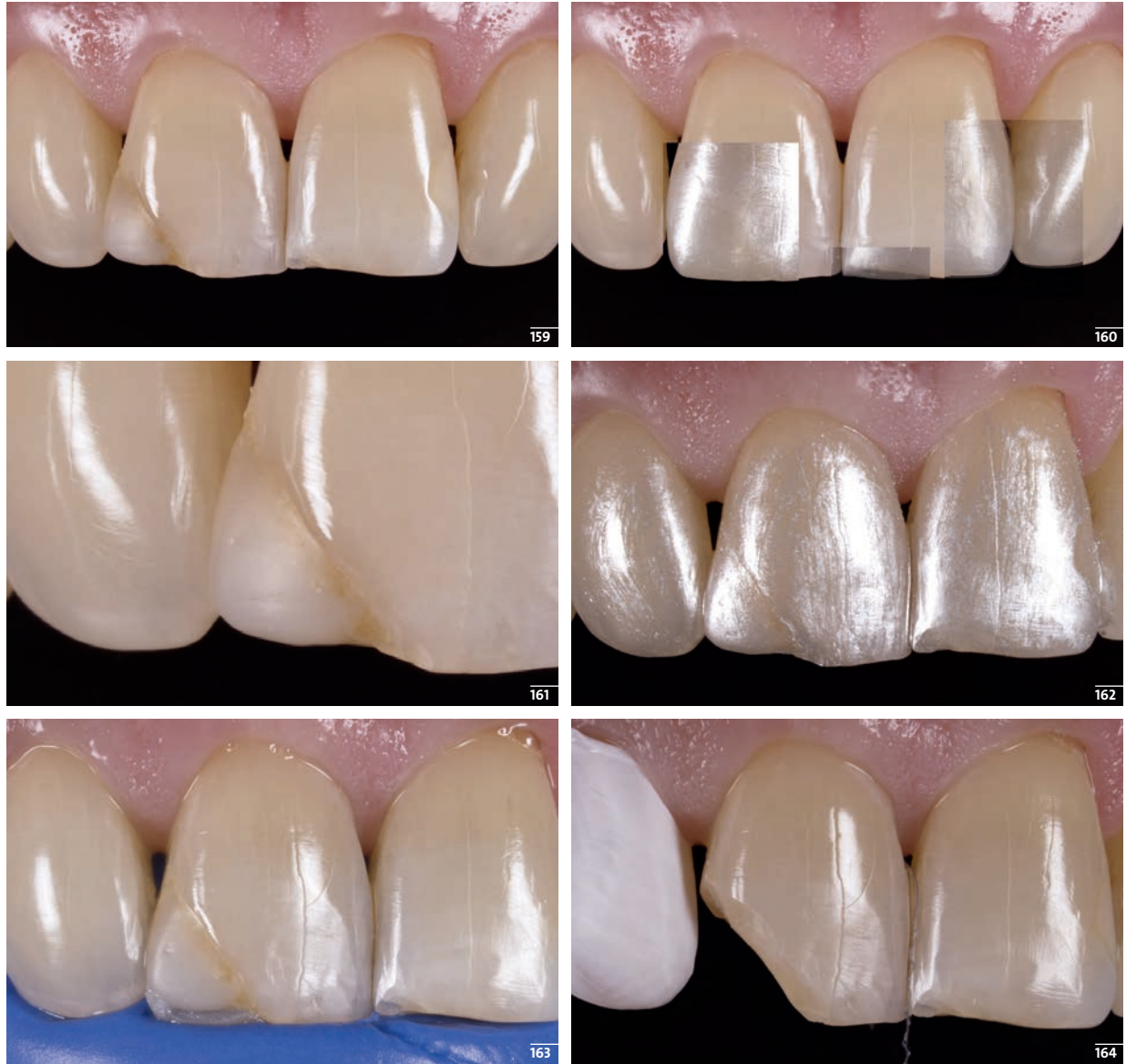


5.3.2 AESTHETIC RESTORATION OF A FRACTURED ANTERIOR TOOTH

When reconstructing lost enamel and dentin, consideration must be given to morphological, functional and aesthetic aspects. If the contours and morphology of a tooth

