



Dental malpractice: What you must know about implants

Two million implants a year lead to a growing number of negligence claims

BY EDWIN J. ZINMAN

Dental implants are used in 15 to 20 percent of dental prostheses. About two million dental implants are inserted annually. This is projected to grow to four million by 2020.¹

Q: What are the indications for dental implants?

A: Implants replace a missing tooth or teeth with a root-shaped device that is surgically drilled in either one or both jaws. [Figure 1] Dental implants can support an implant crown over an implant or provide infrastructure support for a complete denture.

Q: What are the primary benefits of dental implants?

A: Fixed or removable bridges are the prosthetic alternatives to implants. A fixed bridge requires crowning of adjacent teeth for anchorage support.

A removable bridge, also known as a partial denture, may be uncomfortable to wear. It usually is unesthetic, particularly for anterior teeth, with visible clasps placed on adjacent teeth for retention.

Q: Are implants more stable long term than periodontally compromised teeth?

A: Implants are promoted as being more predictable long term to justify extracting teeth which are compromised with periodontal disease. Implants are not the perfect panacea. Long-term studies lasting ten years show greater bone loss among implants than with periodontally compromised teeth that are retained and preserved with regular periodontal maintenance therapy.² Accordingly, implants should be a last rather than first resort for treatment of periodontally compromised teeth. Implants, as with teeth, require regular periodontal maintenance care every three to six months depending upon the patient's susceptibility to periodontal disease.

Q: Is it a defense to negligent treatment that the patient signed an informed consent form that lists permanent numbness (paresthesia) and/or pain (dysesthesia) as risks of implant surgery?

A: Informed consent applies only to non-negligent surgical risks, and is therefore irrelevant to a claim of negligently performed implant surgery. Several out-of-state cases have held that informed consent is not a defense to negligent treatment, and evidence of informed consent is therefore inadmissible if the plaintiff does not allege lack of informed consent. (See, e.g., *Wright v. Kaye, MD* (2004) 267 Va. 510, 593 S.E.2d 307; *Hayes v. Camel* (2007) 283 Conn. 475, 927 A.2d 880; and *Schwartz v. Johnson* (2012) 49 A.3d 359, 206 Md. App. 458.)

Although California courts have not specifically addressed the informed consent/negligent treatment issue, the:

California Supreme Court, discussing assumption of risk in a case involving a

Figure 1

Dental Implant and Crown

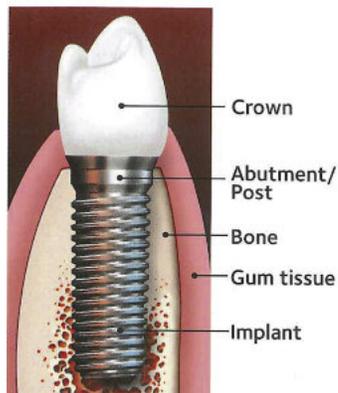
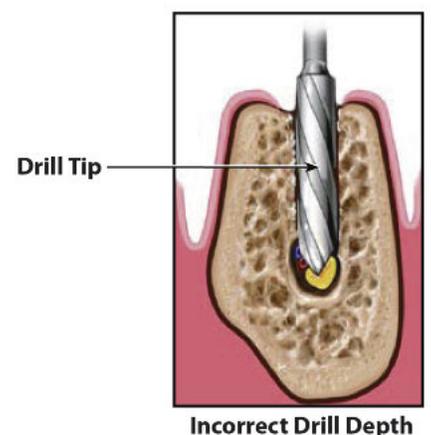
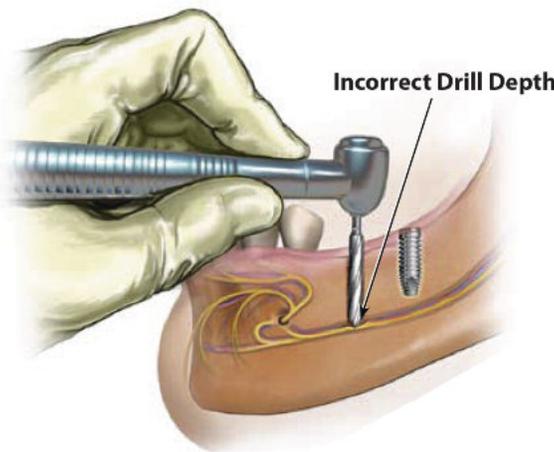


