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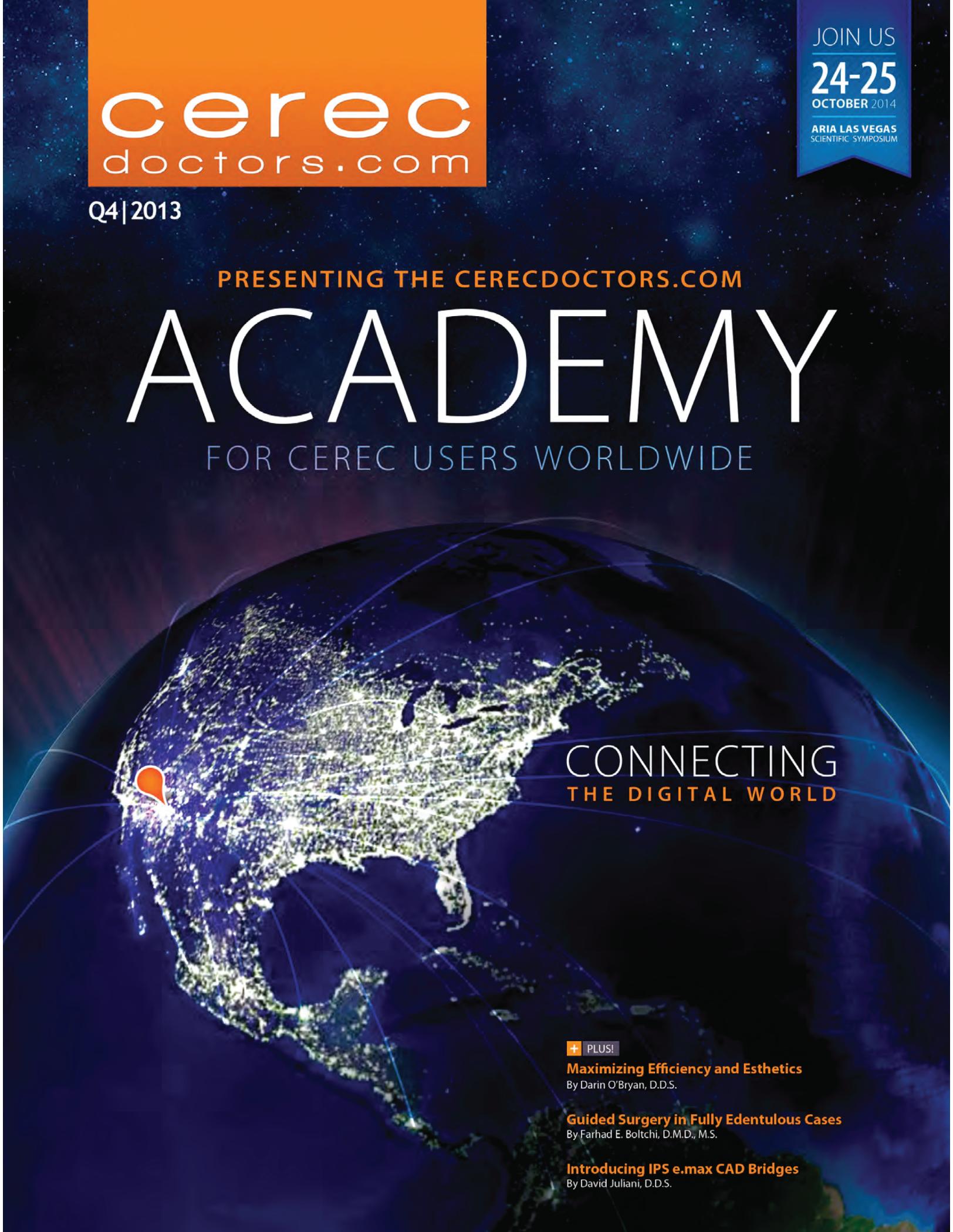
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By David Juliani, D.D.S.



