

• implants

the international C.E. magazine of oral implantology

3²⁰¹⁴

c.e. article

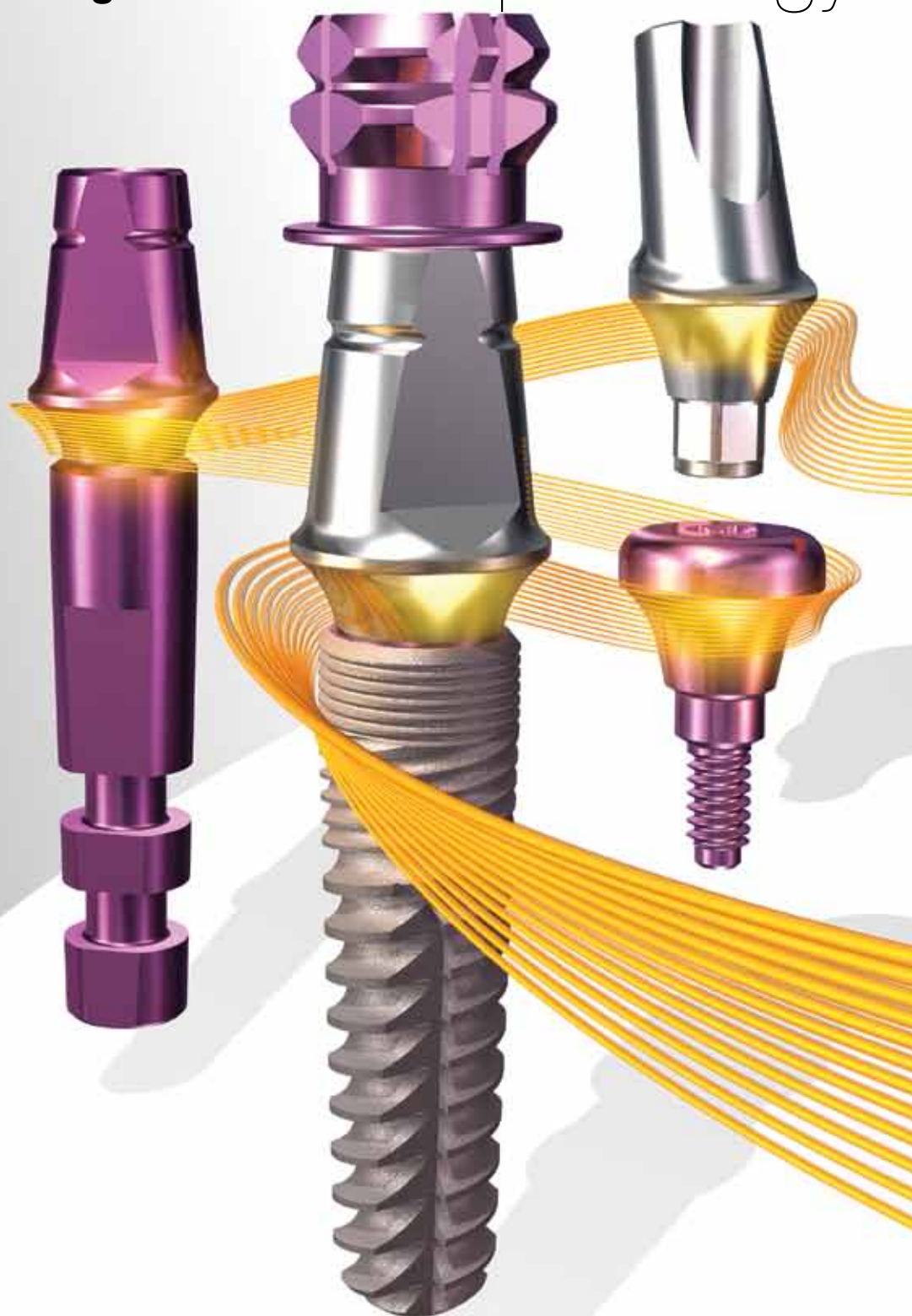
Decisions in
implant treatment
planning

education

LVI Core I three-day
course is designed for
doctors and their teams
to learn together

industry

Implant Direct
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Dental Tribune International

Thanks to rapidly advancing technology, the field of implant dentistry is always changing and evolving. Clinicians must be vigilant in their efforts to keep up with new techniques, new products and new technology that could affect treatment planning.