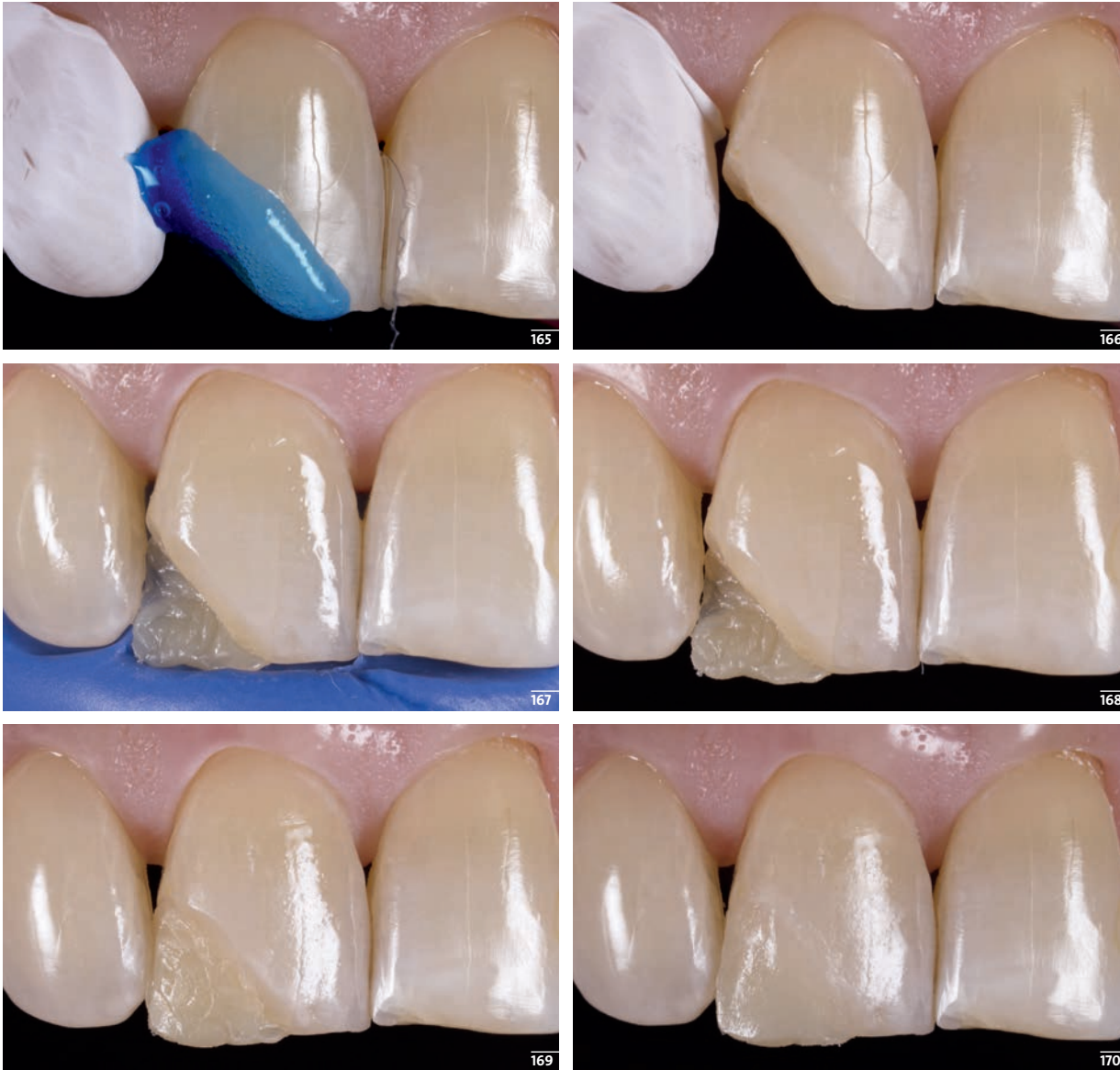
have been reconstructed according to an anatomical model, natural reflections are generated from areas on the tooth surface. Their harmonious lines testify to a suc-



