Table 4: Two-Stage Crown-Lengthening Technique

FIRST STAGE: OSTECTOMY

1. Choose flap design.

- An envelope flap (no vertical incisions, only sulcular extension one or two teeth anterior and posterior to the area of interest) may be created.
- For more access, a flap with one or two vertical incisions is acceptable.
- Do not remove any gingiva.

2. Reflection.

- Reflect a full-thickness flap (down to bone) with periosteal elevators (Figure 7).

3. Perform osseous resection.

- If the alveolar crest is too coronal with respect to the CEJ or restoration, remove supporting bone (ostectomy) until it is 1 mm to 2 mm apical to the CEJ or a minimum of 3 mm from the existing or anticipated restorative margin (Figure 8). In natural virgin dentition, the distance from the gingival margin to the alveolar crest at the mid-buccal site should be about 3 mm, so use this measurement as a guide.
- Perform the ostectomy by creating a trough around the tooth with a football-shaped Neumeyer bur. Remove the remaining bony ledges using a 12-fluted finishing bur. This method prevents bur damage to the tooth.
- Be aware that minimal to no interproximal reduction may be needed. In most cases, the level of facial tissue, not interdental, compromises esthetics. Alternately, prosthetic requisites (ie, ferrule retention, biologic width reformation) may force ostectomy in the papillary area.
- Gradualize the bone so that no sharp edges or bulbous areas exist with hand instruments. If the flap does not lie smoothly over the bone, then eradicate any osseous convexities (osteoplasty).
- Preserve the positive architecture, in which the bone follows the CEJ (interproximal bone more coronal to facial). A flat or negative architecture reverses a natural gingival profile and encourages pocket formation.

4. Suture.

- Use either absorbable or non-absorbable material (Figure 9). The gut may be less visible.
- A simple interrupted or sling suture is adequate, but for better flap adaptation in tight spaces, employ a vertical mattress.
- The gingival height and shape should mimic the pretreatment level as no soft tissue resection occurred.

5. Dressing (optional).

- Apply noneugenol dressing to the buccal aspect.

6. Healing period.

- The healing period lasts from 4 to 6 weeks (Figure 10).

SECOND STAGE: GINGIVECTOMY

1. A model made from a diagnostic wax-up, calipers, and/or surgical template may be very helpful in outlining the desired shape of the teeth and mucosa (Figure 11). Create bleeding points or a scalpel line to delineate the new gingival margins.
2. Finalize the gingivectomy by creating an external bevel dissection with a scalpel blade, which should begin superficially, just below the epithelium, but penetrate through connective tissue and end at hard tissue in the coronal-most aspect (Figure 12). In the case of pigment removal, the external bevel should be started further apically.
   - Blend the gingival margin into the adjacent tissue with a 12-fluted finishing bur. Thin down thick tissue, as it tends to regrow.
   - Create new mesial and distal papillary contours as desired. Leave the tip of the papilla intact to retain blood supply and papillary loss.
3. Decide if gingivoplasty is needed. If superfluous pigment remains or the mucosa is too thick or bulky, use a diamond bur to obtain the desired color and dimension.

APICALLY POSITIONED FLAP METHOD

The two-stage crown-lengthening procedure cannot be used if gingival resection compromises the amount of keratinized tisue. Deficient attached gingiva necessitates an apically positioned flap, which entails the following:

1. Two parallel vertical incisions are made at the line angles of the anterior- and posterior-most teeth of the surgical site. The vertical incisions must extend past the mucogingival junction to facilitate flap mobility and subsequent apical positioning.
2. Follow steps 2 and 3 in the "First Stage: Ostectomy" section. Ensure that reflection occurs past the mucogingival junction to achieve apical positioning.
3. Position the flap apically at the ideal level and secure the vertical incisions first with suture, using either a continuous or simple interrupted style.
4. Suture the papillary tissue.
5. Apply noneugenol dressing as desired.