

Medicolegal Aspects of Altered Sensation Following Implant Placement in the Mandible

Gavriel Chaushu, DMD, MSc¹/Shlomo Taicher, DMD²/Talía Halamish-Shani, LLB³/Navot Givol, DMD⁴

Purpose: Altered mandibular sensation following implant surgery may result in liability claims. Therefore the authors conducted a retrospective analysis of all liability claims related to persistent altered sensation following placement of mandibular implants reported to the Medical Consultants International (MCI) Company from 1992 to 1999. **Materials and Methods:** Reports related to persistent altered mandibular sensation in 16 patients (12 women and 4 men) who underwent implant surgery in Israel were examined. The MCI files were retrospectively evaluated according to a structured form. The parameters studied included patient age and gender, implant location and length, imaging modality, and the time between actual damage and filing of a claim (ie, letter of demand or lawsuit). **Results:** The time in months between actual damage and filing of claim ranged from 0 to 60 months (mean 21.5 months). No cases were found involving transient changes in sensation. The female/male ratio was 3:1. Implant length was equal to or longer than 13 mm in 6 of 7 implants placed in the molar region. In the premolar area, nerve injury was evident in 6 of 7 cases where implants shorter than 12 mm were used. **Conclusions:** Transient nerve injury rarely results in legal action. Maximum effort should be devoted to accurately determining the appropriate implant length in the mandible. (INT J ORAL MAXILLOFAC IMPLANTS 2002;17:413–415)

Key words: malpractice, mandibular implants, nerve injury

There has been a dramatic increase in the number of practitioners performing implant surgery over the past 15 years. The acceptance of challenging cases may increase the incidence of related problems and complications.

Mucoperiosteal flap elevation and bone removal during preparation of osteotomies for mandibular implants may result in varying degrees of altered sensation. Results from implant studies have shown a 0% to 43.5% prevalence of temporary paresthesia or anesthesia after implant placement,¹ with persistent problems being encountered in 0% to 13% of patients.²

The number of malpractice suits related to implants has increased significantly with awards

among the highest in dentistry.³ Altered mandibular sensation following implant surgery may result in liability claims. Therefore, it seems prudent to review these cases to better understand the causes and characterization of such actions to prevent complications and reduce future litigation. According to the terms and conditions of their insurance coverage, most dental practitioners in Israel (approximately 95%) are required to report a claim address against them to the Medical Consultants International (MCI) Company, Tel-Aviv, Israel. MCI was established to handle medical malpractice suits under this policy. The purpose of this study was to retrospectively analyze all liability claims related to persistent altered sensation following placement of mandibular implants reported to the MCI Company from 1992 to 1999.

MATERIALS AND METHODS

Reports related to persistent altered mandibular sensation in 16 patients (12 women and 4 men) who underwent implant placement surgery in Israel were examined. Ages ranged from 28 years to 67 years (mean 46.1 years). MCI files related to these reports were evaluated according to a structured form.

¹Senior Lecturer, Department of Oral and Maxillofacial Surgery, The Chaim Sheba Medical Center, Tel Hashomer, Israel.

²Head, Department of Oral and Maxillofacial Surgery, The Chaim Sheba Medical Center, Tel Hashomer, Israel.

³Legal Consultant, The Medical Risk Management Company, Tel-Aviv, Israel.

⁴Attending Dentist, Department of Oral and Maxillofacial Surgery, The Chaim Sheba Medical Center, Tel Hashomer, Israel; The Medical Risk Management Company, Tel-Aviv, Israel.

Reprint requests: Dr Navot Givol, Hapazit 30, Neve Yam, Rishon LeZion, Israel 75200. Fax: + 972-3-5341210. E-mail: drshaush@netvision.net.il

Table 1 Implant Parameters

Case no.	Type*	Length (mm)	Diameter (mm)	Location†
1	S	16	3.75	29 (45)
2	S	13	4.2	30 (46)
3	B			19 (36)
4	S	10	3.75	29 (45)
5	S	16	3.75	30 (46)
6	C	10	3.25	29 (45)
7	S	15	3.75	18 (37)
8	S	10.5	—	30 (46)
9	S	10	3.3	21 (34)
10	C	13	4	19 (36)
11	S	13	3.75	30 (46)
12	B			30 (46)
13	S	13	3.75	31 (47)
14	S	10	3.3	29 (45)
15	C	10	3.25	29 (45)
16	C	11	3.75	29 (45)

*S = screw, C = cylinder, B = blade.

†For location, Universal System followed by FDI in parentheses.

— = information not available.

Preoperative radiographs were studied to determine the available bone height at the implantation site. A reduction of 26% was made to each measurement on the panoramic radiographs.

Evaluation parameters included patient age and gender, implant location and length, imaging modality, and the time between actual damage and filing of a claim (ie, letter of demand or lawsuit).

RESULTS

The enrollment rate and year of surgical procedure were considered: Three cases were reported in 1992, 2 in 1993, 5 in 1994, 1 in 1996, and 5 in 1997. No cases were reported in 1998 or 1999.

The enrollment rate and year of filing claim were noted: No cases were reported in 1992, 2 cases in 1993, 1 in 1994, 2 in 1995, 3 in 1996, 4 in 1997, 3 in 1998, and 1 in 1999. The time in months between actual damage and filing of a claim ranged from 0 to 60 months (mean 21.5 months).

The panoramic radiograph was the only imaging modality used in 15 cases; in the other case, the periapical radiograph served as the imaging modality.

Table 1 shows the implant type, length, width, and location. Implants were placed in 7 second premolar and 7 first and 2 second molar areas.

Three patients experienced sensory changes on the left side of the mandible, 12 on the right, and 1 bilaterally.

