ABSTRACT

Herpes zoster is a viral infection that is prevalent among 20-30% of people. Though it is unclear, the underlying pathophysiology can be attributed to cellular immunity dysfunction. Potential risk factors may involve routine procedures like biopsies and teeth extraction.

Herpes zoster usually follows a very benign course that is most commonly complicated with post herpetic neuralgia; however, serious systemic complications including heart block and cerebral angiitis are frequently reported in immunocompromised cases.

This article reviews publications on this topic and aims to highlight the potential risk factors and documented complications.

INTRODUCTION

Herpes zoster is a reactivation of varicella-zoster virus, a member of the Herpesviridae that remains dormant within the dorsal root or cerebral nerve ganglion after a primary varicella infection [1-3]. (Herpes) and (Zoster) are Greek words mean Creeping Girdle [4].

This article aims to review publications on herpes zoster, with a special focus on potential risk factors and reported complications.

CLINICAL PRESENTATION

Herpes zoster typically presents as a vesicular eruption proceeded by pain, erythema, local edema or abnormal sensation. Pain might be burning, shooting, stabbing, itching or aching. It usually follows a ganglion distribution, typically on the thoracic region; however, immunocompromised patients might have disseminated herpes zoster [1, 5-7]. Young patients usually present with an erythematous form, whereas elderly or ill patients present with hemorrhagic or necrotic forms [8].

EPIDEMIOLOGY

Herpes zoster is incident among one million, or 4 per 1000 population, per year in the United States and twenty to thirty percent of people will get herpes zoster in their life [6, 9, 10]. It dominates in old age; and rarely, it reactivates during infancy with primary foetal/early infantile infection or during childhood [11-29]. It is still controversial whether it has a sporadic reactivation or it is a seasonal disease [1, 30].

RISK FACTORS

Exact risk factors of reactivation are not well-known; yet, cellular immunity is thought to have a key role [31]. This role is well illustrated in old age due to normal age-related decline in cellular immunity; Plasmodium/malaria infection due to transient depression of cellular immunity and immune suppression in cases of immune deficiencies, human immuno-deficiency infection or HIV disease and immunosuppressants [1, 2, 5, 32-44]. The role of genetics and family history is still controversial [41, 45-47].
Table 1: Potential Risk Factors of Herpes Zoster.

<table>
<thead>
<tr>
<th>Publication</th>
<th>Potential Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Hamaguchi, 2015) [48]</td>
<td>Abdominal Liver transplant</td>
</tr>
<tr>
<td>(ÇEVİK, 2013) [49]</td>
<td>Splenectomy</td>
</tr>
<tr>
<td>(Herrero, 2004) [50]</td>
<td>Abdominoplasty</td>
</tr>
<tr>
<td>(Moquete, 2012) [51]</td>
<td>Routine liver biopsy</td>
</tr>
<tr>
<td>(Eryilmaz, 2008) [52]</td>
<td>Dermatological Radiesse injection</td>
</tr>
<tr>
<td>(Levy, 2002) [53]</td>
<td>Post cryosurgery</td>
</tr>
<tr>
<td>(Sires, 2008) [54]</td>
<td>Psychological Stress; psychological stress and hard work</td>
</tr>
<tr>
<td>(Moquete, 2012) [55]</td>
<td>Routine liver biopsy</td>
</tr>
<tr>
<td>(Eryilmaz, 2008) [56]</td>
<td>Abdominoplasty</td>
</tr>
<tr>
<td>(Levy, 2002) [57]</td>
<td>Radiesse injection</td>
</tr>
<tr>
<td>(Sires, 2008) [58]</td>
<td>Post cryosurgery</td>
</tr>
<tr>
<td>(Clayton, 2005) [59]</td>
<td>Psychological Stress; psychological stress and hard work</td>
</tr>
<tr>
<td>(Lee, 2005) [60]</td>
<td>Routine liver biopsy</td>
</tr>
<tr>
<td>(Ramchandani, 2004) [61]</td>
<td>Spleenectomy</td>
</tr>
<tr>
<td>(Su, 1976) [62]</td>
<td>Abdominal Liver transplant</td>
</tr>
</tbody>
</table>

Risk of rheumatoid and connective tissue diseases is debatable. It is difficult to attribute the risk of reactivation to the disease per se; especially that patients are frequently on immunosuppressant medications. Some publications suggest lack of association between herpes zoster and the disease and/or the medication, whereas other researchers propose a possible relationship [65-72].

