

5.2 Segmental osteotomies as part of total osteotomies

Maxillary segmentation as part of a total osteotomy has become an accepted method to correct sagittal, transverse, and vertical problems in a one-step procedure. The widely used “3-piece-maxilla” combines one anterior and two lateral segments.

The soft-tissue access is a horizontal, dorsally slightly curved, vestibular incision as performed in total osteotomies. At the site of the planned segmentation, the remaining vestibular mucoperiosteum is undermined towards the attached gingiva. The planned osteotomy lines are marked on the level of Le Fort I and the alveolar ridge.

It is advisable to start the procedure with incomplete osteotomies of the alveolar ridge using a burr, a piezoelectric device, or a reciprocating microsaw (**Fig 7.3.3-5a**). Then, the Le Fort I osteotomy is performed. Following the regular down fracture, the segmental osteotomies can be complet-

ed with a diamond-coated drill, piezoelectric device, and/or an osteotome under direct visual control from the maxillary base (**Fig 7.3.3-5b–c**). Care must be taken to preserve the soft-tissue layer on the palatal aspect, especially when starting to mobilize the segments. The more segments are created, the more difficult it is to position them as desired in the occlusal splint. To achieve the desired inclination of the segments it can be helpful to use splints with palatal shields.

Depending on the size and number of fragments, fragment fixation can be demanding. A well-established technique is to start with the intersegmental fixation similar to a fracture simplification. For this, adaptation plates 1.3 or 1.5 can be used. The plates are initially fixed with one screw per segment to allow for “corrective molding.” Only when the desired position is precisely reached, additional screws are inserted. Care must be taken not to damage the tooth roots and not to strip the segments excessively. Finally, the reassembled tooth-bearing part of the maxilla is anchored to the facial buttresses using adaptation plates of convenient shapes (eg, straight, L-shape, Y-shape). If required, additional bone grafting is performed.

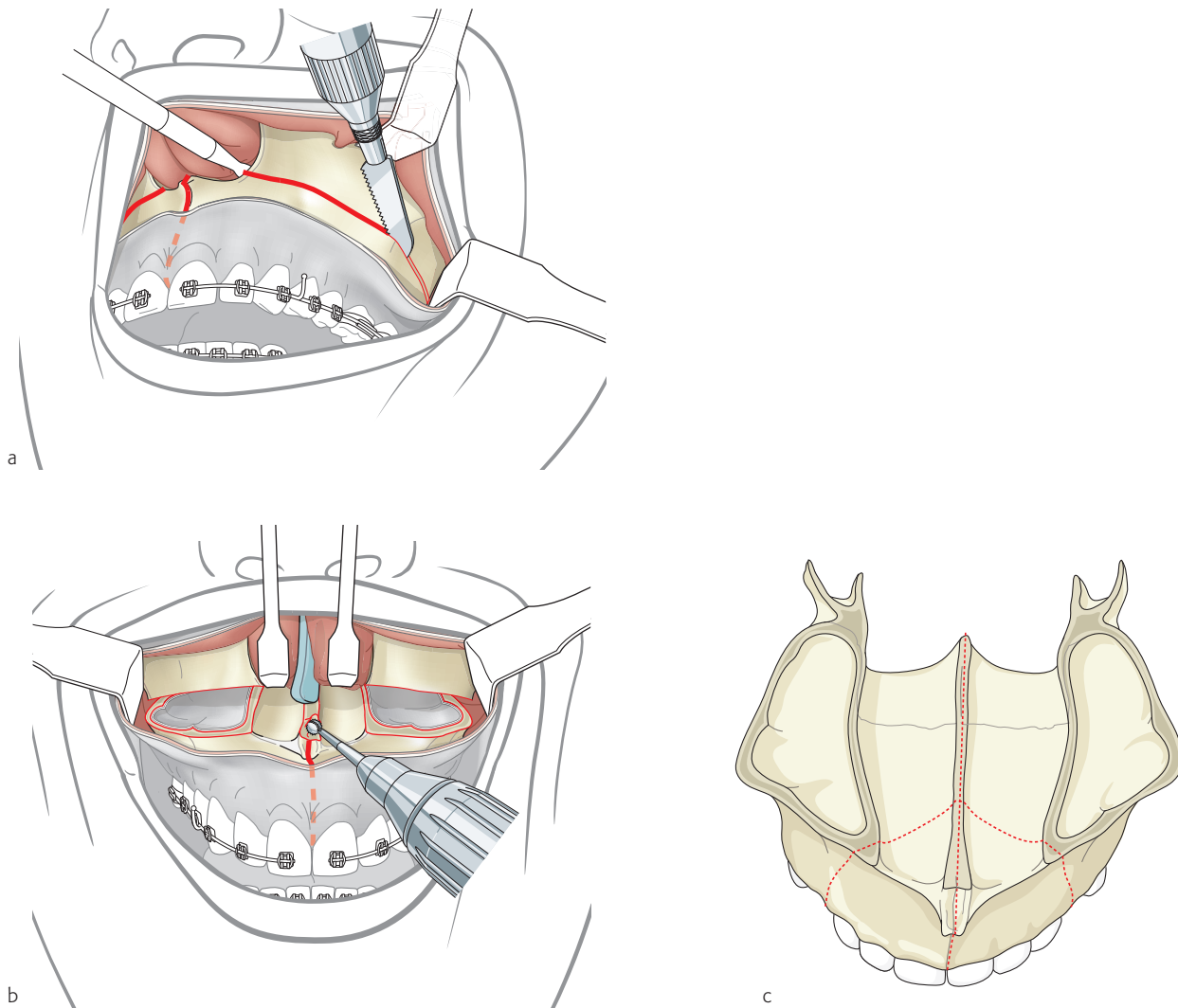


Fig 7.3.3-5a-c

- a** Osteotomy in the Le Fort I level with a microsaw. Additionally, a midline osteotomy is performed.
- b** Shortening of the nasal septum and nasal crest if cranial positioning is planned.
- c** Markings for possible additional segmentations.