And that's what makes the publication you are holding right now so valuable.

For this issue of *implants*, we've assembled a collection of articles from a variety of respected names and companies in dentistry. These expert clinicians are sharing their first-hand knowledge and expertise with you. In this issue, you can read about implant site preservation, and you can also learn about blade implants. We also have news on implant events and technology.

But there's more.

Every issue of *implants* magazine also contains a C.E. component. By reading the articles (beginning on Page 6) on "Decisions in implant treatment planning" by Dr. Kalman and "Simultaneous implant placement and provisionalization using a CATA in an avulsion site," by Drs. Ross, Pette and Ross, and then taking short online quizzes on the articles at www.DTStudyClub.com, you will gain one ADA CERP-certified C.E. credit.

Keep in mind that because *implants* is a quarterly magazine, you can actually chisel *at least* four C.E. credits per year out of your already busy life without any lost revenue and time away from your practice. To learn more about how you can take advantage of this C.E. opportunity, visit www.DTStudyClub.com.

Finally, if you are interested in becoming a published author, we are always looking for experienced clinicians to write C.E. articles and offer their expertise to our readers. Contact Managing Editor Sierra Rendon at s.rendon@dental-tribune.com for more information on submitting an article.

I hope you enjoy this issue and that you get the most out of it.

Sincerely,

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1. Clinicians Report, TRAC Research, July 2014

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Restoring quality of life

Patients rely on you in order to eat, speak, and smile with confidence. It can be said, you are actually restoring quality of life.

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Decisions in implant treatment planning

Author _Les Kalman, BSc (Hon), DDS

_c.e. credit part I

This article qualifies for C.E. credit. To take the C.E. quiz, log on to www.dtstudyclub.com. Click on 'C.E. articles' and search for this edition (Implants C.E. Magazine — 3/2014). If you are not registered with the site, you will be asked to do so before taking the quiz. You may also access the quiz by using the QR code below.



_Introduction

Dental implant treatment represents an elective phase that requires a significant effort in diagnoses and treatment planning. Numerous decisions must be made, from surgery to laboratory prescription, to predictably guide the patient to the final stage of rehabilitation. An overview of the decisions required is presented to equip the practitioner with the appropriate information necessary to successfully render treatment.

_Treatment sequencing

Dental implants represent an elective surgical and prosthetic component of dentistry. Prior to treatment, the oral cavity must be in optimum condition to accept this treatment modality. Extraction of selected teeth should be performed. Endodontic therapy should be initiated or finalized. The periodontium should be stable and free of active disease. Carious lesions should be filled or at least temporized to prevent the progression of disease (Fig. 1). Once essential oral cavity maintenance has been performed, implant treatment may then proceed. There may be situations

that veer from this recommendation, such as immediate implant placement in an extraction site, but elective treatment should follow essential treatment.¹

_Patient assessment

Prior to treatment, a thorough patient assessment should be made. This is rather extensive but should be reviewed prior to the surgical and prosthetic phase. The clinician should review the commitment of the patient, to ensure that treatment can be completed in a timely fashion. The clinician should provide a comprehensive informed consent, including treatment estimate, in terms of total time and cost. Explore the expectations of the patient, in reference to time and esthetic outcome. Assess the life factors of the patient to determine if treatment should be planned, postponed or avoided.