Pearls of Wisdom, Part 1

In This Quarterly Column, the Author Shares Tips on Implantology

IS IT JUST ME, OR DO YOU ALSO NOTICE that, as clinicians, we tend to come across random facts or “dentistry pearls” that occasionally play a significant impact on our day-to-day practice of dentistry?

At times, it is great to just chat with a colleague or fellow dentist on things that are working for them in clinical practice, business practice and marketing. I often have the luxury and opportunity to sit at the dinner table with some of the world leaders and trendsetters in implant dentistry. Over dinner, I usually am silent, as it is my opportunity to be a sponge for material and content. It is

important to sift through one’s notes from various CE and educational courses to reinforce concepts that, far too often, are forgotten. The following statements are intended to serve as a guide to clinicians in the diagnosis, treatment planning and management of patients requiring dental implant therapy.

The following is the first of a quarterly list of random pieces of information that I have come across. I hope these will better prepare clinicians to make informed surgical and prosthodontic treatment decisions that will further enhance the quality of care and predictability of

treatment outcome for their patients.

I consider these to be “pearls of wisdom” that I wish to pass along to my fellow CEREC dentists. There is no rhyme or reason to them, and the only thing they have in common is that they will help you in your journey to being the best CEREC user you can be. Ultimately, I anticipate that these simple — yet sophisticated — statements will make as lasting an impression on you as they have on me.

For questions or more information, Dr. Patel can be reached at neal@cerecdoctors.com.

PATEL’S PEARLS OF WISDOM

- Results of clinical, radiologic and histologic studies indicate that bony healing of extraction sites proceeds with external resorption of the original socket walls and a varying degree of bone fill within the socket.
- Studies in humans and animals have demonstrated that a defect of 2 mm or fewer between an immediate implant surface and a bony extraction socket wall will likely fill with bone without the need for augmentation.
- In immediate implant sites where the defect to an extraction wall is greater than 2 mm or sites which have a non-intact



socket wall will likely require augmentation using barrier membranes and/or membrane-supporting materials to assist in guiding the graft material and regeneration of osseous tissues.

- The general consensus of antibiotic use in conjunction with implant therapy is inconclusive. There is an agreement that the use of antibiotics is advantageous when augmentation procedures are performed. There is an agreement based on prospective clinical trials that a single dose of antibiotics prior to implant surgery is effective in preventing infection. When using antibiotic prophylaxis, an adequate serum concentration should be established within two hours of the time of surgical incision and should not be continued for more than 24 hours, as it may encourage growth of resistant organisms.

- With patients who present with a thin biotype and immediate implant placement, extra care should be taken to augment the implant site concomitant to immediate implant placement in anticipation of buccal plate resorption and marginal tissue recession. If buccal plate integrity is lost in the thin biotype patient, immediate implant placement should be aborted and augmentation therapy becomes the focus.
- There is a general consensus among leading implant surgeons that the 3-D positioning of the implant should be restoratively driven. One can avoid prosthetic complications by simply following a protocol that establishes restorative goals prior to engaging in implant placement and using the restorative vision to aid in placement of the implants.

- The majority of articles indicate that good bone quality, primary implant stability and splinting of implants in cases of immediate and early loading are recommended, even though no uniform criteria to evaluate these parameters has been used.
- Immediate loading (as opposed to early and delayed loading) of full-arch mandibular fixed prosthesis and overdentures supported by rigidly connected implants between the mental foramina is routine, and has a base of clinical evidence.
- Early loading of implants placed in the mandible, both with overdentures and fixed prosthesis, seems to be a reliable technique; but more research is needed before proposing this technique as routine.

- No meaningful data are available about immediate or early loading of edentulous maxillae with implant-supported overdentures.

- The use of immediate or early loading of fixed implant-supported prosthesis in the maxilla is not supported by sufficient data to consider this treatment modality as routine; although preliminary results seem to be encouraging.

- On average, the maxilla requires more implants than the mandible for proper prosthetic rehabilitation.