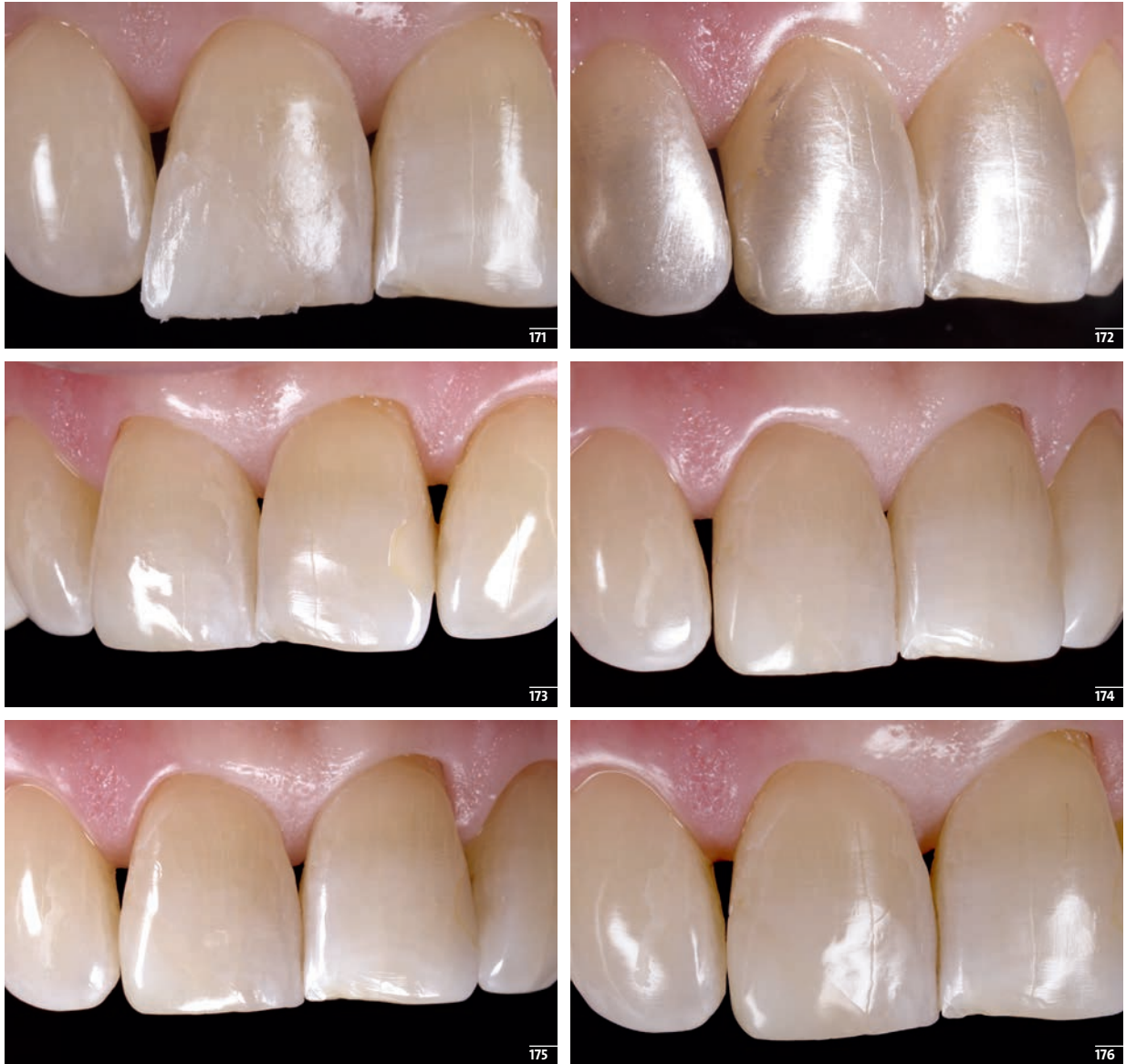
- Fig. 159** At the age of 19, the patient had sustained trauma to tooth 11 in a cycling accident. The fracture of the incisal edge had been restored with a veneer several years earlier. The patient felt that this reconstruction looked distracting and unattractive.
- Fig. 160** To better illustrate the challenge posed by the contours to be reconstructed according to the tooth's natural morphology, the reflective areas of the definitive treatment outcome were highlighted using silver colored boxes.
- Fig. 161** Close-up of the inadequate filling on tooth 11. Discolored stains had built up at the interface between filling and tooth surface. The form, hue and chroma of this restoration were aesthetically unsatisfactory.
- Fig. 162** As part of the surface analysis, the anterior teeth were coated with silver powder to highlight the light reflection areas more intensely. The way the filling was built up did not correspond to the shape of the natural tooth surfaces and therefore looked out of place.
- Fig. 163** The palatal contour elements were supplemented to meet the anatomical prerequisites and the incisal region extended using a mockup. An impression of this buildup was taken with silicone to obtain a structural matrix of the desired form of the restoration to guide further treatment.
- Fig. 164** The old filling was removed, the margins of the cavity re-beveled and Teflon tape was wrapped around adjacent tooth 12 to isolate and protect it during the further conditioning process.

