

<b>1</b>	<b>Planning</b>	<b>365</b>
<b>2</b>	<b>Surgical access</b>	<b>365</b>
<b>3</b>	<b>Osteotomies and fragment fixation</b>	<b>366</b>



## 7.3 Standard osteotomies in the maxilla

Maxillary osteotomies can be performed at different anatomical levels. They are currently described according to the Le Fort trauma classification. Whereas Le Fort II and III level osteotomies are almost exclusively used for corrections of craniofacial deformities, the so-called Le Fort I osteotomy has become a workhorse of orthognathic surgery.

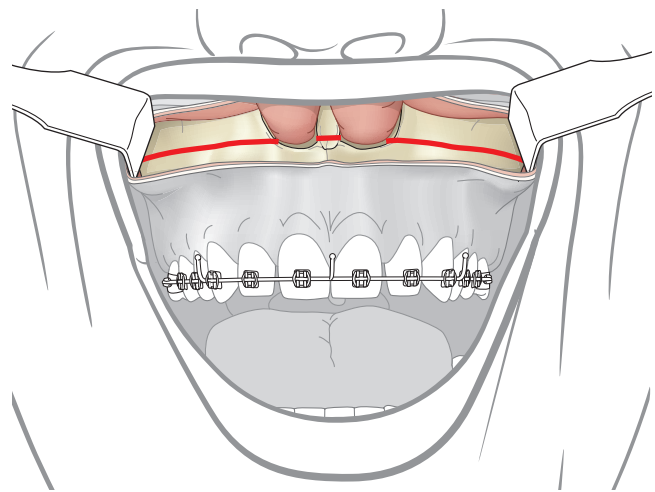
The total basal maxillary osteotomy (Le Fort I osteotomy) has a wide range of applications. Maxillary block and segmental osteotomies, either in combination with total osteotomies or isolated, are also possible, but play only a subordinated role today due to the progress in orthodontics. The anatomical structure of the maxilla with its characteristic thin bone layers in between facial buttresses, the neighboring nasal cavity, and the maxillary sinuses, as well as bone areas with a variety of thicknesses requires special considerations in planning, soft-tissue access, techniques of osteotomy and fixation, as well as additional tissue handling.

### 1 Planning

The three-dimensional movement of the maxilla, in total or in parts, has functional and esthetic implications. Functionally, maxillary osteotomies allow for an enlargement of the oral space (tongue space) by impaction or advancement of the maxilla, which for instance is of major importance in open bite deformities. A transversal widening of the maxilla can prevent tooth extractions, a concept that very often leads to a better and more stable dentoalveolar correction of skeletal disorders. The surgical correction of the dental axis in skeletal and dentoalveolar deformities, especially in the frontal part, can be faster and more stable than orthodontic corrections and, therefore, prevent relapse. Esthetically, maxillary osteotomies are important to improve midfacial projection, to correct the transverse plane, the facial midline, the lip-to-tooth relationship, the support of the upper lip, and to influence the position of the nose.

### 2 Surgical access

All basal maxillary procedures can be performed by transoral approaches. Even with the vascularization of the maxillofacial region being outstanding compared to the rest of the human skeleton, it must be taken into account that only a thin soft-tissue layer covers the maxilla and provides blood supply to the bone. Therefore, care must be taken to preserve the soft-tissue lining of the fragments after an osteotomy by limited exposure and periosteal stripping. Total and combined segmental osteotomies are mostly performed following a slightly curved horizontal vestibular incision from molar 6 to 6 (**Fig 7.3-1**). Block and segmental osteotomies can safely be performed following limited horizontal and vertical incisions. The general rule, that smaller fragments are more easily detached from soft tissues with the consequence of compromised blood supply and a higher risk for complications, such as necrosis, must be considered.



**Fig 7.3-1** Slightly curved incision line from 6 to 6 for the exposure of the maxilla. Marked osteotomy line in the Le Fort I plane.