The lip and chin were the only affected orofacial sites. Sensory changes in the gingival tissues were not reported. There were no reports of altered sensation in the tongue.

In 15 cases, postoperative imaging demonstrated a violation of the mandibular canal by the implant; the other was a result of instrumentation during preparation of the implant site. No claims were the result of mucoperiosteal flap elevation.

The onset of altered sensation was always within the first week of stage 1 surgery, with relatively little change at the 1-year follow-up. There were no cases involving transient changes in sensation.

The percentage of women filing a claim following altered sensation (75%) was higher than the percentage of women taking medicolegal action as a result of other implant surgery (64%) or dental treatment complications (63%). However, this was not statistically significant.

Reports were classified as:

- *Primary*—reported by the dental practitioner without prior involvement of the patient
- *Secondary*—demand of financial compensation from the patient without involvement of the courts
- *Tertiary*—filed lawsuits

Three of the reports were primary, 4 were secondary, and 6 were tertiary. The other 3 were reported primarily by the dental practitioner, followed by lawsuits filed by the patients.

Eight specialists performed 50% of the surgical procedures, while general practitioners performed the rest.

DISCUSSION

During the years 1992 to 1999, MCI received 61 reports concerning dental implants. Of these, 16 involved permanent nerve injuries. The MCI consultants assessed 24 of the remaining 45 reports as involving liability issues. In all 16 cases included in this study, liability of the practitioner was acknowledged. Nerve injuries probably could have been avoided in all cases. The true number of nerve injuries related to dental implants is most likely larger than reported in this study, but the actual number cannot be determined.

The enrollment rate demonstrated a mean time lapse of 21.5 months from actual damage to filing a claim. This can be explained by several factors. First, it takes about 12 months to distinguish between transient and permanent nerve injury. There were no claims concerning transient nerve injury. It can be inferred that patients accept and cope well with the

fact that transient nerve injury is part of the postoperative course in implant treatment, but they do not accept permanent injury. Second, additional time is required to obtain legal and medical consultation prior to litigation. Third, some of the patients attempt to initially obtain compensation by informal petition to their surgeons. Action is taken only when such informal negotiation fails. This was observed in 9 of 16 cases.

Panoramic radiographs used in the reported cases were studied and the available bone height was accurately determined. Inaccuracy in the evaluation of bone height was apparently misinterpretation by the practitioner and not related to the type of radiograph.

The risk/benefit of placing implants longer than 12 mm in the mandibular molar area should be carefully evaluated by each clinician.⁴ Implant length was equal to or longer than 13 mm in 6 of 7 implants placed in the molar region, excluding 2 cases in which blades were used. Therefore, nerve injuries may have been prevented if 13-mm, 15-mm, and 16-mm implants had been avoided. In the premolar area, nerve injury was evident in 6 of 7 cases in which implants even shorter than 12 mm were used. It is suggested that since the mental foramen is at a higher level than the mandibular canal, this location probably should be avoided if possible. Placement in the molar area should be preferred for both biomechanical and risk-associated reasons. However, such a statement requires further validation based on larger study groups.

All the reported cases involved nerve injury during preparation of the osteotomy site. Mucoperiosteal flap elevation is performed electively under direct vision, allowing the practitioner more control. During bony preparation, the practitioner must rely completely on preoperative measurements. Therefore, to avoid damage to the mandibular nerve, each practitioner should be familiar with the distortion of the imaging modality. The chosen length should be rechecked by either the same practitioner at different times or by more than 1 practitioner. Clinicians must also realize that dental implants are not suitable for some patients.

Most of the patients (75%) in this study were women, which is compatible with 2 previous reports concerning claims involving nerve injuries following third molar extractions. These investigations found that 80%⁵ and 68%⁶ of claims were filed by female patients. The reason for this gender discrep-

ancy is not clear, but may be related to factors predisposing women to surgical trauma following implant placement, including a smaller mandible and age-related hormonal changes that result in increased bone resorption. Perhaps the limited population studied was also a factor. Greater dental and esthetic awareness may be an additional reason.

Practitioners reported the damage in only 6 of 16 cases. When a problem could arise, they should be encouraged to seek medical and legal help more often to enable them to respond to the medicolegal actions earlier and better.

CONCLUSIONS

1. Transient nerve injury rarely results in legal action.
2. Maximum efforts should be devoted to accurately determine the appropriate implant length in the mandible.
3. The use of implants no longer than 12 mm in the molar area and 10 mm in the premolar area may reduce nerve injury-associated risks following implant placement in the mandible.
4. The mandibular second premolar location should be avoided unless essential to the overall treatment plan.
5. Practitioners should report nerve injuries to their insurance companies as soon as possible to obtain professional assistance.

REFERENCES

1. Bartling R, Freeman K, Kraut RA. The incidence of altered sensation of the mental nerve after mandibular implant placement. *J Oral Maxillofac Surg* 1999;57:1408-1412.
2. Ellies LG. Altered sensation following mandibular implant surgery: A retrospective study. *J Prosthet Dent* 1992;68:664-671.
3. Palat M. Assessing legal responsibility for implant failure. *Compendium* 1991;12:295-296.
4. Saadoun AP, Le Gall MG. An 8-year compilation of clinical results obtained with Steri-Oss endosseous implants. *Compend Contin Educ Dent* 1996;17:669-674.
5. Venta I, Lindqvist C, Ylipaavalniemi P. Malpractice claims for permanent nerve injuries related to third molar removals. *Acta Odontol Scand* 1998;56:193-196.
6. Sandstedt P, Sorensen S. Neurosensory disturbances of the trigeminal nerve: A long-term follow-up of traumatic injuries. *J Oral Maxillofac Surg* 1995;53:498-505.