A Cinder-Ella Story

Jordan Soll, DDS, Trevor Laingchild, RDT and Stephen Mulholland, MD

ABSTRACT

The public's fascination with "makeovers" continues to fuel the demand to observe life altering changes. For the individual who chooses to go through the transformational process, the change can have a positive impact on many different levels in their lives. Extensive plastic surgery that reversed years of one's appearance and reconstructive dentistry to enhance the look of their smile, while correcting periodontal and occlusal discrepancies, gave the patient an emotional lift that has given her an entirely new outlook on life. The following is a documentation of this woman's journey of a facial-dental makeover.

Every so often, a chance meeting for an individual turns into a life altering experience. Ella, a very pleasant 51 year old woman working part time and raising two sons, had such an encounter. Inside she felt alert, vivacious, and youthful but externally her appearance said droopy, and tired. In reviewing Ella's concerns, she had always had a life-long dislike for her facial balance. Her nose was dominant and her chin and neck were deficient. As she aged, her weak facial skeleton allowed her soft tissues to sag and without support she appeared prematurely old. As one ages, three stages occur, deflation, descent and deterioration. In Ella's case the normal loss of facial fat, and a decrease in cheek and chin volume, resulted in her nose looking disproportionately large. In addition to the droopiness of her cheeks, jowls and neck, she began to notice fleshiness on her lids and heaviness of her brow that contributed to her looking older and more tired than she felt.

One meeting with this spirited woman and it was clear to us how much she wanted to participate in this makeover. Though the entire process was to be documented, all aspects of the protocol were to be conveyed to the patient so that she had complete knowledge of the procedures before implementation so that informed consent could be obtained. As well, because of the nature of the treatment, the patient readily agreed to participate in the televised program that followed this story and all the numerous


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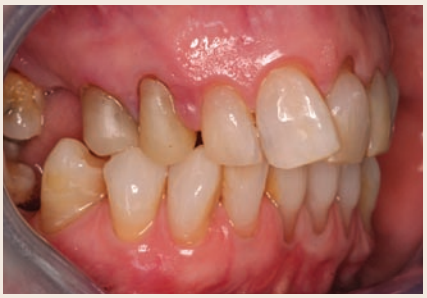
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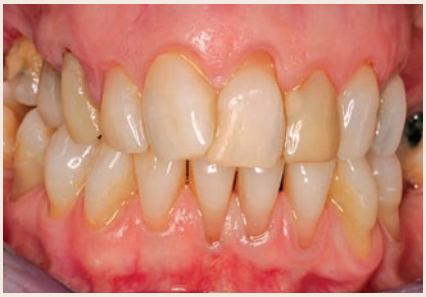
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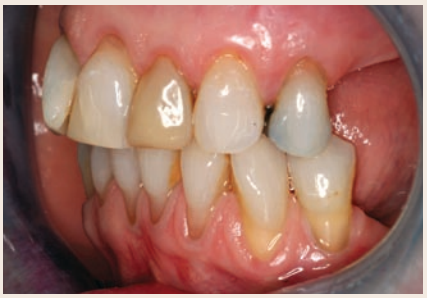
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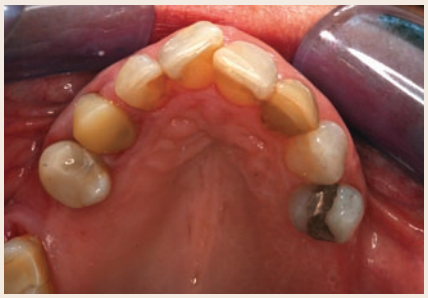


FIGURE 5

photographs to be taken along the way.

The transformation began with independent comprehensive examinations by the plastic surgeon, dentist and master ceramist. In joint consultation we set out to devise a treatment plan that would answer the patients' desires while leaving her with a pleasing and predictable result. Once in harmony, we were able to understand the down time that each provider would require and as such the following protocol was set out.