Other co-existing diseases are diabetes mellitus, essential hypertension, dyslipidaemia, chronic venous diseases, other skin diseases, and malignancies including breast cancer, lung cancer, prostate cancer, lymphoma, lymphatic leukaemia, multiple myeloma and Hodgkin’s disease with bone marrow transplant [5, 11, 73-78].

**COMPLICATIONS**

Though it usually follows a benign course, herpes zoster is most commonly complicated by post herpetic neuralgia (Table 2). It is proposed that different organopathies are due to either direct infiltration of the virus or indirect hematogenous infection [79].

Table 2: Complications of Herpes Zoster.

<table>
<thead>
<tr>
<th>Publication</th>
<th>Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Kalender, 2016) [60]</td>
<td>Cardiac Heart block</td>
</tr>
<tr>
<td>(Ma, 2007) [61]</td>
<td>Pleuropericarditis</td>
</tr>
<tr>
<td>(Bricout, 2015) [62]</td>
<td>Psychological and functional Decline in functionality and loss of independence</td>
</tr>
<tr>
<td>(Chen, 2014) [63]</td>
<td>Depression</td>
</tr>
<tr>
<td>(Albietz, 2014) [64]</td>
<td>Ophthalmic Herpes zoster ophthalmicus in 10-25%</td>
</tr>
<tr>
<td>(Khalafallah, 2013) [65]</td>
<td>Keratitis, iridocyclitis, secondary glaucoma and loss of sight</td>
</tr>
<tr>
<td>(Liesegang, 2008) [66]</td>
<td>Acute retinal necrosis</td>
</tr>
<tr>
<td>(McPherson, 1997) [67]</td>
<td>Neurological Encephalitis in 0.1-0.2%</td>
</tr>
<tr>
<td>(Krimmer, 1994) [68]</td>
<td>Post herpetic neuralgia in 20% of patients and in 50% of those older than 60</td>
</tr>
<tr>
<td>(Korber, 2007) [69]</td>
<td>Myelitis</td>
</tr>
<tr>
<td>(Jarade, 2002) [70]</td>
<td>Meningoencephalitis</td>
</tr>
<tr>
<td>(Su, 2011) [71]</td>
<td>Brown-Sequard syndrome</td>
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<tr>
<td>(Gotti, 2010) [72]</td>
<td>Cerebral angiitis, meningitis</td>
</tr>
<tr>
<td>(ÇEVİK, 2013) [73]</td>
<td>Focal muscle weakness</td>
</tr>
<tr>
<td>(Jeevarethinam, 2009) [74]</td>
<td>Facial nerve palsy</td>
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<tr>
<td>(Bessho, 2010) [75]</td>
<td>Unilateral brachial plexitis</td>
</tr>
<tr>
<td>(Young-Barbee, 2009) [76]</td>
<td>Guillain-Barre syndrome</td>
</tr>
<tr>
<td>(Braun-Falco, 2009) [77]</td>
<td>Meningoencephalitis</td>
</tr>
<tr>
<td>(Braun-Falco, 2009) [78]</td>
<td>Cerebral angiitis, meningitis</td>
</tr>
<tr>
<td>(Gondivkar, 2010) [79]</td>
<td>Focal muscle paralysis and contralateral hemiplegia</td>
</tr>
<tr>
<td>(Bökenkamp, 1990) [80]</td>
<td>Focal limb muscle weakness</td>
</tr>
<tr>
<td>(Bökenkamp, 1990) [81]</td>
<td>Dermatological Secondary bacterial infection</td>
</tr>
<tr>
<td>(Bökenkamp, 1990) [82]</td>
<td>Scarring</td>
</tr>
<tr>
<td>(Leung, 1986) [83]</td>
<td>Obstetric Abortion, embryopathies and organic lesions</td>
</tr>
</tbody>
</table>
Disseminated zoster particularly in immunocompromised patients. It is defined as having greater than twenty vesicles outside the primary or adjacent dermatome or as involvement of three or more dermatomes.

Hepatitis, viral pneumonia and neurogenic chronic cough

Other differentials are odontalgia, sciatica, and lateral pontomedullary syndrome [1, 108-110].

**REFERENCES**


