Malpractice claims for permanent nerve injuries related to third molar removals

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On the basis of the register of the Finnish Patient Insurance Association, the aim of this study was to examine malpractice claims for nerve injuries associated with third molar removals and determine whether they are concentrated among specialists, among less experienced dentists, or in certain geographic areas. During 1987–93 there were 139 claims for permanent sensory or motor disturbances related to removal of lower third molars in Finland. The lingual nerve was injured in 54% and the inferior alveolar nerve in 41% of the claims. In 91% of the cases the injury occurred in relation to surgical removal of the tooth and in 6% in relation to simple extraction. The claims were distributed among 123 dentists, of whom 78% were dental surgeons, 15% specialists in oral and maxillofacial surgery, and 7% other specialists. These figures represented 2% of the dental surgeons and 26% of the oral surgeons in Finland ($P < 0.01$). More than half the claims were associated with dentists with less than 10 years' experience. Claims originated more often from the eastern and northern (rural) areas of Finland than from urban areas (3.8 claims versus 2.4 claims per 100,000 inhabitants, $P < 0.05$). Compensation was paid to the patients in two-thirds of the cases, indicating that the dentists authorized to decide claims very often considered these injuries avoidable. Therefore, proper diagnosis, treatment planning, surgical techniques, and detailed patient information must be emphasized. In cases where risks are obvious, referral to an oral surgeon is recommended. □ *Insurance-claim reporting; insurance liability; postoperative complications; quality of health care; surgery, oral*

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The lingual nerve and inferior alveolar nerve are at risk during third molar surgery because of close anatomic relationships (1–3). Prevalence of lingual nerve injuries is usually reported to be smaller than prevalence of inferior alveolar nerve injuries (4), with incidence varying depending on whether the surgery involves the lingual split technique or the buccal approach (5). One controlled study (6) found no difference in labial and lingual sensory disturbance between these two methods. Thus, most nerve injuries seem not to be due to surgical technique. However, other aspects contributing to nerve injuries are not very widely examined.

Finland (population, 5 million) has a patient insurance scheme, in effect since 1987 under the Patient Insurance Act, from which compensation is payable to patients for personal injury suffered in connection with medical care (7). All those engaged in medical care must be insured. The basic principle of this 'no fault' system is that an injured patient does not litigate in court, but submits an insurance claim to the Patient Insurance Association, and the entire claims procedure is conducted on paper. During the first 7 years the Patient Insurance Association handled over 23,000 claims made by patients, with one-third of all claims resulting in compensation. One-tenth of all claims were related to dental care, and a small proportion of these were related to oral and maxillofacial (OMF) surgery. Final decisions related to nerve injury claims are usually given 2 years after the injury.

The purpose of this study was to examine the backgrounds of the claims associated with permanent nerve injuries related to third molar removals and determine whether the claims were concentrated among specialists in oral surgery, among less experienced operators, or in certain geographic areas in Finland. The register of the Patient Insurance Association contains much information, which, if examined and published, could be important in ultimately decreasing the complications related to third molar removals.

Patients and methods

Injury claims made between 1987 and 1993 related to third molar surgery and drawn from the Patient Insurance Association in Finland were collected and examined ($n = 237$ cases). Only cases associated with a nerve injury were included in the present study ($n = 139$ patients). The documents comprised the complaint made by the patient,

Table 1. Distribution of 152 nerve injuries among 139 patients

	Injuries	%
Lingual nerve	82	54
Inferior alveolar nerve	62	41
Facial nerve	3	2
Glossopharyngeal nerve	2	1
Facial neuralgia	2	1
Buccal nerve	1	1
Total	152	100

the response of the dentist concerned, copies of patient records, the opinion of one authority in the dental field, and the proposal for a final decision in the matter. Radiology could not be included because the original radiographs had been returned to the dentists; however, some aspects of radiology, such as inadequate roentgenograms or none at all, were usually mentioned in the authoritative opinion. No patients were clinically examined by the authors. In the spring of 1995 the final decisions were assessed, with only completed cases included. One incomplete case was excluded because of lack of radiographs and lack of consultation with a neurologist.

Documents were examined with respect to date of injury, age and sex of patient, tooth position, indication for removal, treatment, diagnosis of injury, and proposal for compensation, if any. The date of the dentist's graduation was obtained from a special register.

Differences between frequencies were tested with the chi-square test. The study was carried out with the permission of the Patient Insurance Association.

