Test 83.1

PERIODONTICS

Staged Periodontal Plastic Surgery in the Management of Patients With Complex Dental Problems

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The aesthetic zone in patients with a medium or high lip line at smile includes the dentition and the dentogingival area exposed from the most posterior visible maxillary tooth to the midline.[1] Aesthetic, anatomic, and biologic parameters provide clinicians with an understanding of the problem. This leads to an accurate diagnosis, then a treatment plan. The result should be successful treatment that meets the patient's aesthetic expectations. Parameters may include the lip line, gingival margin, texture, color and contour of the gingiva, and tooth length, shape, composition, axis, contact points, occlusal plane, and angulation.[2]

In patients with a high lip line at smile, excessive gingival display is often observed. It may be due to skeletal reasons or be associated with maxillary prognathism, a short upper lip, and/or incomplete passive eruption (IPE).[2,3] The first cause can be corrected if orthognathic surgery is indicated, while the last cause can be managed by aesthetic crown lengthening. In addition to the amount of gingival display, the gingival line is an equally important parameter.[4] Ideally, the gingival line should be parallel to both the interpupillary line and the incisal line. The gingival margin of the lateral incisor is often found to be in a slightly coronal position. Discrepancies of the gingival line can also be altered by orthodontic extrusion or intrusion, gingival augmentation, or aesthetic crown lengthening.

Delayed, altered, or incomplete passive eruption are terms that have been used to describe the anatomical condition where the free gingival margin fails to migrate apically in proximity to the cementoenamel junction (CEJ). In this situation it is located more than 2 mm coronal to the CEJ.[5-7] Coslet, et al developed a classification and diagnostic system based on both soft-tissue and hard-tissue relationships.[8] IPE is classified into 2 types according to the soft-tissue dimension. Type I patients present with a noticeably wider band of gingiva from the gingival margin to the mucogingival junction (MGJ), which extends apical to the alveolar crest. Type II patients present with a band of normal width gingiva in which all of the gingiva is located on the anatomic crown and the MGJ is located at the level of the CEJ. Both types are then divided into subgroups A and B. In the A subgroups, the alveolar crest-to-CEJ dimension is 1.5 to 2.0 mm. In the B subgroups, the alveolar crest-to-CEJ distance is too small for the biological width to be established. Accurate diagnosis is important in the treatment of IPE because it helps the clinician plan the appropriate surgical technique for aesthetic crown lengthening.

Apical to the gingival line the texture, color, and contour of the gingival tissue must be evaluated.[2,4] Inflammation associated with gingivitis or periodontitis will result in tissue that appears red and edematous, and stippling may be absent. As a result, the tissue does not appear natural. The presence of an adequate band of attached gingiva in the aesthetic zone is important. Absence of a firm and adequate band of attached gingiva may result in recession,[9] a greater likelihood of inflammation, and increased trauma due to oral hygiene. If porcelain-fused-to-metal (PFM) restorations are present, the metal margin is more likely to show through the gingival margin when it is thin, or may be exposed if gingival recession occurs.

An amalgam tattoo is another type of soft-tissue discoloration that is related to amalgam in the tissue. It occurs as a macular or slightly elevated blue, black, or gray pigmentation in the gingiva, alveolar mucosa, buccal mucosa, or mucobuccal fold. Amalgam can be incorporated into the oral mucosa in one of several ways: (1) condensation of the material into the gingival tissue during the placement of an amalgam restoration; (2) damage to the gingiva by a cutting instrument during removal of an existing amalgam restoration; (3) accidental dislodgment into the socket of broken pieces of amalgam restoration during tooth extraction; or (4) corrosion of retrograde amalgam restoration of endodontically treated teeth.[10-12] Depending on the particle size, the silver in the amalgam may be directly

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Figure 1. The patient with a high lip line at smile. Note the presence of exposed crown margins on the central incisors as well as the bluish hue of the anterior gingiva.

Figure 2. Uneven gingival margin with size and shape discrepancies among the maxillary anterior teeth. Note the presence of a large amalgam tattoo with scarring from previous periapical surgery.

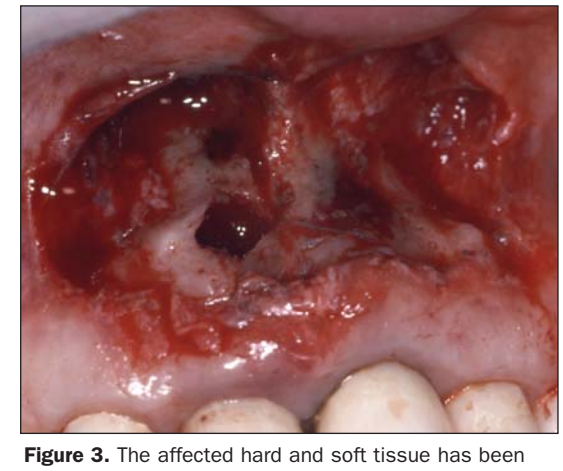

Figure 3. The affected hard and soft tissue has been removed. Note the presence of lesions over the apices that were filled with amalgam.