Figure 2





touch football game, commented in dicta: [A]lthough a patient who undergoes elective surgery is aware that inherent in such an operation is the risk of injury in the event the surgeon is negligent, the patient, by voluntarily encountering such a risk, does not 'impliedly consent' to negligently inflicted injury or 'impliedly agree' to excuse the surgeon from a normal duty of care, but rather justifiably expects that the surgeon will be liable in the event of medical malpractice.³

Knight v. Jewett (1992) 3 Cal.4th 296, 312.

Q: What are the significant negligent maloccurrences with implant surgery?

A:

- In the lower posterior arch improperly placed implants can penetrate the underlying inferior alveolar nerve canal (IANC) causing permanent altered sensations of persistent numbness (paresthesia) and/or burning pain (dysesthesia) of the inferior alveolar nerve (IAN) and mental nerve branches to the lip, chin and gums on the affected side. [Figure 2] If not angled correctly, the implant drill can penetrate through a concavity of the mandible to puncture the lingual artery and cause life-threatening hemorrhaging.
- In the upper posterior arch, improperly placed implants can pierce the maxillary sinus, causing chronic sinusitis.
- Drilling off angle rather than in the vertical axis can penetrate the outer facial jawbone, predisposing to infection and/or implant failure.
- Overheating during drilling causes bone necrosis at the implant drill site and predictable failure of the implant to integrate to the adjacent bone.
- Small-sized mini implants will not support a denture long term and should only be used as interim implants short term. Conventional-sized implants are best for improved denture stability/retention long term.

Q: What implant risk-avoidance techniques should be used for safe practices?

A:

- Permanent nerve injuries from dental implant surgery are usually avoidable with due care.

A 3-D Cone Beam CT (CBCT) identifies precisely the location of vital structures such as the IANC, mandibular (lower jawbone) concavities and sinuses to be avoided with implant surgery. Utilizing presurgical measurements from the bony crest to the IANC, the dentist should drill no deeper than two millimeters above the roof of the IANC. A two-millimeter safety zone prevents IANC perforation.⁴ Overdrilling into the two-millimeter safety zone or beyond can cause injury to the IAN from direct compression of the IAN. This phenomenon results from inflammatory edema causing ischemia and reduced blood supply to the IAN.

- Implant sinus-lift surgery elevates the sinuses. Bone grafting in the newly elevated sinus area fills in with new bone to permit longer-sized implants that otherwise would cause sinus perforations if the sinuses were not lifted.
- A surgical drill guide aids alignment of the implant in the correct vertical axis.
- Overheating at the implant drill site is avoidable with slow drilling and adequate water coolant of the drill site.
- Presurgical bone grafting can widen the implant site to permit larger and more stable implants.
- If the implant is placed inside the inferior alveolar nerve canal and causing neuropathic symptoms, prompt removal of the implant (within 30 hours) probably can avoid permanent altered nerve sensations such as paresthesia and/or dysesthesia.⁵

Q: How safe is the radiation from dental 3D Cone Beam CT (CBCT)?

A: All radiation is cumulative. Dentists are obligated to utilize ALRA (As Low as Reasonably Achievable) principles of radiation hygiene when taking dental radiographs. For implant placement of one or two implants, a narrow field CBCT emits only 20 microsieverts of radiation. By

contrast, a medical CT may emit up to 2,000 microsieverts or 100 times as much. A wide field CBCT of both arches emits approximately 52 to 160 microsieverts of radiation or about 90 percent less than a medical CT. A full mouth series of conventional digital radiographs is approximately 172 microsieverts.⁶ Earth and atmospheric average radiation is 3,000 microsieverts per year.

Q: Where can a patient obtain a 3D CBCT and a dental radiologist's report of the findings?

A: Most dental offices refer to a dental X-ray lab for obtaining a CBCT. A dental radiologist's report of pertinent findings is optional at an additional cost of \$75 to \$100. Dental radiology is one of the eight ADA-recognized specialties. The dental radiologist's report will include the diagnosis of both medical and dental pathosis. General dentists do not receive adequate training in dental school to completely diagnose all pathosis which may be evident in a CBCT. Notwithstanding, a generalist is legally responsible for making such diagnoses if not referred to a dental radiologist for a report.