Periodontal surgery to correct the deep pocket in a localized area and remove one tooth that had a hopeless prognosis. This procedure was done first as it would be approximately eight weeks before any further dental work could be contemplated.

Plastic surgery that included a rhinoplasty, chin enhancement and face lift. (Consequently, the periodontal surgery and plastic surgery would heal concurrently.)

Once healing of the periodontal and plastic surgery occurred, complete restoration of the top arch and partial restoration of the lower arch were to be carried out.

As one ages, three stages occur, deflation, descent and deterioration

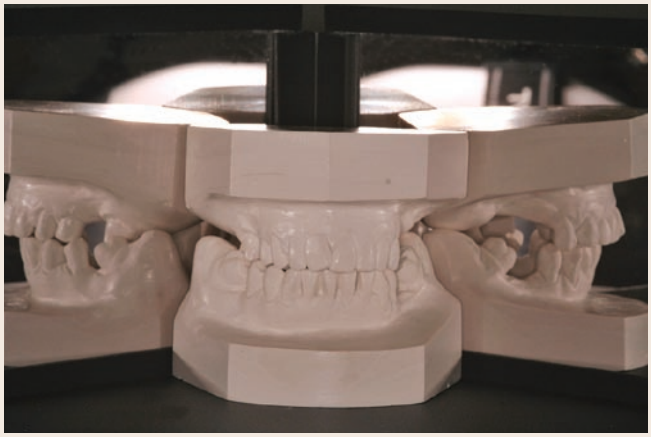
DENTAL EXAMINATION

The patient presented on referral from the plastic surgeon for aesthetic recommendations of her teeth. Initial evaluation indicated a healthy 51 year old female with no medical issues or contraindications to treatment. Discussion with the patient revealed that she was extremely unhappy with the appearance of her teeth and overall smile. Specifically, the patient was displeased with (Figs. 1-6)

- the colour of her teeth,
- the position of her teeth including the #11 crossing over #21, gaps, and missing teeth,
- discolored fillings,
- the absence of a healthy looking smile.

To insure a predictable result, it is imperative to understand where you are coming from. Consequently, a complete examination and diagnostic records were gathered including:

- clinical evaluation and dentogram,
- digital radiographs and photography,



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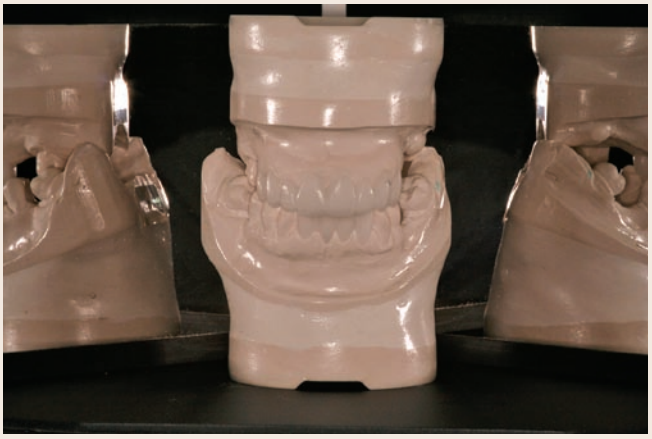

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FIGURE 8

FIGURE 9

FIGURE 10

- pre-operative study models and subsequent wax-up,
- comprehensive periodontal evaluation.

Once all records were gathered, consultations with the periodontist and master ceramist began to bring the outcome into focus. However, before the aesthetic concerns could be planned, periodontal issues had to be addressed to insure our treatment was fabricated on a sound foundation. It was discovered that there was a 5-6mm pocket on the buccal aspect of #14 as well as 6-9mm pocketing on tooth #17. To correct these problems pocket reduction surgery would be required on #14, however, the extent of bone loss on #17 necessitated that the tooth be removed. Removal of tooth #17 presented new challenges to create an aesthetic result.