A thorough medical history is not only a legal but also an ethical requirement. Whether the health questionnaire is complex or simple, the relevant factors must be reviewed. Crucial factors that may impact treatment include but are not limited to: anticoagulants, biophosphates and diabetes. Studies have shown that patients experiencing periodontal bone



Fig. 1 _Panorex-active disease.
(Photos/Provided by Dr. Les Kalman)



Fig. 2



Fig. 3

loss prior to treatment are at higher risk of implant failure.²

An extraoral examination should then be rendered. Assess all factors, putting a specific focus on facial symmetry, the smile line, gag reflex and mandibular opening. The smile line and symmetry will guide esthetic concerns. The gag reflex and mandibular opening will predict the ease of surgery and delivery of the restoration.

A detailed intraoral assessment must be performed to assess oral hygiene, biotype, occlusion and any parafunctional habits. Good oral hygiene and resilient biotype are crucial for predictable surgical outcomes.³ Occlusion and parafunction are indicators for the consideration of a post-surgical occlusal appliance.

Particular attention should be made to site-specific factors (Fig. 2). These factors include basic anatomical considerations, such as the quantity of both horizontal and vertical bone, the quality and quantity of soft tissue and the possible need for hard- and/or soft-tissue augmentation.

A physical examination with ridge measurements should be employed. This will estimate quantity of both hard and soft tissues. If augmentation is expected, consideration should be made to the tissue type, whether auto or allograft material would be selected (osseous) and from what anatomical site.

Records

Records are an essential part of implant treatment and the clinician should decide what records to employ. Photographs, radiographs (panorex, periapical, occlusal) and cone-beam computer tomography are all viable options. Impressions, models and articulated

casts represent the traditional simulation approach (Fig. 3) but virtual simulation has become popular (Fig. 4). A diagnostic wax-up predicts the number and location of teeth. Radiographic and surgical stents should be prosthetically driven and may be made in-house or outsourced. Radiographic assessment determines position and angulation of the proposed implant(s) and identifies accurate bone measurement.⁴ Make note of magnification.

Diagnoses

A complete list of diagnoses should be completed, listing all medical and dental conditions. Dental may include osseous and soft-tissue diagnoses. The prognosis for treatment plan should be reviewed, with emphasis on patient compliance. The classification of the case should be established. The ITI provides a simple online tool to classify according to simple, complex and advanced.

The patient should be made aware whether the implant treatment will be a limited approach, part of a larger comprehensive plan and whether the plan may be compromised due to limiting factors. Treatment expectations, financial obligations and consent should be presented to the patient in a realistic and understandable manner.⁴ At this stage, the clinician has the option to render all of the treatment, completely refer to a specialist or colleague or a combination of the two.

Surgical considerations

If surgery is planned, assess whether osseous and/or soft-tissue augmentation is required and if augmentation and implant placement will be

Fig. 2_Ideal site-specific factors.

Fig. 3_Mounted casts.

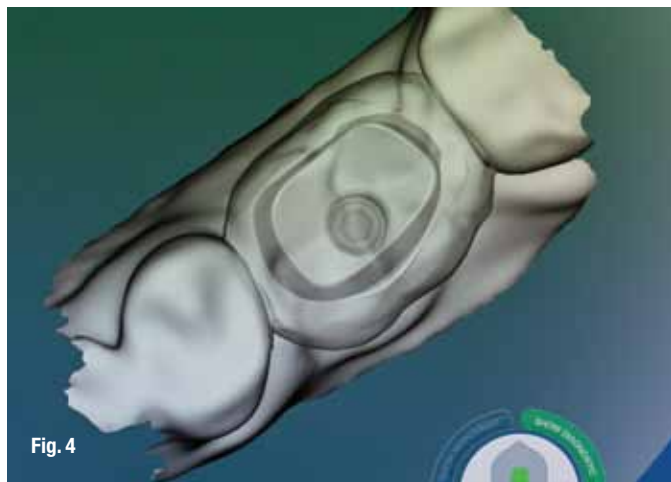


Fig. 4



Fig. 5



Fig. 6



Fig. 7

Fig. 4_Virtual design.

Fig. 5_Surgical guide.

Fig. 6_Peek abutment.

