



## CASE REPORT

# Prodromal herpes zoster – a diagnostic challenge in endodontics

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### Abstract

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This case report highlights the diagnostic challenge that herpes zoster represents if pain develops in the prodromal stage. A 58-year-old male presented with pain in the left maxilla. The symptoms had lasted for 7 months. The first premolar had been extracted soon after the onset, and the second premolar root filled shortly thereafter. Symptoms were experienced as sudden pain attacks lasting for several hours and analgesics gave some pain relief. Clinical examination showed that the second premolar was tender to percussion. No sinus tract or swelling were present. Radiographic examination showed previously root-filled second premolar and first molar teeth, and no evidence of apical pathosis. Due to the uncertainty about the quality of the root filling in the second premolar and incomplete root filling in the first molar, retreatment was started prior to prosthetic treatment in the region. The pain continued and became more intense during the treatment. A diagnosis of herpes zoster was determined, when an acute attack with oedema and vesicles occurred, 2 months after retreatment was started. In the present case, therefore, the primary attack presented itself after months and the herpes zoster diagnosis could not be made until then.

### Key learning points

- A long lasting prodromal stage is an unusual event.
- Symptoms combined with inadequate technical standard of root fillings may confuse the diagnostics.
- No available data support or suggest the use of antiviral treatment as a diagnostic tool.

**Keywords:** herpes zoster, prodromal pain, root filling.

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### Introduction

Diagnostic assessment in patients with orofacial pain may be challenging due to the close proximity between teeth and other orofacial tissues, and by symptoms associated with neurological disorders. Differential diagnosis should always be considered when pain persists

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in the region of previously root-filled teeth with no radiographic signs of pathosis. Chronic pain following surgical interventions, including pulpectomy and extraction, may occur and is believed to be connected to disturbances in neural discharge after injury of primary afferent nerve fibres (Treede & Magerl 1995). Such pain, usually moderate to severe in character, is reported in 1–5% of pulpectomy cases (Marbach 1993; 1999). Trigeminal neuralgia and atypical odontalgia of uncertain aetiology are also pain disorders common in the trigeminal area, and neuralgic pain may be localized or diffusely spread over a larger area. A characteristic feature of all neural disturbances is that endodontic retreatment or surgical intervention seldom relieves the symptoms (Vickers & Cousins 2000).

Herpes zoster, an acute viral infection produced by the DNA virus *Varicella zoster*, may affect any of the trigeminal branches, the ophthalmic branch being the most common. If pain develops in the prodromal stage, or no history of manifestation of herpetic infection exists (zoster sine herpete), diagnostic assessment may be extremely difficult. Pain may be experienced as odontalgia, mimicking pathosis of pulpal origin, and no laboratory tests will help the establishment of a final diagnosis (Barrett *et al.* 1993, McKendrick *et al.* 1999). Prodromal pain usually lasts for a few hours to several days (Millar & Troulis 1994). Post herpetic neuralgia results when acute zoster pain does not subside as the vesicular eruptions clear.

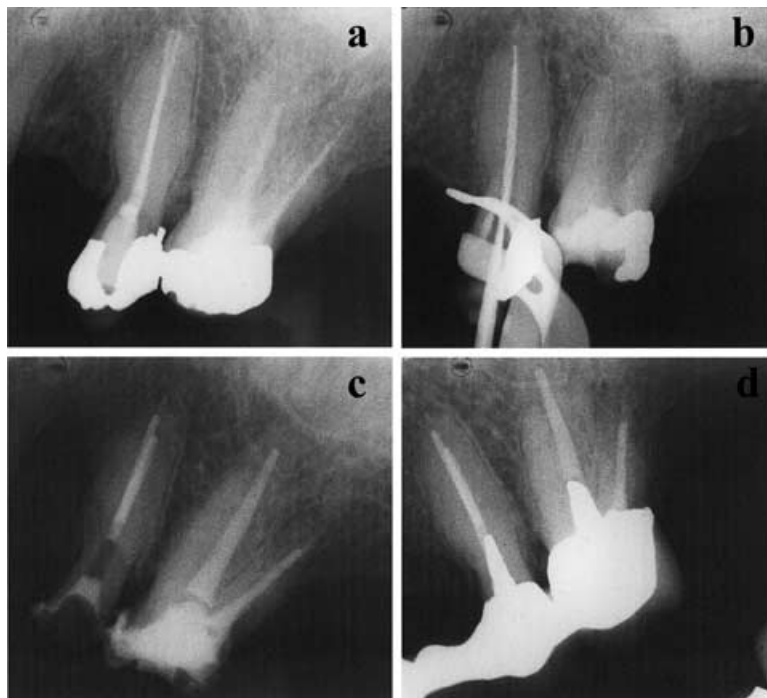
The aim of this case report is to highlight that herpes zoster, especially in the prodromal stage, may represent a diagnostic challenge when experienced as odontalgia. The unusual and surprising finding was the duration of pain before the development of the acute stage of the disease.