To insure a predictable result, it is imperative to understand where you are coming from

On the maxillary arch tooth #13 was already absent and, with #17 non salvageable, the patient was now edentulous from the distal of #15 and distal of #24. On the lower arch the patient was missing teeth #'s 46, 48, 35, and 38. The presence of #'s 37 and 47 would provide bilateral balance to the maxillary restoration. Once it was determined which teeth would remain, the master ceramist and I were able to put forth a viable treatment plan which included:

- Hygiene treatment including root planning of the maxillary and mandibular arches,
- Periodontal services to include pocket reduction on tooth #14 and removal of tooth #17,
- Individual all-ceramic crowns on teeth #'s 12, 11, 21, 22,
- Splinted PBM crowns with internal semi precision attachments for teeth #'s 14, 15 / 23,

24 and an accompanying removable partial denture,

- Porcelain veneers on the lower arch for teeth #'s 32,31,41, 42.

Prior to embarking on the treatment plan, a diagnostic wax up was completed and presented to the patient. In review with the patient, she was pleased and confident that all her concerns would be addressed (Fig. 7).

To insure an efficient use of time, it was imperative that each clinician was aware of the other's requirements. As such, treatment was carried out in the following sequence.

Initial healing of the periodontal surgery would take approximately two weeks; as such this procedure was scheduled first. Periodontal surgery consisted of an open flap debridement and pocket reduction of #14 mesial and extraction of #17. Inverse bevel and sulcular incisions from #'s 12-15 on the buccal and palatal were made and the discard was removed. Full thickness flaps were reflected, granulation tissue and calculus were removed and osteoplasty and osteoectomy were used to reduce pockets and improve osseous contour. 4-O Vicryl sutures were placed to reposition the tissues. Tooth #17 was extracted with an elevator and forceps, the subsequent pocket being curetted to remove the granulation tissue. Prior to suturing the extraction site, visual, instrumental and breathing inspection confirmed that there was no communication with the sinus. Post operative instructions included:

Prior to embarking on the treatment plan, a diagnostic wax up was completed and presented to the patient

- Amoxicillin 500mg T.I.D for seven days,
- Tylenol 500mg q4-6h prn (used instead of ibuprofen so as not to interfere with clotting factors),
- Chlorhexidine rinse 0.12% B.I.D for seven days.

Post operative follow up on the tenth day revealed no complications were experienced. The patient was now ready for her plastic surgery.

COSMETIC EVALUATION

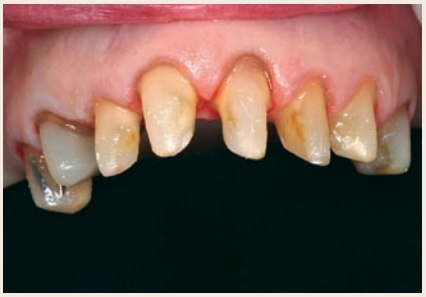
After a careful analysis of her facial skeleton and soft tissue, the surgeon devised a blueprint that would restore balance and harmony to Ella's face. The operative plan was to perform an elevation of the fallen soft tissue, including a telescopic elevation of her brow, cheeks and face. To improve her neck laxity and neck line a neck-lift was performed through small stealth incisions in and behind her ear. To further enhance her neck line, Ella's chin was brought forward to improve her overall facial proportion. An upper and lower lid procedure restored the appearance of youth and vitality to her eyes. Finally, a Rhinoplasty reduction was performed to reduce the dominance of her nose.

The procedure required three weeks to recover before Ella was in make-up and another six weeks until she was presentable amongst strangers. The aesthetic enhancements were life affirming. In addition to providing a youthful rejuvenation, the cosmetic surgery brought to Ella the proportion, beauty and shape she felt she had been denied by genetics. Moreover, Ella had been able to create an external facial shape and form that fully expressed her inner beauty and elegance (Figs. 8-10).

