

Short communication

Herpes zoster associated with tooth resorption and periapical lesions

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Abstract

A 72-year-old woman presented with multiple periapical lesions and resorption of teeth in a single quadrant 17 years after an attack of herpes zoster (shingles) of the maxillary division of the trigeminal nerve. It is possible that cases of tooth resorption that were previously classified as idiopathic may have a viral aetiology and we suggest that these patients should be asked about a previous attack of shingles.

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Introduction

Infection with the varicella zoster virus causes chickenpox. The virus lies dormant in a dorsal root spinal ganglion and usually causes no further problems, but can reactivate in 1 in 10 people in their lifetime leading to shingles (herpes zoster) involving the dermatome supplied by the sensory nerve that arises from that ganglion. Post-herpetic neuralgia is the commonest complication of varicella zoster infection. Less well recognised maxillofacial complications include developmental anomalies such as irregular short roots and missing teeth, facial scarring, osteonecrosis, exfoliation of teeth, periodontitis, and calcified and devitalised pulps.¹ There are also reports of herpes zoster associated with periapical lesions² and resorption of roots,¹ but to our knowledge this is the first reported case of herpes zoster associated with both resorption of roots and periapical lesions in the same patient.

Case report

A 72-year-old white woman was referred to us by her dentist who was concerned about a pink hue on the gingival third of the crowns of 25 and 26 (Fig. 1). Four years previously 23 had been extracted after showing signs of internal resorption. There was no history of orthodontics, trauma, or metabolic bone disease.

The patient had had herpes zoster 17 years previously, with vesicles on the left side of the face – on the upper lip, gingivae and nose – and she recollected that her left eye was closed; there had been no lesions on her forehead or lower lip. She had been in hospital for five days during which time she received topical medication and eye drops, and although the rash resolved after a month, she developed longstanding burning pain in the same distribution, consistent with post-herpetic neuralgia.

The patient was otherwise fit and well, not taking any medication, and had no allergies; she was a non-smoker and rarely consumed alcohol.

On examination, almost the whole of the root of 21 showed resorption, and its crown had been temporarily splinted to 11 by the dentist (Fig. 2). Tooth 23 was missing and in its place

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Fig. 1. Photograph showing pink hue on the gingival third of the crowns of 25 and 26 suggestive of internal resorption.

was a pontic cantilevered to 24 (Fig. 3). Tooth 22 showed resorption at the cervical margin and was shown to be non-vital by the electric pulp tester. There was an obvious pink hue at the gingival third of the crowns of 25 and 26 (Fig. 1), and 24, 25, 26 and 27 were all non-vital. Radiographs showed cervical resorption in 22 (Fig. 2), and there were periapical radiolucent areas associated with 24, 25 and the palatal root of 26 (Fig. 3). None of the teeth were tender to percussion. All other teeth except 36, which was heavily restored and root-filled, appeared normal clinically and radiographically and were vital when tested with the electric pulp tester.



Fig. 2. Periapical radiograph showing resorption of the whole root of 21 and severe cervical resorption of 22.



Fig. 3. Radiograph showing periapical radiolucent areas in 24, 25 and the palatal root of 26.

Routine blood tests included an erythrocyte sedimentation rate (24 mm/h); full blood count, alkaline phosphatase, serum calcium, liver function tests, and urea and electrolytes were all within reference ranges.

After we had taken a restorative opinion we root-filled 22, 24, 25 and 26. The patient was advised to have six-monthly clinical reviews with yearly radiographic assessment of all teeth in the upper left quadrant, to assess progression of existing lesions or development of new lesions; such teeth, symptomatic or not, would be root-filled. It was accepted that no good treatment options existed for teeth with internal resorption, and these teeth would eventually be extracted.

Discussion

Oral and maxillofacial surgeons should understand herpes zoster because about 20% of cases affect the trigeminal nerve.¹ It should be included in the differential diagnosis of oral ulceration, because oral mucosal lesions can appear in the presence or absence of skin lesions. The prodromal pain, 2–7 days before vesicular eruption, can simulate pulpitis, and convincing evidence of disease of the pulp must be found to avoid unnecessary treatment.

Schwartz and Kvorning³ reported 10 cases of herpes zoster with post-herpetic complications including osteonecrosis of the jaw, exfoliation of teeth, severe periodontitis, and scarring of the skin, but the condition of the pulp was not mentioned.

Smith et al.⁴ described a 15-year-old girl who at the age of seven contracted herpes zoster involving the mandibular branch of the trigeminal nerve on the right side. Photographs showed extensive scarring of the lip and chin on the right side and radiographs showed the tooth germ of the third molar missing, while the other four mandibular posterior teeth had irregular abnormally shortened roots with partially calcified pulp chambers and canals. None of these anomalies were evident on the left side or in the teeth that developed before the age of 7 years, suggesting a direct correlation.

Wadden⁵ 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 devitalisation of four of the five teeth in the left maxillary quadrant, suggesting a central source of injury rather than a local cause. Gregory et al.² reported a patient whose entire left maxillary dentition except for the central incisor, was non-vital, with little evidence of caries or restorations. This appeared to be related to an episode of herpes zoster that the patient had suffered 8 years earlier involving the maxillary division of the trigeminal nerve on that side.

Solomon et al.¹ reported a 31-year-old woman with internal root resorption affecting 21 and 23, who had a history of herpes zoster affecting the maxillary branch of the left trigeminal nerve 4 years earlier. It has been suggested that the dental pulp could be adversely affected by herpes zoster as the pulps contain terminal nerve endings as does the mucosa and skin.⁵ Seltzer and Bender⁶ cited studies that showed injury to odontoblasts and degeneration as a result of systemic viral infection.

We suggest that idiopathic cases of internal resorption and periapical lesions may not be truly idiopathic but may have a viral aetiology. Depending on the host's resistance the patient may develop mild subclinical herpes zoster where the only manifestation is pulp necrosis or internal resorption of the

teeth. One way to test this would be to do a pulp biopsy, either through the pulp chamber or an excisional biopsy during an apical surgical procedure, when indicated as a therapeutic measure, and attempt to identify viral elements using modern histopathological techniques or polymerase chain reaction.

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References

1. Solomon CS, Coffiner MO, Chalfin HE. Herpes zoster revisited: implicated in root resorption. *J Endod* 1986;**12**:210–3.
2. Gregory WB, Brooks LE, Penick EC. Herpes zoster associated with pulpless teeth. *J Endod* 1975;**1**:32–5.
3. Schwartz O, Kvorning SA. Tooth exfoliation, osteonecrosis of the jaw and neuralgia following herpes zoster of the trigeminal nerve. *Int J Oral Surg* 1982;**1**:364–71.
4. Smith S, Ross JW, Scully C. An unusual oral complication of herpes zoster infection. *Oral Surg Oral Med Oral Pathol* 1984;**57**:388–9.
5. Wadden JV. Extensive endodontic involvement following herpes zoster attack to facial area: report of a case. *Northwest Dent* 1991;**70**:31.
6. Seltzer S, Bender I. *The dental pulp*. 2nd ed. Philadelphia: JB Lippincott; 1975.