### Case report

A 58-year-old male presented with pain in the left maxilla. He reported a history of pain, lasting for 7 months (Fig. 1). The left maxillary first premolar (tooth 24) had been extracted when the pain started, and the second premolar (tooth 25) had been root-filled shortly afterwards. Symptoms were now more severe and experienced as pain attacks lasting for several hours and as discomfort during occlusion. Clinical examination showed the presence of one molar (tooth 26). The second premolar was tender to percussion, without sinus tract or swelling. No clinical signs were apparent from the first molar. Radiographic examination showed a root-filled second premolar and first molar, with an inadequate filling in the mesiobuccal root of the first molar. No signs of apical pathosis were seen (Fig. 2a). Retreatment of the premolar and the first molar was undertaken, due to the inadequate technical standard of the root fillings and the presenting symptoms, prior to future prosthodontic reconstruction. The gutta-percha was removed, the canals cleaned and shaped and temporarily filled with calcium hydroxide (Fig. 2b). The mesiobuccal root of the first molar was impossible to enter and negotiate, and a blockage, presumed to be calcification, was verified by a surgical microscope. When the patient returned for root filling, more intense pain and tenderness was present in the second premolar. Paralgin Forte<sup>®</sup> (paracetamol + codeine) gave some relief. The temporary dressing in tooth 25 was replaced after pretreating the canals with a 5% iodine potassium iodide solution and 0.5% sodium hypochlorite. At the next visit, 1 month later, the patient indicated that he had visited another clinic 3 days earlier. From the records it was noted that the second premolar was tender to percussion, and that the patient had presented with oedema and swelling in the left maxillary region. The calcium hydroxide had been removed and replaced by a phenol dressing, and antibiotics (Phenoxy-methylpenicillin: 660 mg  $\times$  6) prescribed. The premolar was still painful, but now oedema in the left chin and eyelid vesicles were present, characteristic for acute herpes zoster. The diagnosis was verified by a blood test, showing positive antibodies against VZV IgG. The canals were again cleaned and filled temporarily with calcium hydroxide. Following the acute stage of the disease, leaving the characteristic scars (Fig. 3), the pain eventually subsided to a tolerable



**Figure 1** Pain experienced by the patient (self-reported), visualized schematically over a 16-month period. 1: Start of pain. First molar extracted and second premolar root-filled; 2: patient arriving at our clinic with pain attacks lasting for hours; 3: acute herpes zoster with vesicles; 4: time of root filling; 5: 6-months follow-up.



**Figure 2** Radiographs from the left maxillary second premolar and first molar: (a) at first appointment before retreatment, (b) during cleaning and shaping of root canals, (c) final root fillings and (d) 6 months postoperatively.



**Figure 3** Scars (encircled) in the left eye lid, as observed 1 month after the acute attack.

level. No active antiviral treatment was given. After 1 month the teeth were obturated with gutta-percha (Fig. 2c). At follow-up, 6 months later (Fig. 2d), episodes of pain and visual problems with tearing in the left eye were reported. The teeth were almost free from symptoms.

### Discussion

Herpes zoster infection in prodromal stages may represent a diagnostic challenge, as pain is the only clinical finding. Usually the prodromal stage precedes the acute stage by hours to several days (Strommen *et al.* 1988). In the present case, however, pain localized to the second premolar had lasted for approximately 7 months, and became more severe over a 1–2 months period prior to the acute stage of the disease.

The patient's initial pain problems, 9 months prior to the acute herpes zoster attack, had been treated by extraction of the first, and root canal treatment of the second maxillary premolar. Retreatment of the second premolar and first molar did not have any positive effect on the pain, and except for increasing pain, no clinical or radiographic signs of apical pathosis were present. It seems difficult, therefore, to explain the pain problems without connecting them to prodromal herpes zoster.

Odontalgia and pulp death have been reported previously as a result of herpes zoster infection (Gregory *et al.* 1975, Goon & Jacobsen 1988, Mintz & Anavi 1992). The reactivated virus may travel the length of the nerve and infect the pulp vasculature leading to infarction and pulp death, and a time lag of up to 1 month between odontalgia and acute mucocutaneous lesions has been reported (Mintz & Anavi 1992). But in the present case, the time lag appeared to be much longer and the pain became more intense 1–2 months prior to the vesicular stage. Furthermore, sporadic episodes of pain were still experienced 6 months after the acute attack and were followed by tearing and visual problems in the left eye. Postherpetic neuralgia results when pain of acute zoster does not subside as the acute eruptions clear. Postherpetic neuralgia, occurring in approximately 10% of the cases, is usually a constant, intense, burning, hot discomfort of the skin which increases with any stimulus and may include sharp, stabbing pain as well. The history of acute herpes zoster infection and the scars it leaves behind, makes diagnosis simple in most cases. Postherpetic neuralgia may, on the other hand, as in the present case, persist or recur some time after the vesicular stage of the herpes zoster has healed.

### Conclusions

Prodromal pain of herpes zoster, especially when experienced as odontalgia, may represent a diagnostic problem. Usually the prodromal pain precedes the acute stage of the herpes zoster infection by hours or days. With manifestation of acute eruptions, the diagnosis is usually simple. In the present case, the diagnostic difficulties appeared to be connected to pain lasting for months prior to the vesicular stage. A long lasting prodromal stage is an unusual event, and no specific advice for the management or diagnosis of such cases can be given before the *V. zoster* infection becomes apparent. However, the presentation of this report may assist clinicians by extending their differential diagnosis when faced with such rare and unusual cases.

### Disclaimer

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