Clinical Showcase

Clinical Showcase is a series of pictorial essays that focus on the technical art of clinical dentistry. This section features step-by-step case demonstrations of clinical problems encountered in dental practice. If you would like to propose a case or recommend a clinician who could contribute to Clinical Showcase, contact editor-in-chief Dr. John O’Keefe at jokeefe@cda-adc.ca.

A Transdisciplinary Approach to Rejuvenative Dentistry
Glenn S. McKay, DDS

Comprehensive treatment planning requires an integrated approach to total case management. Regardless of the expanding dental service mix, the clinician must continue to integrate the fundamentals of endodontics, periodontics, orthodontics and restorative dentistry in a meaningful step-by-step treatment plan.

The following case illustrates how integrating reconstructive dentistry, endodontics, periodontics and restorative techniques can engender quality care and optimize esthetic results. By adhering to the basic tenet of reconstruction — that “form follows function” — the practitioner can provide balance and harmony to the occlusion and the smile.

Case Presentation

An attractive 40-year-old woman presented to our office seeking a second opinion regarding the replacement of her existing prosthetics. She is a public figure who is routinely photographed for print publications. She expressed dissatisfaction with the colour of her teeth as they appeared in photographs and the exposure of the margins of the anterior crowns (Figs. 1a and 1b).

Clinical examination with a full-mouth series of radiographs (Figs. 2a, 2b and 2c) and mounted study casts revealed a canted maxillary occlusal plane; a heavily restored dentition characterized by mismatched, misshaped and inappropriately shaded porcelain-fused-to-metal crowns; cervical recession associated with carious margins; mucogingival deficiencies about the bridge in the maxillary right quadrant; and occlusal discrepancies throughout, but most noticeably associated with the bridge.

A periodontal consultation was performed and a laboratory wax-up done to provide the patient with a visual sense of what could be realistically achieved within the time constraints of her schedule. A crown-lengthening procedure would correct the asymmetry of the cervical margins in the maxillary anterior region. Osseo-integrated implants were indicated to eliminate the need for a long-span bridge in the maxillary right quadrant. An endodontic consultation was also required because many of the teeth exhibited poor-quality root canal therapy. There was concern that pulpal degeneration would result subsequent to re-preparation of the teeth, particularly those with cervical caries in evidence. The possible impact of these procedures on pulpal health was explained to the patient. She agreed to both interceptive endodontic therapy and retreatment where they were considered necessary.

Integrated Treatment Approach

A staged approach to the overall treatment was initiated with diagnostic wax-ups. The wax-ups were used to
construct a surgical stent for the crown-lengthening procedure and to determine parameters for a transitional acrylic bridge (Fig. 3). The periodontist architecturally recontoured the canted cervical areas using a full-thickness flap, combined with osteoplasty and ostectomy, to increase clinical crown length without impinging on the biologic width (Fig. 4).

Approximately 6 weeks after the surgery, the existing prosthetics were removed and an acrylic maxillary transitional bridge was adapted to the new preparations (Fig. 5). Root canal therapy and post and cores (FRC Postec, Ivoclar Vivadent Inc., St. Catherines, Ont.) were completed shortly thereafter (Fig. 6).

The implant site in the maxillary right quadrant was prepared using autogenous bone grafts (Bio-Oss, Osteohealth Co., Shirley, NY) and resorbable collagen membrane (Bio-Gide, Geistlich Pharma AG, Wolhusen, Switzerland). After a 6-month healing period, 2 ITI Straumann root-form dental implants (Straumann Canada Ltd, Burlington, Ont.) were placed in the sites of missing teeth 15 and 16. Impressions of the entire maxillary arch (Virtual VPS, Ivoclar Vivadent Inc.) were taken when the
implants were integrated and the soft tissue had matured (Figs. 7a to 7e).

Anterior crowns were constructed using all-ceramic material (Creation Translucent, Jensen Dental Products, North Haven, Conn.). A multi-layering technique was used to create anatomical features and optimize translucency. Crowns were bonded into place using Variolink II resin cement (Ivoclar Vivadent Inc.). Although optimal bilateral symmetry was not achieved, the patient was nonetheless extremely pleased with the final result.

Successful esthetic and functional results can always be achieved through a transdisciplinary approach, effective treatment planning and patient education regarding treatment process and outcomes (Figs. 8a and 8b). The fundamental rationale for a comprehensive treatment approach is long-term, maintainable dental health commensurate with an enhanced level of wellness for our patients. It behooves all practitioners to use a systematic approach based on the traditional fundamentals that provide a healthy foundation to facilitate treatment planning.

Acknowledgements: The author greatly appreciates the efforts of the technicians at the Quality Dental Laboratory, as well as Dr. Ken Serota’s assistance in the preparation of this manuscript.

Dr. McKay maintains a private practice in Mississauga, Ontario.

Correspondence to: Dr. Glenn McKay, 4141 Dixie Rd., Mississauga, ON L4W 1V5. E-mail: rockwooddental@on.aibn.com.

The author has no declared financial interests in any company manufacturing the types of products mentioned in this article.