

# Temporary Paresthesia of the Lower Lip: a Complication of Orthodontic Treatment. A Case Report

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**Abstract.** *Temporary mental paresthesia of the lower lip as a result of orthodontic treatment is extremely rare. Only two cases seem to have been reported earlier, a further case is described and discussed. The cause of this uncommon complication in the present case is obviously the close relationship between the distal root of the lower left second permanent molar and the mandibular canal.*

**Index words:** Lower Lip, Orthodontic Treatment, Temporary Paresthesia.

Refereed Paper

## Introduction

Temporary paresthesia of lower lip is often seen as a result of orthognathic surgery to the lower jaw (Jønsson *et al.*, 1979; Martis, 1984; Leira and Gilhuus-Moe, 1991). Iizuka and Lindqvist (1991) reported sensory disturbances after rigid internal fixation of mandibular fractures. It can also occur in connection with removal of lower third molar (Kipp *et al.*, 1980; Wofford and Miller, 1987) and dento-alveolar surgery (Schultze-Mosgau and Reich, 1993), as well as following endodontic treatment (Allard, 1986). Numbness of the lower lip has been described as the first sign of tumor in the area of the mandibular canal (Yagan *et al.*, 1985). However, sensory disturbance of the lower lip as a complication of conventional orthodontic treatment with fixed appliance is extremely rare. As far as can be seen only Stirrups (1985) has reported two cases of mental paresthesia following labial movement of lingually displaced premolars. In this current report, a further case of such involvement is described and discussed.

## Case Report

A 21-year-old man was referred to the orthodontist for his Class III malocclusion. The cephalometric and model analysis revealed that a combined orthodontic-surgical treatment was necessary to align the teeth, reduce the mandibular prognathism and eliminate his negative over-jet.

Edgewise brackets (0.018") were bonded to all teeth in the lower jaw, tubes on the second molars, and a 0.015" Multiflex wire was ligated. Three weeks later, apparently with no symptoms, a round 0.014" Australian S.S. wire was applied. At the next appointment, another three weeks later, the patient reported a 'freezing' feeling in the lower left lip shortly after the previous visit. As this sensation was vague and had disappeared a couple of days later, a round 0.016" Australian S.S. wire replaced the previous one.

One week later the patient returned with symptoms of left mental paresthesia (Fig. 1). The symptoms started the day after the archwire was placed. Examination of the Orthopantomogram (OPG) (Fig. 2) indicated a near contact between the distal root of the lower left second molar and the mandibular canal. Intra-oral X-rays taken in two

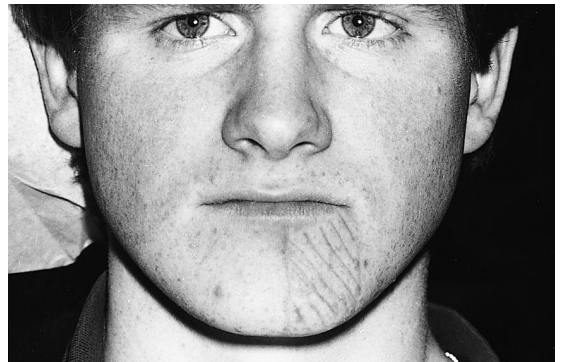


FIG. 1 Photograph of the patient showing the affected area of the lower lip.



FIG. 2 Orthopantomogram (OPG) with arrows pointing at the lower left border of the mandibular canal.

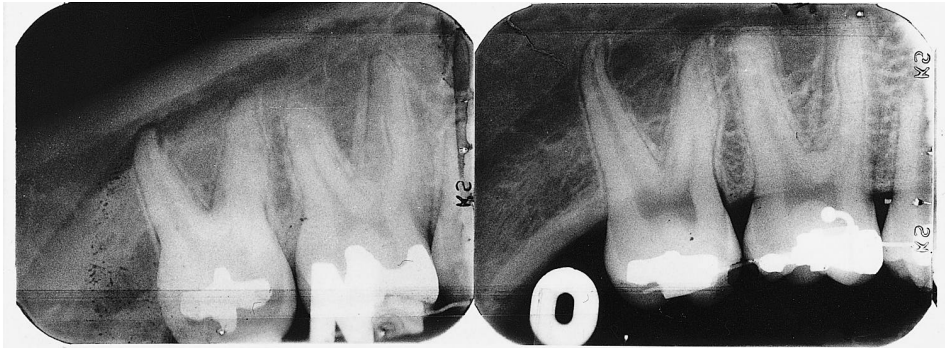


FIG. 3. Intra-oral X-rays. (A) Taken from above. (B) Taken from below.



FIG. 4. Occlusal X-ray showing the mandibular canal lingual to the left second molar.



FIG. 5 (A) Tomographic X-ray of the distal part of left second molar. (B) Tracing of the tomogram showing the close relationship between the mandibular canal and the distal root of the second molar.

projections (Fig. 3) revealed the canal to be placed lingual to the root. This position could be verified on an occlusal X-ray (Fig. 4).

Consequently, the archwire was cut just distal to the first molar leaving the second molar free of any force. Shortly afterwards the symptoms disappeared.

A tomographic radiograph taken some time later clearly shows the close relation between the root of the second molar and the mandibular canal (Fig. 5).

Figure 6 shows the buccal tipping of the lower left second molar at the time of cutting the archwire.

After the symptoms disappeared, the combined orthodontic-surgical treatment was completed with no further problems of parasthesia.

## Discussion

It is apparent that the root of the lower left second molar was situated buccal to and in close contact with the mandibular canal. The explanation for the parasthesia was evidently that the levelling arch uprighted the lingually inclined tooth (Fig. 6), thereby the apical part of

the root was tilted against the canal causing pressure to the mandibular nerve.

Within a couple of days after the archwire was cut, the patient had regained full sensation of the lower lip.

The recovery period was very short indicating only a mild pressure on the nerve. Another observation supports this view. During the week with parasthesia symptoms the patient took active part in a football game. To his own astonishment, he was free from symptoms during and shortly after the game. This can be explained by increased systolic blood pressure, thereby temporary relieving an ischemia of the mandibular nerve (Lewis *et al.*, 1931).

Cogswell (1942) claims that normally the canal is far buccal to the molar roots, and slightly buccal to that of the premolars. This is confirmed by Stockdale (1959). He states that only in extremely lingual tipped teeth the canal may be positioned on the other side of the apices. Usually, there is a good clearance between the canal and the roots. In addition to ectopic positioned or impacted teeth, a closer relationship may be seen in cases with especially long roots and low mandibular corpus height. However, Littner *et al.* (1986) did not find any close prox-



FIG. 6. Photographs of lower left molar segment after buccal tipping of the second molar.

imity between the mandibular canal, and the first and second molar on 46 randomly chosen dry mandibles. The particular relationship between the distal root of the lower left second molar and the mandibular canal seen in the present case seems to be rare. This may explain why mental nerve paresthesia developing during orthodontic treatment is almost undescribed in the literature (Stirrups 1985).

According to Stockdale (1959) when there is an intimate relationship between the root-apices and the mandibular canal, the cortical bone which surrounds the canal may be deficient. If this is so, it can be the reason for the paresthesia to occur so shortly after treatment start.

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