> It was imperative that each clinician was aware of the other's requirements

Eight weeks after the facial surgery and confirmation from the plastic surgeon, the patient was ready for phase III of her makeover. There had been over ten weeks of healing since the initial periodontal surgery and reprobing of the sites indicated that the surgical intervention, combined with impeccable home care, established sound gingival tissues in which to proceed with the restorative phase.

Using the diagnostic wax up as our architectural template, clear stints were fabricated using Clearly Affinity (Clinician's Choice London, Ontario). In addition, the master ceramist provided a putty matrix so that a check of the reductions could easily be confirmed. After profound local anesthesia was obtained, teeth #'s 15, 14, 12, 11, 21, 22, 23, 24 were prepared for conventional crown preparations. Where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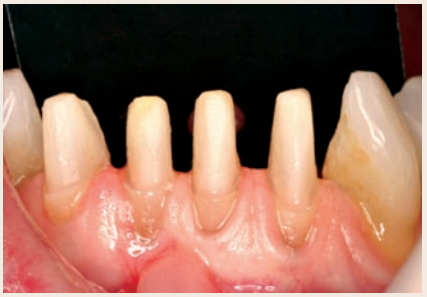
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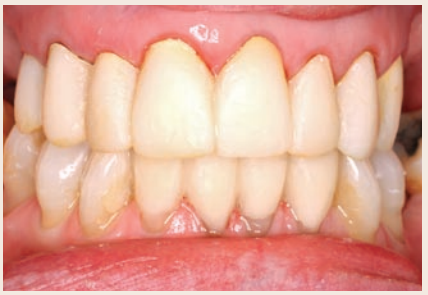
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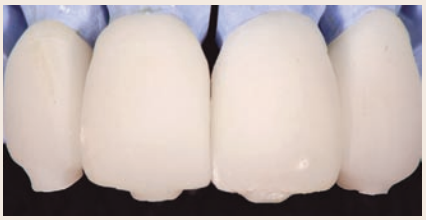
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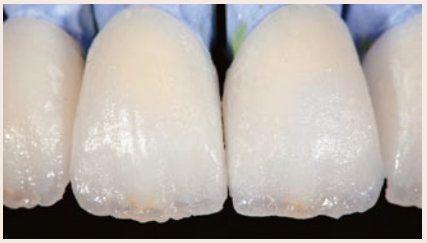
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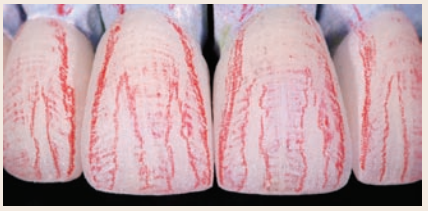


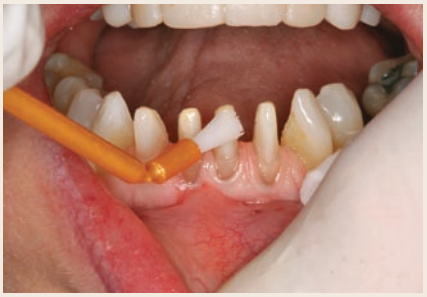
FIGURE 16

required, core build ups were placed in teeth #'s 15, 14, 22, 24 and the putty matrix provided by the technician confirmed the appropriate reduction of the max arch (Fig. 11). Using the clear stint and Protemp Plus (3M Corporation – MN) the temporaries for the maxillary arch were fabricated. To preserve the VHD, the right side was prepared with the subsequent temporary fabrication. With the occlusion balanced, the left side was then prepared and temporaries fabricated. The temporaries were then refined with Brasseler's Esthetic Trimming Kit (Brasseler USA – Savannah, GA) and polished.

Once the temporaries were fabricated, preparations were made for the final preparations. "30" non impregnated cord was placed in each sulcus, subsequently Expasyl (Kerr – Orange County, CA) was dispensed around the circumference above the sulcus to insure a dry field. After approximately two minutes, the Expasyl was washed off and the impression was taken with Impergum Penta Quick Step (3M Corporation – MN). After confirmation of the impression, the temporaries were placed with Rely X Temp NE. (3M Corporation – MN).