Fig. 7_Tempcap abutment.

simultaneous or delayed. Implant-placement considerations include the choice between a flap or flapless approach, bone or tissue level placement, implant type, length, diameter and coating. Each choice has its own merits.⁵

A decision should be made whether surgery will be completed freehand, template assisted (Fig. 5) or template guided (controls alignment and depth). Templates should allow implant positions to be easily transferred to the site during surgery.⁶

Following placement, consideration should be given to the healing period, loading protocol and provisional phase.

Post-surgical assessment should evaluate implant location, angulation, stability and absence of pathology. Assess oral hygiene and patient compliance. Provisionals play a crucial role in guiding the soft tissue, and options include: partial transitional dentures (flipper), Essex retainers and single-unit abutments (Peek, titanium, Tempcap and custom lab fabricated) (Fig. 6). Tempcap allows for optimal gingival healing and prevents contamination of the surgical field⁷ (Fig. 7).

Restorative considerations

Following healing, final impressions are required and may be executed either conventionally or virtually (with a scan). For conventional impressions, consider whether it will be an open- or closed-tray technique and the coping type. If scanning, note the specifications of the system and ensure your laboratory is compatible.

Digital impressions are gaining popularity because of ease and efficiency.⁸ Decisions regarding abutments include: stock, custom (Fig. 8), angled, what angle and what material.

Other choices include whether platform switching is required and whether pink material is necessary. Restoration options include: choice of material, retention type (screw vs. cemented), shade and color (pink), occlusal table size, type of occlusion, guidance and location of interfaces.

If results are compromised, consider delivering the abutment, impressing or scanning for the final restoration and fabricating a provisional. The final restoration would be delivered at a subsequent appointment.

_Delivery and follow-up

Delivery considerations should include a standard prosthodontic evaluation to assess fit, form, function, esthetics and path of insertion and withdrawal for both the abutment and prosthesis. If results are compromised, should either the abutment and/or prosthesis be modified or remade?

Consider placing the abutment with light torque, then seat the crown to ensure optimal fit and esthetics. Once confirmed, verify abutment placement radiographically and then torque to specification. Then place the prosthesis. If the crown is cement-retained, clean all of the excessive cement. If the crown is screw-retained, seal the screw access.

Provide adjustments to establish ideal prosthetic relationships. Consider a final radiographic image (Fig. 9). Assess the patient and implant at post-delivery appointments to verify the outcome. Consider an occlusal splint option, if required. Provide recall intervals to assess and monitor the situation and identify potential complications.

_Conclusions

With the appropriate diagnoses, treatment plan and decision making, implant therapy can be delivered in a predictable and successful manner. A carefully formulated plan will provide an optimal outcome, providing satisfaction to both the clinician and the patient.

Disclosure: Dr. Les Kalman is the co-owner of Research Driven and the developer of the Tempcap.

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Fig. 8



Fig. 9

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Fig. 8_Modified abutment.

Fig. 9_Final radiograph.

_about the author



Les Kalman graduated from the University of Western Ontario with a DDS degree in 1999. He then completed a GPR at the London Health Sciences Centre. He has been involved in general dentistry within private practice since 2000. He has served as the chief of dentistry at the Strathroy-Middlesex General hospital. In 2011, he transitioned to full-time academics as an assistant professor at the Schulich School of Medicine and Dentistry. Kalman's research focuses on medical devices, including the Virtual Facebow and the Tempcap. Kalman is also the director of the Dental Outreach Community Services (DOCS) program, which provides free dentistry within the community.

Kalman has authored articles ranging from pediatric impression to immediate implant surgery in both Canadian and American journals. He has been a product evaluator for several companies, including GC America and Clinician's Choice. Kalman is the co-owner of Research Driven, a company that deals with intellectual property development. Kalman is a member of the American Society for Forensic Odontology, International Team for Implantology, Academy of Osseointegration, American Academy of Implant Dentistry and the International Congress of Oral Implantology. He has been recognized as an academic associate fellow (AAID) and diplomate (ICOI). In his spare time, Kalman enjoys photography as an accredited MotoGP photojournalist. He can be contacted at lkalman@uwo.ca.