Dysesthesia of the inferior alveolar nerve

To the Editor:

I write in response to a recent article by Nayak et al. (Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2011;111:e48-51) that highlighted a case of dysesthesia resulting from a broken endodontic file. It was indeed a very interesting case report. In it, the authors proposed that the dysesthesia presented in their patient resulted from irritation of the nerve sheath, with a suggestion of Sunderland’s first degree of nerve injury. However, it is my belief that the dysesthesia resulted from a higher degree of injury that may have involved some axonal injury, as dysesthesia is not commonly seen in first degree of nerve injury.¹

Judging from the vertical position of the broken endodontic file in Fig. 2, it is possible that the file had caused mechanical injury during filing, which breached the epineurium of the inferior alveolar nerve (IAN). This caused some injured axons to continue firing impulses, with the broken file impinging onto them within the narrow mandibular canal (average diameter 3.4 ± 0.5 mm; range 2.0-5.0 mm).² ³ Of course, the injured epineurium (but not the axons within) may have healed by the time the authors explored the mandibular canal, giving an impression of a lack of physical injury.

The long recovery time of 4 months further provides indirect evidence to support the more severe degree of injury, as Sunderland’s first degree of nerve injury usually recovers rapidly upon the removal of the source.¹

I agree with the authors’ explanation for the lack of anesthesia, as Ikeda et al.² have shown that there is room between the IAN and the canal, thus minimizing the risk of compression on the nerve (which usually causes typical Sunderland’s first degree of injury). In addition, it has to be noted that the IAN within the mandibular canal has been shown to typically have 3 branches.² So, injury to one branch, but not the others, will spare the patient from feeling numb but not pain.

One last note to share with the authors is to suggest the use of an ultrasound bone surgical device¹ to make the required cuts. Such a device has been shown to enable the surgeon to cut hard tissue without injuring the soft tissues, i.e., the IAN.

Thank you.

REFERENCES


In reply:

In response to the letter to the editor by Dr. Wei Cheong Ngeow about my article titled “Dysesthesia with pain due to a broken endodontic instrument lodged in the mandibular canal—a simple deroofing technique for its retrieval: a case report,” I have the following responses to Dr. Ngeow’s comments.

1. “...that the dysesthesia resulted from a higher degree of injury that may have involved some axonal injury, as dysesthesia is not commonly seen in first degree of injury.”

This is correct. However, the key here is “not commonly seen.” Thus, it can occur.

2. Judging from the image in Fig. 2... the file could have breached the epineurium of the IAN.

The image in question is an intraoral periapical x-ray, which gives us just a 2-dimensional view, which makes us feel that the file had probably impaled the IAN and therefore the epineurium. But in reality, when we were surgically attempting to retrieve the file, it was free and easily slipped from a vertical position to a horizontal one, indicating that it was not impinging or piercing the nerve at all, as just a little manipulation made it slip. It was probably just located there beside the IAN, causing mild demyelination and resultant dysesthesia attributable to pressure. It is unlikely that it had penetrated the epineurium.