

referred to the Department of Orthodontics of Sapienza University of Rome, Italy, to undergo evaluation for the possibility of a short and esthetic orthodontic treatment for crowding. The patient's medical history was unremarkable except for a previous unsuccessful orthodontic treatment involving the extraction of the maxillary right first premolar and mandibular left lateral incisor. Extraoral examination revealed good facial

proportions with a convex profile, competent lips, and smile line, which followed the curvature of the lower lips (Figure 1). She had no temporomandibular joint (TMJ) symptoms and radiographic examinations including panoramic radiography and cone-beam computed tomography (CBCT), did not reveal any alterations to the TMJ. Pretreatment intraoral and dental cast examinations demonstrated a tendency for a Class II molar and Class III canine relationship on the right side and Class I molar and canine relationship on the left side (Figure 1). The overjet was 6.1 mm, and the overbite was 5.7 mm. The maxillary dental midline was deviated by 1.5 mm towards the facial midline because of previous extraction of the maxillary right first premolar, and the mandibular dental midline was deviated by 1.5 mm towards the right side of the maxillary dental midline (Figure 1).

The patient displayed moderate crowding of both the arches (maxilla, 5 mm; mandible, 6 mm). Panoramic and lateral cephalometric radiographs were acquired before treatment (Figure 2), and these revealed no caries, root resorption, dental abnormalities, and traumatic and pathologic lesions in the alveolar crests and the site of endodontic treatment of the maxillary left first molar. The cephalometric analysis demonstrated a Class II skeletal relationship (A-point–nasion–B point [ANB], 5.4°) with a normodivergent growth pattern (sella–nasion plane to mandibular plane angle, 43°) (Table 1, Figure 3). The patient was periodontally healthy, but showed a

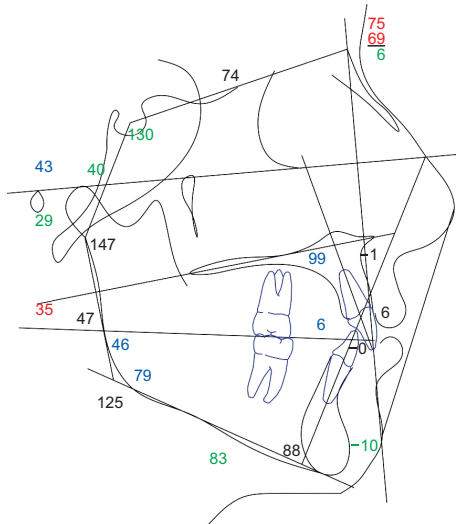


Figure 3. Pretreatment cephalometric analysis.

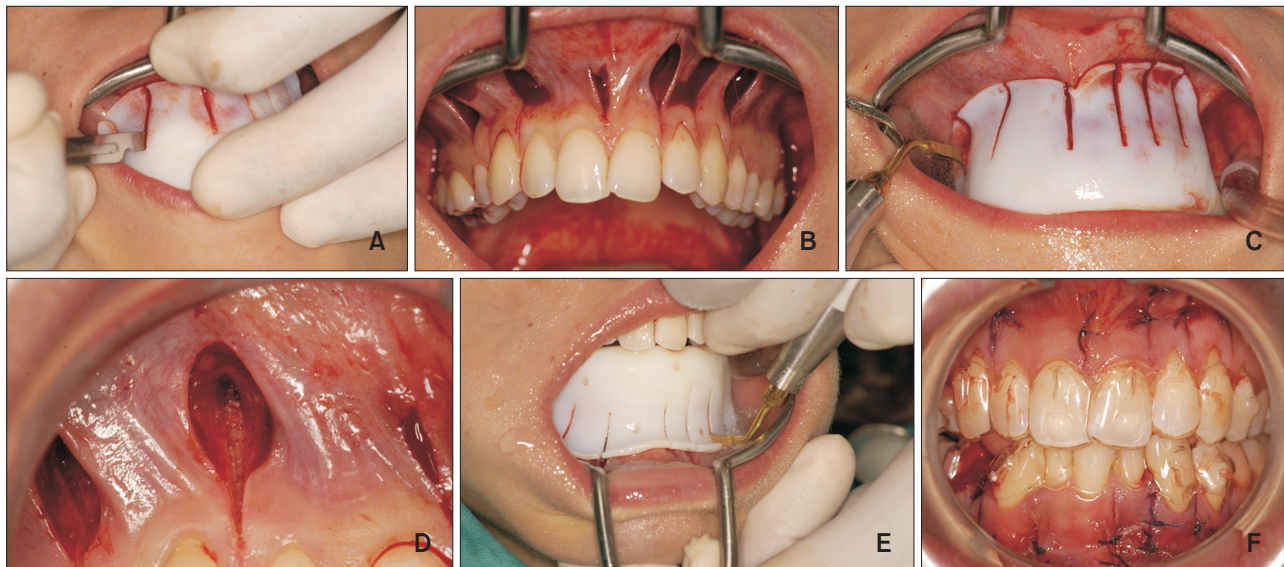


Figure 4. The surgical phases of the computer-guided, minimally invasive piezocision procedure performed using a three-dimensional printed surgical guide: **A, B**, The surgical guide positioned on the upper arch. The images show the vertical gingival incisions made interproximally below the interdental papilla; **C, D**, the corticotomy cuts, extended through the entire thickness of the cortical layer, using a piezosurgical microsaw; **E**, the piezocision in the lower arch; **F**, at the end of the surgery, the mandibular right first premolar is extracted and the clear aligners are positioned.