Results

During the 7 years there were 237 claims related to third molar surgery. Of these injuries, nerve injury was diagnosed in 139 patients (59%), as described in Table 1. The rest of the third molar–related claims comprised postoperative infection (12%), tooth fractures (4%), mandibular fractures (3%), retained roots (3%), and other injuries (19%) such as burns or sinus perforations. In 9 cases, 2 nerve injuries occurred in the same patient; in 2 patients, 3 injuries. The mean age of patients suffering nerve injury was 32 years (standard deviation = 8 years; range, 14 to 58 years), and 80% were women.

In Finland third molars are usually removed via the buccal approach, using rotating cutting instruments. Lingual split techniques are never taught at universities in Finland. Anesthesia is more often local than general. In the present series only two patients were operated on under general anesthesia. Lingual retractors were used in two operations.

All 139 cases were related to lower third molar removals, in 47% on the left side and in 53% on the right. Indications for removal of the teeth were pericoronitis (40%), retention (37%), partial eruption (14%), caries (5%), and cyst, dysfunction, malocclusion, or apical periodontitis (4%). In 91% of the cases, the injury occurred in relation to surgical removal; in 6%, in relation to simple extraction; and in 3%, in relation to a revision, an operculectomy, or an interrupted removal procedure.

Table 2. Decisions of the Patient Insurance Association for compensation associated with nerve injury claims

	Lingual nerve ($n = 82$) (%)	Inferior alveolar nerve ($n = 62$) (%)
Compensation:		
Treatment injury	85	46
No compensation:		
Injury not related to treatment, infection, or accident	0	2
Unavoidable complication of justifiable treatment	3	26
Consequence of necessary medical risk-taking	4	16
Minor injury	7	5
Other reason	1	5
Total	100	100

The 139 claims were distributed among 123 dentists (74 men and 49 women), of whom 78% were dental surgeons (50 men, 46 women), 15% had a specialty in OMF surgery (16 men, 3 women), and 7% had some other dental specialty (8 men). These figures represented 2% of all dental surgeons ($n = 4700$) and 26% of all OMF surgeons ($n = 72$) in Finland (2% versus 26%, $P < 0.01$). At the time of each injury, the mean number of years since graduation as a dentist was 12 years (standard deviation = 8 years). Dentists with less than 10 years' experience were more frequently associated with claims for nerve injuries than those with more than 20 years (51% versus 17%, $P < 0.01$). The claims originated more often from the eastern and northern (rural) areas of Finland than from urban areas (4.1 claims versus 2.4 claims per 100,000 inhabitants, $P < 0.05$).

Two-thirds of the nerve injury claims resulted in compensation to the patient (Table 2); lingual nerve injuries (85%) were especially often classified as treatment injuries, allowing for compensation. The unusual injuries related to facial and glossopharyngeal nerves were considered treatment injuries and were compensated. One case involving an injury to the buccal nerve was associated with a local abscess; this was considered an unavoidable complication of justifiable treatment, and the patient was not compensated.

Discussion

Of all claims made to the Patient Insurance Association, one-third were compensated, but with regard to third

molar–related claims, compensation was paid in two-thirds of the cases. Given all available data, Finnish authorities have thus considered that these nerve injuries could have been avoided in most cases, and more often than medical or surgical injuries in general.

The true number of nerve injuries related to third molar removals is probably larger than reported here, especially with regard to cases involving the inferior alveolar nerve. In contrast to Carmichael & McGowan (4), more than half of the claims in the present study were made for lingual nerve injuries. The finding of lingual nerve damage as the major complaint for legal action, reviewed also by Walters (8), may depend on the fact that impairment of lingual nerve function is more debilitating than labial sensory disturbance.

A Swedish study (9), concerning 300 cases of nerve damage for which patients were compensated by their insurance companies, found that most of the patients were women, as in our study, and that the mean age was a little higher (38 years) than in ours (32 years). The overall numbers of Swedish patient claims related to oral surgery were lower than ours, only a few percent of the total during a 3-month period (10). In the United Kingdom complaints involving oral surgery by general dental practitioners account for one-fifth of all dental complaints, about the same as in Finland (11).

The incidence of complications and the postoperative recovery both depend on the expertise of the surgeon. The incidence of complications associated with third molar removals is reported to be four times higher among inexperienced surgeons than experienced surgeons (12). The present study showed that more than half the nerve injury claims were related to dentists with less than 10 years' experience. Young operators might be eager to tackle everything, and may perform operations that are too difficult for them. It is therefore important to teach dental students to recognize their own limits.