Q: How may an attorney obtain copies of implant radiographs with the best diagnostic quality?

A: JPEG format compresses digital data to produce lesser quality copies. HIPAA requires the dentist to provide electronic copies of radiographs in the same format in which the radiographs were originally electronically created upon the patient's request.⁷ Most dental offices presently use electronic digital radiography and have switched from analog films. Pursuant to Evidence Code section 1158, to obtain first generation quality, the attorney should request that individual periapical, bite wing and/or full mouth radiographs be sent via email preferably, but alternatively on a disk in the same electronic format as the dentist originally created the radiographs.



All CBCT machines are capable of reproducing the CBCT with all of their original data preserved in Digital Imaging and Communications in Medicine (DICOM) format. DICOM is the universal standard in which any software can read the data. Otherwise the standard CBCT copy produced will likely have proprietary software embedded which cannot be easily read unless the reader has the same CBCT software.

Q: What is the longevity of dental implants?

A: Implant infrastructures have a 30-year life expectancy.⁸ Therefore, in a 20-year-old patient, expect one surgical replacement at age 50. Bone loss around implants occur at .1 millimeter to .2 millimeter per year resulting in gum recession and unesthetic exposure of the implant crown margins necessitating periodic implant crown replacement every 10-15 years.

Implants have twice the failure rate when only general dentists place and restore them than they do when specialists such as periodontists, oral surgeons and prosthodontists are included in the implant team.⁹

Q: What are the signs of an ailing and/or failing implant?

A: Peri-implantitis infection is a form of periodontal disease which is the precursor sign for an ailing implant. Surgical treatment is usually required. If left untreated, more support bone is lost causing painful implant mobility, necessitating removal of the failed implant. Treatment may slow but not entirely eliminate peri-implantitis progression. Peri-implantitis is a major contributor to the limited 30-year life of the dental implants necessitating regular periodontal maintenance.

Q: Are implants easily removed and replaced?

A: A non-mobile ailing implant removal may be attempted with implant removal

devices that counter-torque the implant's threads. If not reversible, then surgical trephinating devices are used. Trephination bone removal creates a larger hole than originally drilled, which may necessitate bone grafting to fill before implant replacement can be done. Also trephination drilling must be done carefully to avoid injuring adjacent teeth or vital structures such as the underlying inferior alveolar nerve.

Q: Is implantology a dental specialty?

A: The American Dental Association (ADA) is the group that officially recognizes dental specialties. Dental specialty programs usually require three or more years of postgraduate residency. The ADA has not established implantology as one of their eight ADA-recognized specialties. Any dentist is legally permitted to perform implant surgery and place implant crowns. However, specialists have higher success rates than generalists.

Specialty training of periodontists and oral surgeons include implant surgery. Prosthodontists receive specialty training in placement of implant crowns. Their respective specialty organizations are the American Academy of Periodontology, American Association of Oral and Maxillofacial Surgeons, and the American College of Prosthodontists. Each specialty has its own Board Certification.

Q: How trustworthy are electronically created dentist's records?

A: Spoliation is an endemic dental-practice disease which is difficult to detect without a forensic examiner. On the other hand, one way to investigate is to subpoena the dentist's cloud server's custodian of records for the individual patient if the dentist's records were earlier stored in the cloud.¹⁰ This is not a HIPAA violation since only your client's records are subpoenaed and no other patients' records.

Q: Are defense attorney's ex parte contacts permissible?

A: A fiduciary relationship exists between a dentist and patient.¹¹ Non-consensual conferences between plaintiff's physicians and defense counsel violates the fiduciary relationship between the dentist and patient. Accordingly, ex parte contacts are not permissible pursuant to HIPAA regardless of state laws.¹²

Q: How are implant complications such as peri-implantitis treated?

A: Periodontal flap surgery is the traditional method. Recent advances in laser therapy provide not only reduction in inflammation but also new attachment of bone to the implant to preserve the implant from extraction.¹³

Q: What are the available therapies for chronic burning (dysesthesia) pain secondary to implant penetration of the inferior alveolar nerve if the implant is not removed within 30 hours of the onset of these neuropathic symptoms?