- Case reports and studies indicate that once immediately loaded implants integrate, they appear to have longitudinal bone loss and soft-tissue stability comparable to those of conventionally loaded implants.

- Limited data suggests that immediate restoration of implants in the esthetic zone might facilitate and stabilize gingival architecture more than a staged approach, and there is no evidence to suggest that deleterious gingival complications can be directly attributed to immediate restoration or loading protocols (this statement should not be confused with failures associated with temporary cement and cement sepsis of immediate restorations in a surgical site).

One should also appreciate that the primary cause of soft-tissue failure on immediate loading is cement sepsis and, therefore, one should employ screw-retained prosthetics when possible.

- Decontamination of peri-implantitis-affected implants

may be achieved most easily and effectively by applying gauze soaked alternately in chlorhexidine and saline.

- Based on the published literature, it is not possible to distinguish between subtypes of systemic diseases such as diabetes type 1 and 2, or primary and secondary osteoporosis. The supposition that subjects with diabetes tend to have higher failure rates is equivocal. The density of peripheral bone, as currently used for the diagnosis of osteoporosis, showed only a weak association with the risk of implant failure in two case-control studies.

For bisphosphonate therapy and implant surgery, the duration, route and the dosage of the medication, as well as the type of bisphosphonate, are reported to play an important role in potential bisphosphonate-related osteonecrosis of the jaws. A systematic review of implants placed before and after radiotherapy reported failure rates up to 12.6% for a follow-up period of 12 years. For this reason, in my practice, history of radiotherapy is a contraindication to implant treatment. Osteoradionecrosis following implant placement has been reported in the literature and a recent systematic review found no beneficial effect of hyperbaric oxygen therapy.

- There is an increased risk of peri-implantitis in smokers compared with non-smokers. The combination of a history of treated periodontitis and smoking increases the risk of implant failure and peri-implant bone loss.

- The absence of a metal framework in overdentures, the presence of a cantilever extension greater than 15 mm, bruxism, the length of the reconstruction, and a history of repeated complications are all associated with increased mechanical/technical complications.

- The type of retention, the presence of angled abutments, the crown-implant ratio and the number of implants supporting an FPD were not associated with increased mechanical/technical complications.

- Among the leading authorities in implant surgery: flapless surgery technique should normally be reserved for skilled and experienced implant surgeons who utilize comprehensive 3-D planning. A systematic review of the literature suggests that implant survival using flapless technique appeared to be efficacious and clinically effective; however the duration of the studies are too short-term.

- In the day and age of companies creating implant clones, cross-compatible “generic” abutments, screws and prosthetics, one should take extreme caution when mixing components. Although the manufactures may claim cross-compatibility, one should note that the stringent requirements that go into the design and engineering of threaded components cannot be replicated identically, and thus pose a great risk for mechanical and technical failure.

- Do not try to beat the system: trying to place implants the “cheapest” way will only get you “cheap” results that are subject to scrutiny. Generally speaking, even in the best of hands, implants have a 95 percent success rate. When failures occur, you want to ensure that the treatment and hardware provided were of the highest quality and standards as seen from the eyes of another colleague.

- Guided surgery is simple but very sophisticated, and should not be mistaken as the easy way of doing implant surgery. Once understood, the clinician becomes a master of the art of 3-D implantology and has the opportunity to obtain optimal results with predictability.

- Image guidance alone is not comparative to the use of computer-generated surgical guides in implant placement. Far too many clinicians use CBCT for planning purposes only and ultimately place implants with freehand technique. This often results in less than optimal outcomes. Computer-generated surgical guides will someday be the standard of care set forth by legal precedence.

- It would behoove a clinician to learn more about non-resorbable PTFE membrane for grafting extraction sites as it offers both predictability and esthetic results with relationship to soft-tissue preservation. Use of PTFE bypasses the need to make releasing incisions and displacement of keratinized tissue often associated with obtaining primary closure in socket grafting. 