

## An implant aesthetic hierarchy for optimal outcomes

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To achieve optimal aesthetics, the restorative influence must begin at the earliest phase of implant treatment, and not at the restorative phase. All members of the implant team must visualise the same end result. This presentation introduces an Implant Aesthetic Hierarchy.<sup>1</sup> The base of the hierarchy is site development, proceeding to implant placement, followed by soft tissue form, and at the apex, the restoration itself (**Figure 1**). As the peak is approached, the levels of the pyramidal-shaped hierarchy become smaller, illustrating that the restorative dentist has decreasing control as treatment progresses.

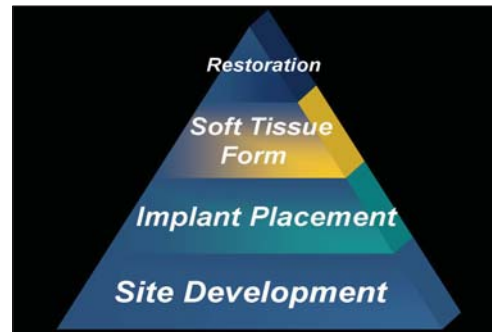
The base of the hierarchy is site development. If the site is not ideal, it must be developed first. The overriding prerequisite for predictable aesthetics is a pristine site for optimal implant placement (**Figure 2**). Atraumatic surgical techniques, superior bone grafting materials, and resorbable membranes have enhanced dentists' abilities to create optimum ridge form.

The second level of the hierarchy is implant placement. A well-developed site must be accompanied by an implant that is ideally positioned, preferably predicated on a restorative driven surgical guide (**Figure 3**). Aesthetic compromises in ideal sites can occur because the implants were placed with inadequate planning for the end result. The surface and design specifics of the implant can have a profound effect on bone maintenance and preservation.

Soft tissue form, the third level of the hierarchy, is determined by successful outcomes at the first two levels. The volume of soft tissue that exists around an implant, defined as the biologic width, is ultimately established by the bone that supports it. The dentist and technician redistribute a fixed volume of soft tissue with the abutment and restoration to simulate normal gingival architecture. Computer-aided designed and computer-aided manufactured (CAD/CAM) patient specific abutments provide the necessary subgingival support to optimise peri-implant levels (**Figure 4**).

At the restorative phase of therapy, the apex of the hierarchy, the aesthetic potential of the implant restoration has been pre-determined by the outcomes of the previous three levels. At this point, only shade and crown contours can be manipulated. Restorative dentists must have a thorough understanding of tooth colour and crown contours to objectively communicate with the laboratory technician in order to meet their patients' aesthetic expectations (**Figure 5**).

<sup>1</sup> **Priest, GF.** Implant esthetics: Toward predictable outcomes. *Dental Practice Report* 2005;13(9):50-54.



**Figure 1**



**Figure 2**



**Figure 3**



**Figure 4**



**Figure 5**

## ABSTRACTS

### Systematic review of survival rates for immediately loaded dental implants

Del Fabbro, Massimo *et al.*

#### Abstract

The primary goal of this paper was to determine the survival rate of immediately loaded (IL) dental implants based on a systematic review of the literature. Secondary goals were to determine the influence of several factors on the implant survival rate, such as the type of reconstruction, implant location, and implant surface characteristics. An electronic search of databases was performed, in addition to a hand search of the most relevant journals. All relevant articles were independently screened according to specific inclusion criteria. The selected papers were reviewed. The literature search yielded 270 applicable articles up to December 2005. Of these, 71 met the inclusion criteria for qualitative data analysis. Eight articles were randomised controlled trials. The overall implant survival rate for the included studies was 96.39%. The database included 10,491 IL implants placed in 2,977 patients, with a maximum follow-up of 13 years. IL is well documented and predictable for the edentulous mandible (overdentures and full-arch prostheses) and for maxillary single crowns. Fewer data were found for maxillary full-arch reconstructions, fixed partial prostheses, and mandibular single crowns. For the latter two types of reconstructions, implants placed in anterior sites generally displayed a higher survival rate versus those placed in posterior sites. Rough surfaces displayed a higher survival rate than machined surfaces in all types of reconstructions. Most failures (97.1%) occurred within the first 12 months of loading. This review showed that it is possible to apply IL with excellent survival rates. Implant micromorphology and careful patient selection may affect treatment outcomes.