The surgeon devised a blueprint that would restore balance and harmony to Ella's face

Treatment on the lower arch called for the placement of four veneers on teeth #'s 31, 32, 41, 42 to remove the black triangles. Using the Strategic Esthetic Protocol Kit (created by Brasseler, USA and Soll) the contacts were removed using a mosquito burr (#8329-016). Initial depth cuts of 0.5mm using (#834-021) created a pathway for conservative veneer preparations on these teeth with the corresponding preparation burr (#6844-016). To insure the inter-proximal emergence appeared natural and immune to staining, the margins of the finish lines were placed on the lingual of the teeth creating the appearance of a 3/4 veneer. As there was already recession present on the lower anterior teeth, gingival retraction was not an issue as the apical preparations were finished shy of the gingival margin (Fig. 12). The lower impression was taken with Impregum Penta Quick Step (3M Corporation – MN). The lower temporary veneers were fabricated using the spot etch technique (Soll J. Oral Health, Dec. '08, pg. 9) (Fig. 13).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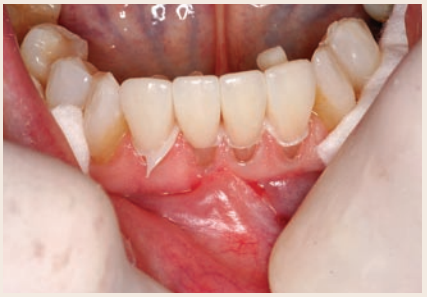
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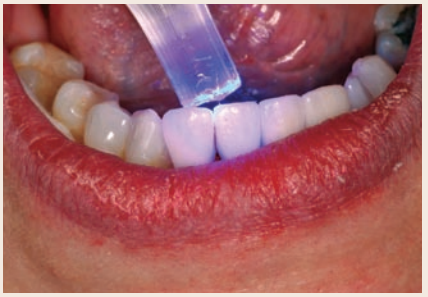
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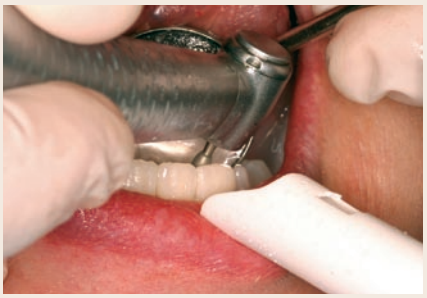
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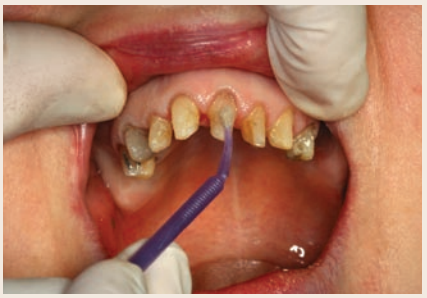
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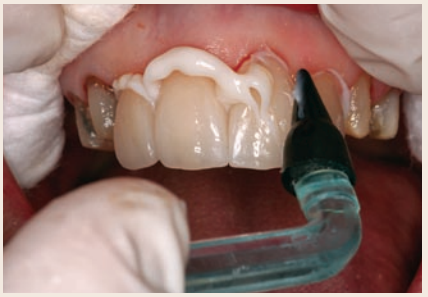


FIGURE 22

After confirming all registrations were recorded, including the facial/dental midlines and the horizontal plane, the impressions and records were sent to the laboratory.

The laboratory procedures for this clinical case were identified as having several different components and as such, needed to be treated individually, but with an overview that ensured that the restorations harmonized with each other within the patients existing esthetics. Several meetings between the patient, clinician and laboratory technician took place to prepare the correct laboratory protocols, which included the esthetic parameters, as well as the selection of the appropriate materials for the differing restorations.

