 mg per kg IV every 8 hours for 7 to 10 days</td>
</tr>
<tr>
<td>Famciclovir</td>
<td>500 mg orally three times daily for 7 days</td>
</tr>
<tr>
<td>Valaclovir</td>
<td>1,000 mg orally three times daily for 7 days</td>
</tr>
<tr>
<td>Brivudin</td>
<td>125 mg once daily for 7 days</td>
</tr>
</tbody>
</table>

Table 1: Treatment options for herpes zoster infection(6).

Brivudin, even though 200-1000 times more effective than Acyclovir/ Penciclovir (invitro inhibition of viral replication rates) but has limited indication for immunocompetent patients because of fatally interaction with 5-FU (5- fluorouracil) can also be used(10). Some newer molecules which are under development and are found to be highly potent are still on clinical trials and yet to be approved Table 2(10, 11). Although post herpetic neuralgia is generally a self-limited condition, it can last
indefinitely. Treatment is directed at pain control while waiting for the condition to resolve.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage</th>
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<tbody>
<tr>
<td>Capsaicin cream</td>
<td>Apply to affected area three to five times daily.</td>
</tr>
<tr>
<td>Lidocaine (Xylocaine) patch</td>
<td>Apply to affected area every 4 to 12 hours as needed.</td>
</tr>
<tr>
<td>Amitriptyline</td>
<td>0 to 25 mg orally at bedtime; increase dosage by 25 mg every 2 to 4 weeks until response is adequate, or to maximum dosage of 150 mg per day.</td>
</tr>
<tr>
<td>Nortriptyline</td>
<td>0 to 25 mg orally at bedtime; increase dosage by 25 mg every 2 to 4 weeks until response is adequate, or to maximum dosage of 125 mg per day.</td>
</tr>
<tr>
<td>Imipramine</td>
<td>25 mg orally at bedtime; increase dosage by 25 mg every 2 to 4 weeks until response is adequate, or to maximum dosage of 150 mg per day.</td>
</tr>
<tr>
<td>Desipramine</td>
<td>25 mg orally at bedtime; increase dosage by 25 mg every 2 to 4 weeks until response is adequate, or to maximum dosage of 150 mg per day.</td>
</tr>
<tr>
<td>Phenytoin</td>
<td>100 to 300 mg orally at bedtime; increase dosage until response is adequate or blood drug level is 10 to 20 µg per mL (40 to 80 µmol per L).</td>
</tr>
<tr>
<td>Carbamazepine</td>
<td>100 mg orally at bedtime; increase dosage by 100 mg every 3 days until dosage is 200 mg three times daily, response is adequate or blood drug level is 6 to 12 µg per mL (25.4 to 50.8 µmol per L).</td>
</tr>
<tr>
<td>Gabapentin</td>
<td>100 to 300 mg orally at bedtime; increase dosage by 100 to 300 mg every 3 days until dosage is 300 to 900 mg three times daily or response is adequate. (Drug levels for clinical use are not available.)</td>
</tr>
</tbody>
</table>

Table III: Treatment options for post herpetic neuralgia(6, 11).

Conclusion
Herpes zoster infection leads to various complications if left untreated, oral physicians should have a thorough knowledge about this condition, the treatment and prevention of the complications.

Affiliations of Authors: 1. Dr. Manjunath Reddy Bandral, MDS, Professor, 2. Dr. Chidambar Y.S, MDS, Senior Lecturer, Department of Oral and Maxillofacial Surgery, 3. Dr. Swaroop Telkar, MDS, Senior Lecturer, Dept. of Oral Medicine and Radiology, 4. Dr. Sharbubappa Japatti, MDS, Professor, Department of Oral and Maxillofacial Surgery, 4. Dr. Lalit Choudary, MDS, Professor, Dept. of Oral Medicine and Radiology, 5. Dr. Arun Dodamani, MDS, Professor and HOD, Dept. of Preventive and Community Dentistry, A.C.P.M Dental College, Dhule, Maharashtra, India.

References


Address for correspondence
Dr. Manjunath Reddy Bandal, MDS, Professor, Department of Oral & Maxillofacial Surgery, A.C.P.M Dental College, Dhule, Maharashtra, India.
Email: bmanju74@gmail.com

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