

Clinical reports

A case of herpes zoster affecting the glossopharyngeal nerve

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Introduction

The distribution of herpes zoster has been well described. More than half of patients are afflicted in the thoracic region. When the varicella-zoster virus affects cranial nerves, the ophthalmic division of the trigeminal nerve is the most common site. The facial nerve is sometimes affected [1]. Some reports have indicated simultaneous involvement of the glossopharyngeal nerve and other cranial nerves [2–4]. Cases of herpes zoster affecting a unilateral glossopharyngeal nerve are rare [5]. Ragozzino et al. reported that one of 590 patients (0.2%) diagnosed as having herpes zoster was afflicted in the glossopharyngeal nerve [1].

We report a rare case of herpes zoster affecting the right glossopharyngeal nerve alone. Using a polymerase chain reaction (PCR) technique, we demonstrated the presence of varicella-zoster virus in a specimen obtained by swabbing the soft palate and in the peripheral blood.

Case report

A 73-year-old woman consulted our hospital because of pain in the right ear and sore throat. She had had no complaints until three days earlier, when she felt a stabbing pain in her right ear. The next day, she could

not eat because of a sore throat, which was confined to the right side of pharynx. She also complained of absence of taste on the right side of the tongue and of absence of sweet taste on the left side of the tongue. Small vesicles were seen on the right portion of the soft palate and the right palatine tonsil (Fig. 1). No other cranial nerve seemed to be affected.

Complement-fixing (CF) antibody titers for varicella-zoster were 1:32 (the normal range is less than 4 times), and varicella-zoster virus IgG (VZVIgG) titers on enzyme immunoassay were 103.2 (the normal range is less than 2.0). Using the PCR technique, we then found pieces of DNA specific for varicella-zoster virus in specimens from the vesicle and peripheral blood samples (Fig. 2). We diagnosed her as suffering from herpes zoster. She was admitted the day following the definitive diagnosis.

After admission, the patient was given acyclovir 800mg five times per day orally for 5 days and loxoprofen sodium 180mg three times per day orally for 14 days. A stellate ganglion block with 5ml of 1% mepivacaine was also performed for 28 days. The patient could eat liquid food three days after admission. CF antibody titers and VZVIgG titers decreased over several days. The vesicles became crusted 7 days after the commencement of treatment. The pain in the right ear and the sore throat were relieved within 1 month. Taste recovered completely on the left side of the tongue within 1 month, but absence of taste on the right side of the tongue has persisted.

Discussion

The patient complained of stabbing pain in the right ear. The glossopharyngeal nerve innervates the soft palate, the palatine tonsil, and the pharynx. It also detects taste from the posterior third of the tongue. The patient complained of loss of taste on the whole right

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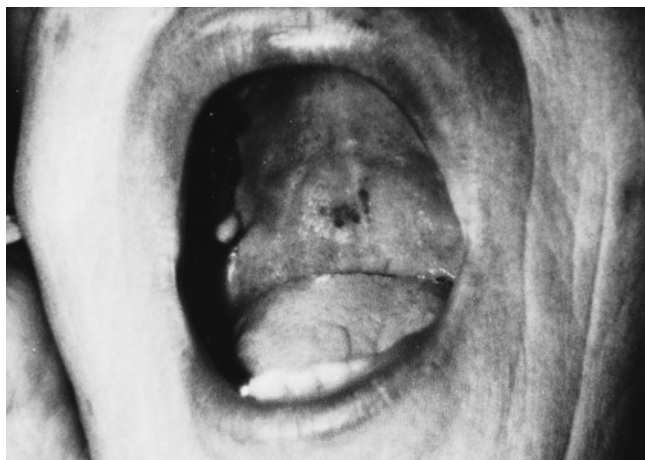


Fig. 1. Small vesicles on the right portion of the soft palate

portion of the tongue. The gustatory nerve for the inferior part of the tongue is connected to the facial nerve. To explain the loss of taste on both sides of the tongue, we suggest that the gustatory nerve connected with the glossopharyngeal nerve and that the facial nerve overlapped innervation on the tongue in this patient. Further, the varicella-zoster virus and accompanying reaction to it extended from the right glossopharyngeal nerve ganglion to the facial nerve nucleus and the left glossopharyngeal nerve nucleus.

It is easy to diagnose a patient suffering from herpes zoster because of its unilateral varicelliform eruption, which is limited to a dermatome supplied by a specific dorsal root or extramedullary cranial nerve ganglion. Some laboratory methods are used to diagnose herpes zoster. The CF reaction is common and useful for the confirmation of an attack of varicella. However, herpes simplex virus (HSV) may have common antigens with varicella-zoster virus [6]. An active varicella-zoster virus infection is diagnosed by detecting specific IgM or IgG antibody. Although IgM or IgG determination needs fewer procedures and less time than the CF reaction, autoimmunoglobulin may give false-positive or false-negative results [7]. Isolation of virus from vesicles is the most reliable method of diagnosis; the VZV can be detected by microscopic examination between the fourth and seventh days. By PCR [8,9], we demonstrated the presence of varicella-zoster virus in the vesicles and peripheral blood. This technique can be performed in the laboratory and detects varicella-zoster virus in the tissues (i.e., the vesicles and peripheral blood in our patient).

In summary, we have reported a rare case of herpes zoster affecting the right glossopharyngeal nerve alone. The patient complained of pain in the right ear, absence of taste on the right side, and loss of the ability to sense

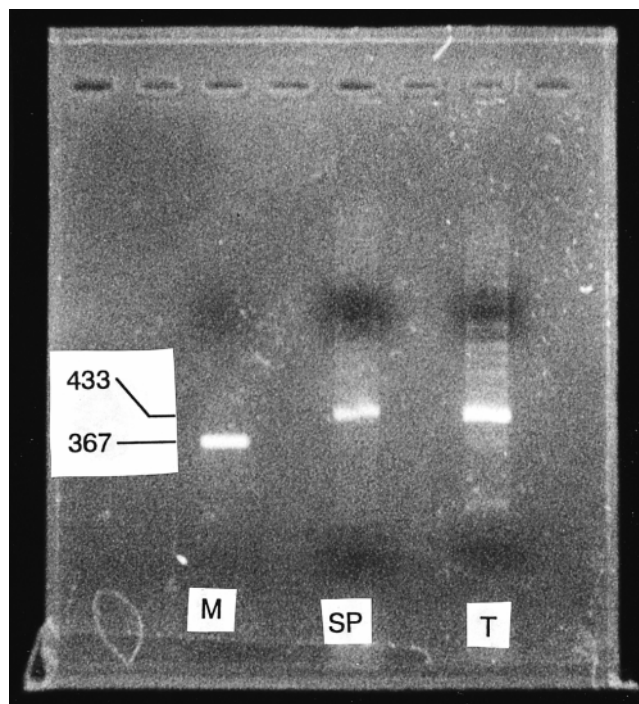


Fig. 2. Electrophoresis of PCR products in a 2% agarose gel detected by staining with ethidium bromide. Lanes: *M*, 367-bp marker; *SP*, swab from vesicles of the soft palate; *T*, swab from the tonsil. *SP* and *T* lanes show the 433-bp PCR products of the thymidine kinase gene from varicella-zoster virus DNA. Negative control was not shown here because there was no band. The sequences of the primer set, TK-4 and TK-6⁺, have been described previously [8,9]

sweetness on the left side of the tongue. Small vesicles were seen on the right portion of the soft palate and the right palatine tonsil. By PCR, we demonstrated the presence of varicella-zoster virus in the vesicles and peripheral blood.

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