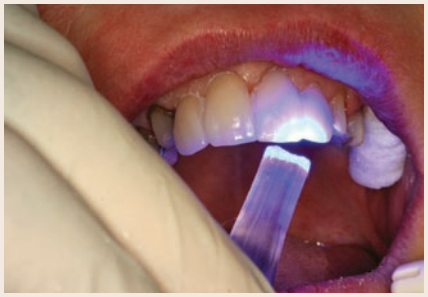
Beginning with the maxillary arch, tooth #'s 12, 11, 21, 22 were restored using IPS e.max Press HT all-ceramic crowns, which has a higher translucency and less reflection (Ivoclar, Amherst N.Y). These crowns were incisally cut back and layered with opalescence, translucencies and enamel powders, to give a natural graduation from dentine to enamel. The rounded distal lobes, which were presented in her natural teeth, were replicated to a lesser degree in the new restorations (Figs. 14-16).

In addition to providing a youthful rejuvenation, the cosmetic surgery brought Ella proportion, beauty and shape she felt she had been denied by genetics

Using IPS Empress Esthetic, the lower veneers were fabricated with the patient's personality of tooth shape being continued. (Ivoclar, Amherst N.Y) This approach prevented a radical change in the smile dynamics and maintained her existing characteristics with a softened harmony.

Tooth numbers 13, 14 and 23, 24 were splinted high precious metal fused to porcelain crowns, which included extra — coronal ERA attachments distal to the bicuspids. These attachments would be the direct retention for the partial denture. The palatial surfaces of these crowns required milled guide planes and indirect retentive ledges for the partial denture to ensure a customized fit.

A traditional metal framework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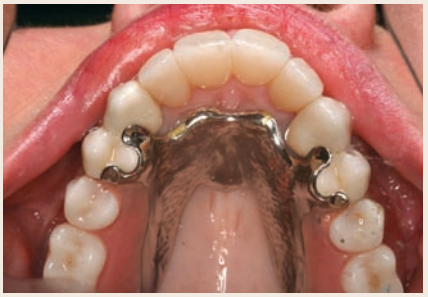
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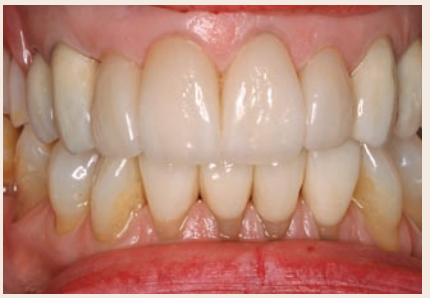
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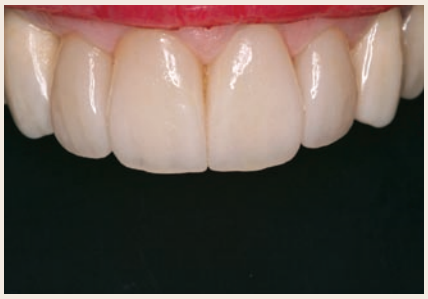
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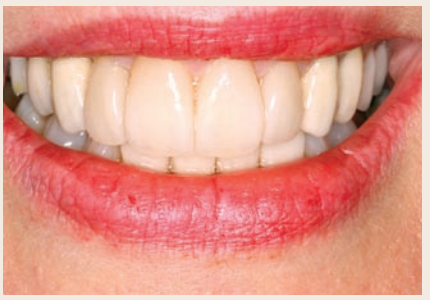
FIGURE 28

was fabricated using the extra coronial attachments as retention. At the subsequent try in of the R. P.D. with set-up, conformation of the bite allowed for correct placement of the denture teeth prior to processing.

It was very satisfying to accomplish this challenging restorative case, which by its very nature meant the use of dissimilar materials. The balance between high value (reflective restorations) and high translucency (light absorbing restoration) is always a challenge because they differ in their behavior of light. However, using a combination of all ceramic crowns, ceramic veneers, porcelain fused to metal crowns and acrylic/composite denture teeth the final result proved worthwhile.