A: Microsurgical repair surgery for implant-related inferior alveolar nerve (IAN) injury is usually contraindicated since the surgical risks of worsening the injury outweigh the little benefit surgery may offer.¹⁴ Pain management neurologists or anesthesiologists at university-based pain clinics titrate with various medications such as Gabapentin, Tegretol, or Lorazepam. Cognitive rehabilitation therapy (CRT) and/or acceptance and commitment therapy (ACT) may also be recommended as supplemental non-surgical therapy.

Q: Is smoking an absolute contraindication to implant surgery?

A: Smoking is a risk factor that reduces implant success and increases the potential for complications. As long as the patient is forewarned of these risks, implants may be placed.¹⁵



Zinman

Dr. Edwin J. Zinman graduated from the University of Pittsburgh, both undergrad and dental school. He received his certificate in periodontics and oral medicine from NYU.

After practicing periodontics in New York and San Francisco and teaching at UCSF Department of Periodontics, he attended Hastings College of Law, graduating in 1972. His practice is devoted to dental negligence claims.

Dr. Zinman has lectured several hundred times to dental societies, AAJ and various legal groups and served on the Board of Directors of the San Francisco Trial Lawyers Association. He has authored chapters in 10 different dental books.

Endnotes

¹ Greenstein, G., Cavellaro, J. Failed dental implants: Diagnosis, removal and survival of reimplantations; JADA 2014; 145(8): 835-842

² *Knight v. Jewett* (1992) 3 Cal.4th 296.

³ Misch, C.E. Contemporary Implant Dentistry, 3rd ed. St Louis, MO: Mosby Elsevier; 2008: 703-4.

⁴ Renton, T., Yilmaz, Z. Managing iatrogenic trigeminal nerve injury: a case series and review of the literature; Int. J. Oral Maxillofac. Surg. 2012; 41: 629-637.

⁵ White S., Ludlow J. "Patient Risk Related to Common Dental Radiographic Examinations: The Impact of 2007 International Commission Regarding Dose Calculation Radiological Protection Recommendations. JADA" 2008; 139(9): 1237-1243.

⁶ HIPAA (HITECH) (Omnibus Rule) at 45 CFR section 164.524(c)(2); See also, "Dental Practice Act Compliance Q&A" California Dental Association (CDA) Journal, Vol. 42 (August 2014).

⁷ Lungren, D., Rylander, H., Laurell, L. "To save or to extract, that is the question. Natural teeth or dental implants in periodontitis-susceptible patients; clinical decision-making and treatment strategies exemplified with patient case presentations; Periodontology 2000, Vol. 47, 2008, 27-50.

⁸ Da Silva J.D., Kazimoroff J., Papas A., et al. "Outcomes of Implants and Restorations Placed in General Dental Practices: A Retrospective Study by the Practitioners Engaged in Applied Research and Learning (PEARL) Network" (JADA 2014: 145[7]: 704-713).

⁹ Wagner, et al., *Civil Trials and Evidence* (Rutter), section 1:122.

¹⁰ *Williard v. Hagemester* (1981) 121 Cal.App.3d 406 [175 Cal. Rptr. 365].

¹¹ *Law v. Zuckerman*, 307 F.Supp.2d 705 (D.Md., 2004). See also, "Ex Parte Communication Dead and Buried: HIPAA Placed the Last Nail in the Coffin" Trial Evidence Journal" The American Bar Association Association Section of Litigation Committee on Trial Evidence; Vol. 13, No. 2, Spring 2005.

¹² Nicholson M., Blodgett K., Braga C., et al. Pulsed Nd: YAG Laser Treatment for Failing Dental Implants Due to Peri-Implantitis SPIE Vol. 8929, 89290H-1 (March 2014)

¹³ Pogrel, M.A. "Nerve Involvement in Oral & Maxillofacial Surgery" Oral and Maxillofacial Surgery, Wiley-Blackwell, 2010. Chapter 16, Page 278.

¹⁴ Snider, T.N. Summary of current consensus on the effect of smoking on implant therapy. J Mass Dent Soc. 2011 Winter; 59(4): 20-2.