cessful, natural reconstruction. If the contours and morphology have been accurately incorporated into the tooth shape, the minute deviations in shade will not detract

from a successful result. Figures 159 to 178 depict the treatment steps used for the aesthetic repair of an incisal edge on a patient who fractured it in a cycling accident [42].



- Fig. 165** Etching gel (UltraEtch, Ultradent) was applied to tooth 11 and, after 15 to 20 seconds, rinsed off with water according to the manufacturer's instructions.
- Fig. 166** A rough surface ("frozen surface") was created at the etched areas of the preparation.
- Fig. 167** After the surface of tooth 11 was bonded (OptiBond FL, KerrHawe) and the Teflon tape removed from the adjacent tooth, an opaque composite (Dentin A3 Venus, Heraeus Kulzer) was placed in the silicone matrix and pressed against the teeth from the palatal. Layering was extended up to the contact point of tooth 12, although the composite would not permanently bond with the surface of tooth 12 because it was not pre-conditioned.
- Fig. 168** After removing the silicone matrix, a stable wall was available onto which the further layering components were applied.
- Fig. 169** The next layer applied was a dentin material in the shade Dentin A2 (Venus, Heraeus Kulzer). At this stage, the form was already being shaped, particularly towards the contact point of tooth 12 and the incisal edge.
- Fig. 170** The layer after this consisted of the Enamel shade A2 (Venus, Heraeus Kulzer) which possessed a markedly high transparency. The labial form was not finalized yet in order leave enough room to apply the next layer for the color adaptation.



- Fig. 171** The bright, milky effect material T1 (Venus, Heraeus Kulzer) in the final layer was used to mirror the disto-incisal brightening of tooth 21 onto tooth 11.
- Fig. 172** According to the familiar procedure for a true-to-form finish, the tooth surfaces were coated once again with silver powder to check the result. The reflectance fields on the labial surfaces of the teeth were made prominent and conveyed an overall harmonious, pleasing impression. The filling contour of tooth 11 corresponded to the natural curvature of the labial surface and fit in with the overall symmetry.
- Fig. 173** After the powder was removed and the surface polished to a high gloss, the light reflections were easily identifiable. They very strongly replicated the reflections off the adjacent tooth.
- Fig. 174** Another photographic technique was used to judge how the colors were integrated. The flash was pointed at the tooth from another direction. This reduced the surface reflexes, allowing the color of the filling to be better scrutinized.
- Fig. 175** Yet another perspective. Here, the marginal ridge was very easy to identify. It followed the distal contour of the tooth towards the proximal area and reflected the round design of the form.
- Fig. 176** Further documentation of the reflectance fields on the labial surface, clearly proving that the objective to reconstruct a symmetrically aligned and anatomically defined natural surface texture of the filling had been accomplished.