Once the restorations were returned from the laboratory they were checked on the model for fit and contour. As there were only four veneers on the mandibular arch they were placed first. Using a mosquito burr (#8329-016, Brasseler USA) the temporary veneers were sectioned from each other and removed with the assistance of a U15 scaler. The abutments were cleaned with a mixture pumice and sodium hypochlorite to insure all remnants of the temporaries were removed (Fig. 17). The veneers were tried in with try on paste to confirm fit and colour. Once the patient approved their appearance they were removed in preparation for final insertion. The veneers were then re-etched, silanated and bonded while the abutments were re-scrubbed, etched and adhesive applied. The veneers were placed into position with Rely X Veneer Cement (3M Corporation – MN), excess material was removed and the veneers were cured for 10 seconds on both the buccal and lin-

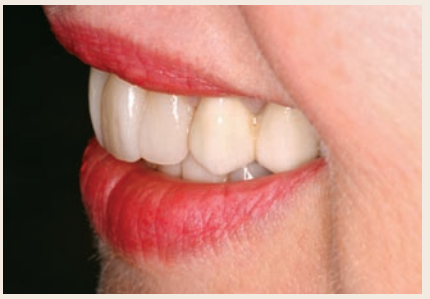
FIGURE 28

With the occlusion balanced, the left side was then prepared and temporaries fabricated

FIGURE 30

FIGURE 31

gual faces (Figs. 18 & 19).

At this time the excess material was removed and the contacts were separated. Subsequently, the veneers were completely cured and all remaining resin tags were removed with a #12 blade. The lingual finish lines were trimmed and all four veneers were polished (Fig. 20). Once the lower anteriors were completed, our attention turned to the maxillary arch.

The maxillary temporaries were removed and all abutments were scrubbed with a pumice and sodium hypochlorite mixture (Fig. 21). The four all-ceramic anterior crowns were tried in to confirm fit, contour and colour. Subsequently, the splinted PBM crowns for 14, 15 23, 24 were tried in to confirm their fit and contour. The occlusion was adjusted and balanced. Upon approval from the patient, the four anterior crowns were cemented with Rely X-Unicem resin cement (3M Corporation – MN) (Figs. 22 & 23).

The splinted PBM crowns, though exhibiting proper fit and occlusion, required adjustment in colour to co-ordinate with the all-ceramic anterior crowns. In addition, because these splinted crowns contained internal retention for the accompanying RPD, a pick-up impression was taken for fabrication of the RPD frame. During the next appoint-

A traditional metal framework was fabricated using the extra coronial attachments as retention

ment the splinted crowns, along with the RPD in wax up stage, were tried in for confirmation of fit. The RPD was then returned to the lab for completion and custom colouring of the PBM crowns. At the following appointment the splinted crowns for teeth #'s 14, 15 and 23, 24 were cemented with Rely X Luting Cement (3M Corporation – MN) with the RPD in place to insure the crowns were in correct position (Fig. 24). The patient attended one week later for a follow up assessment, including inspection and removal of cement remnants, adjustment of occlusal interferences and final photographs (Figs. 25-29).

There is a fascination from the public in facial transformations. Moreover, there is an increased interest in not just the before and after pictures, but the pathway in between. Five months after the process began the patient was the focus of a daytime, nationally televised talk show. Her change of persona was remarkable. Some may view this exercise as "trite," however, to speak with this woman and listen to her renewed outlook on life will quickly change your mind. In her own words, "I used to look for jobs at one level, now I look for jobs at a much higher level" (Figs. 30 & 31). **OH**

In her own words,
"I used to look for jobs at one level,
now I look for jobs at a much higher level"

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Dr. Stephen Mulholland is an accredited Plastic and Head Neck Surgeon and is principle of Spa-Medica in Toronto.

Acknowledgement
The authors would like to thank Dr. Livia Silvestri for the excellent periodontal surgery prior to the prosthetic phase.

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