International Journal of Periodontics and Restorative Dentistry, May/June 2006, Volume 26, Issue 3.

### Further dental treatment needs of children receiving exodontia under general anaesthesia at a teaching hospital in the UK

Kakaounaki, E. *et al.*

#### Abstract

The aim of this study was to investigate the subsequent dental treatment needs of children who had dental extractions under general anaesthesia (GA) in 1997 in the Day Case Unit at Leeds Dental Institute (LDI), Leeds, UK, and the reasons for repeat dental GAs (DGAs).

#### Study design

The authors conducted a retrospective longitudinal analysis.

#### Subjects and methods

Information collected from hospital records for the six-year period following the first DGA included: reasons for the DGA in 1997 and teeth extracted; the number of subsequent DGAs, reasons and treatment; incidents of and reasons for toothache or swelling after 1997; treatment under local anaesthesia (LA) or inhalation sedation (IS) at LDI during the 6 years following the DGA in 1997.

#### Results

The study population consisted of 484 children, who received GA exodontia at LDI with a mean age of 6.35 years [95% confidence interval (CI) = 6.1, 6.6] and age range of 1-16 years. The most common reason for extractions at the original DGA in 1997 was dental caries, and the mean number of extractions was 4.24 (95% CI = 4.05, 4.43). Primary teeth extractions accounted for 82% of the cases. In total, 143 children (27.5%) had a record of follow-up treatment at LDI. Of these children, 32% had treatment under LA, 7% under LA and IS, and 15% received preventive care only. The overall repeat rate for DGA was 10.7%, with caries (84%) being the main reason for this. Of the teeth subsequently extracted, 72% were recorded as caries-free or unerupted at the time of the DGA in 1997.

#### Conclusions

A large proportion of the follow-up visits were to treat newly developed dental disease during the 6 years following the DGA in 1997. A more proactive approach towards preventive care may have resulted in the reduction of the development of new dental disease.

International Journal of Paediatric Dentistry, 2006, volume 16, issue 4, page 263.

## Abscess of the orbit arising 48 hours after root canal treatment of a maxillary first molar

Koch, F., *et al.*

### Abstract

#### Aim

To discuss a rare, but severe complication arising following routine root canal treatment.

#### Summary

An orbital abscess is reported that occurred following routine root canal treatment. A young, healthy female patient, with no history of chronic paranasal infection had undergone root canal treatment of the right maxillary first molar. On hospital admission, she presented with extensive periorbital swelling and discreet diplopia. Computed tomography imaging identified massive purulent sinusitis and subsequent involvement of the orbit via the inferior and medial orbital wall within 48 hours after completion of root canal treatment. Immediate surgical drainage of the maxillary sinus and the orbit was established and a high dose of perioperative antibiotics (Amoxicillin/Clavulanic acid, Gentamycin, Metronidazole) were administered. Vision remained undisturbed and mobility of the globe recovered within 10 days.

#### Key learning points

- Rapid exacerbation of a periapical inflammation may occur following root canal treatment and may even involve the orbit.
- A typical speed of disease progression or ophthalmic symptoms should alert the clinician to at least consider unusual early orbital spread of odontogenic infection.
- When extra-alveolar spread and especially orbital spread is suspected, immediate referral to a maxillofacial or other specialised unit is mandatory.

International Endodontic Journal, 2006, volume 39, issue 8, page 657.

## Biphosphonate-associated osteonecrosis of the jaws: a guide for the general dental practitioner

Barker, Kate and Rogers, Simon.

### Abstract

Bisphosphonates are used most commonly in the management of metastatic malignant disorders to bone and for osteoporosis. The number of patients on treatment is increasing. Although there is clear evidence of medical efficacy, there are increasing numbers of reports concerning bisphosphonate-associated osteonecrosis of the jaws. This side-effect poses significant problems and is very difficult to treat. The aim of this article is to outline the proposed pathogenesis, incidence, presenting signs and symptoms, and risk factors. Also, suggestions are made as to the most appropriate measures for prevention and management of bisphosphonate-associated jaw osteonecrosis.

Clinical Relevance: General dental practitioners have a key role to play in identifying patients at risk of developing bisphosphonate-associated osteonecrosis of the jaws, preventing occurrence of the condition and initiating early specialist referral.

Dent. Update 2006; 33: 270-275.