Finnish claims more often concerned OMF surgeons than dental surgeons, a difference perhaps resulting from the difficulty of cases referred to OMF surgeons. The accumulation of claims in rural areas may indicate a scarcity of OMF specialists in those areas as well as long distances to the nearest specialist.

Recently, German (13) and American (14) researchers have shown that mandibular block anesthesia plays almost no role in the incidence of lingual nerve trauma. Only 1 slight lingual sensory disturbance was detected after 12,104 mandibular block anesthesias (13). The chance of traumatizing the lingual nerve transiently or permanently by mandibular blocking is estimated to be 3.6% (14). In the present study all except two cases of nerve injuries were associated with removal of the tooth. If the roots of the third molar were positioned close to the mandibular canal, in some cases injury to the inferior alveolar nerve might have been inevitable. However, the mechanism of damage to the lingual nerve is unclear. It is probable that the lingual nerve is severed during 1) the injection of local anesthesia, 2) surgery by direct cutting with a scalpel, distortion by an elevator, or severing in removal of the follicle, or 3) suturing. The vulnerability of the lingual nerve is clearly shown (1–3). In the present study lingual retractors probably played a minor role, because such instruments were used in only two cases.

Symptoms of neurosensory loss are largely subjective and based on what the patient states. For the final decision, a clinical examination and a second opinion were always sought, preferably from an OMF surgeon or a neurologist, or at least from a dentist other than the one who performed the procedure. However, in the present series objective sensory testing such as somatosensory evoked potential (SEP) was applied in only one case. The usual methods reported were pin prick, touch, and two-point discrimination.

Some patients may claim damage where there is none, purely for financial gain. To discourage this, the Finnish patient insurance scheme sets the patient's own financial responsibility for minor injuries at FIM 1000 (USD 250). Compensation depends on the age and occupation of the patient as well as estimated inconvenience. The compensation paid in dental cases is not very high, typically FIM 10,000–15,000 (USD 2500–3750). We therefore assume there were few invalid claims.

It can thus be concluded that a lower third molar with an unfavorable inclination and in close proximity to the mandibular canal should preferably be removed by an experienced surgeon.

References

1. Kiesselbach J, Chamberlain J. Clinical and anatomic observations on the relationship of the lingual nerve to the mandibular third molar region. J Oral Maxillofac Surg 1984;42:565–7.
2. Pogrel MA, Renaut A, Schmidt B, Ammar A. The relationship of the lingual nerve to the mandibular third molar region: an anatomic study. J Oral Maxillofac Surg 1995;53:1178–81.
3. Miloro M, Halkias LE, Slone HW, Chakeres DW. Assessment of the lingual nerve in the third molar region using magnetic resonance imaging. J Oral Maxillofac Surg 1997;55:134–7.
4. Carmichael F, McGowan D. Incidence of nerve damage following third molar removal: a West of Scotland Oral Surgery Research Group Study. Br J Oral Maxillofac Surg 1992;30:78–82.
5. Rood JP. Permanent damage to inferior alveolar and lingual nerves during the removal of impacted mandibular third molars. Comparison of two methods of bone removal. Br Dent J 1992;172:108–10.
6. Absi EG, Shepherd JP. A comparison of morbidity following the removal of lower third molars by the lingual split and surgical bur methods. Int J Oral Maxillofac Surg 1993;22:149–53.
7. Brahams M. 'No fault' in Finland: paying patients and drug victims. New Law J 1988;23:678–81.
8. Walters H. Reducing lingual nerve damage in third molar surgery: a clinical audit of 1350 cases. Br Dent J 1995;178:140–4.
9. Sandstedt P, Sörensen S. Neurosensory disturbances of the trigeminal nerve: a long-term follow-up of traumatic injuries. J Oral Maxillofac Surg 1995;53:498–505.
10. Rene N, Öwall B, Cronström R. Dental claims in the Swedish Patient Insurance Scheme. Int Dent J 1991;41:157–63.
11. Mellor A, Milgrom P. Prevalence of complaints by patients

against general dental practitioners in Great Manchester. Br Dent J 1995;178:249–53.
12. Sisk A, Hammer W, Shelton D, Joy E. Complications following removal of impacted third molars: the role of the experience of the surgeon. J Oral Maxillofac Surg 1986;44:855–9.
13. Krafft T, Hickel R. Clinical investigation into the incidence of direct damage to the lingual nerve caused by local anaesthesia. J Cran Maxillofac Surg 1994;22:294–6.
14. Harn S, Durham T. Incidence of lingual nerve trauma and postinjection complications in conventional mandibular block anesthesia. J Am Dent Assoc 1990;121:519–23.

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