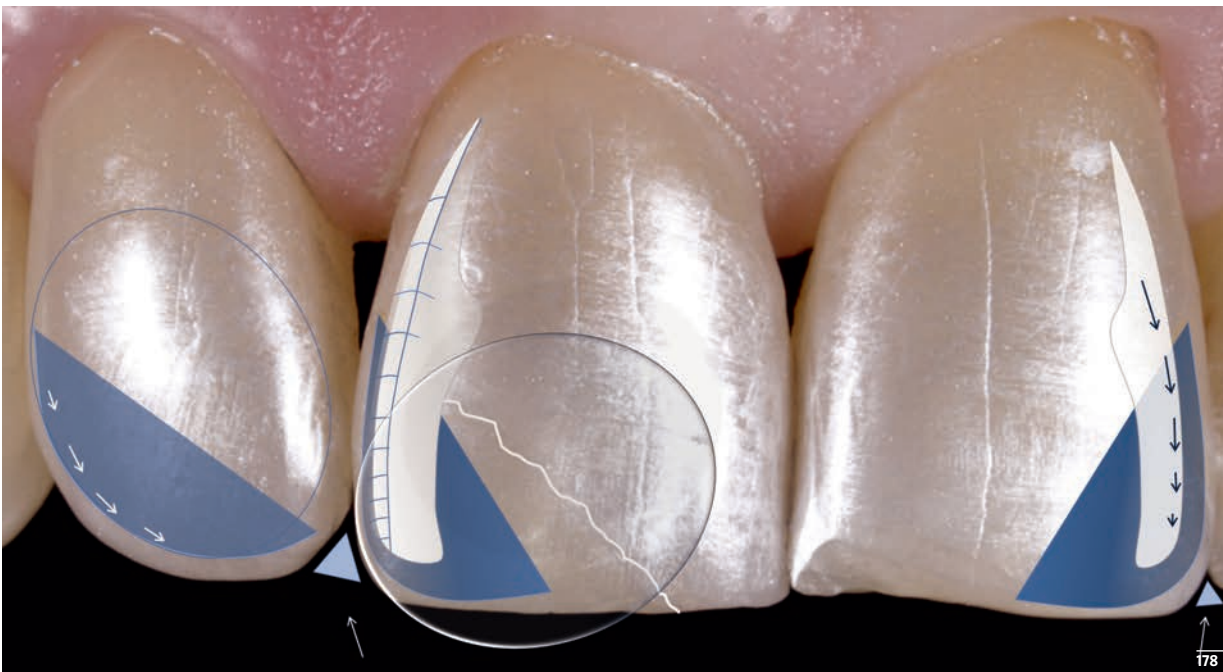


Fig. 177 Finally, the facial view of the restoration was reviewed. Silver powder clearly brought out all the reflected heights of contour and surfaces. The distal belly of tooth 11, shaped to create the proximal contact, was tapered into the incisal edge to open up the incisal triangle between teeth 11 and 12. This gave the tooth a very natural-looking tapered incisal region.

Fig. 178 The graphics projected onto the tooth surface provided information about the disto-incisal edge (blue) arranged as a mirror image. The transition to the filling was labeled with a white line. The incisal triangle was colored blue. The white stripes (labeled with blue lines on the graphic) depicted the spine formed by the labial surface and the surface elements descending into interproximal space. At the same time, they delineated the vertical reflectance fields. The transparent bluish ellipses were aimed to demarcate the disto-incisal zone.