To harmonize the profile and to make the face look more favorable, a genioplasty can be performed. It can be combined with some other type of osteotomy and done simultaneously or at a second stage. Following the osteotomy, the chin can be positioned in almost every vector in space. Reduction genioplasties usually need bone removal; elongation or augmentation genioplasties especially need an increase in height and perhaps a bone graft. Bone grafts can be positioned between the fragments or on top of them. The chin fragment can be split vertically and used to correct the mediolateral dimension as well.

1 Angle and ramus osteotomies

1.1 Bilateral sagittal split ramus osteotomy (BSSO)

The original bilateral sagittal split osteotomy as described by Trauner and Obwegeser was placed in the ramus of the mandible (**Fig 7.2-1a–b**). Dal Pont et al changed the lower horizontal osteotomy to a vertical osteotomy in the posterior body of the mandible. The ramus was split all the way to the posterior border. Hunsuck recommended that the medial cortical osteotomy should be extended just posterior to the mandibular foramen. Epker stated that stripping of the pterygo-masseteric sling from the ramus is unnecessary. The sagittal split osteotomy is nowadays usually carried out taking into account these modifications (**Fig 7.2-2a–b**).

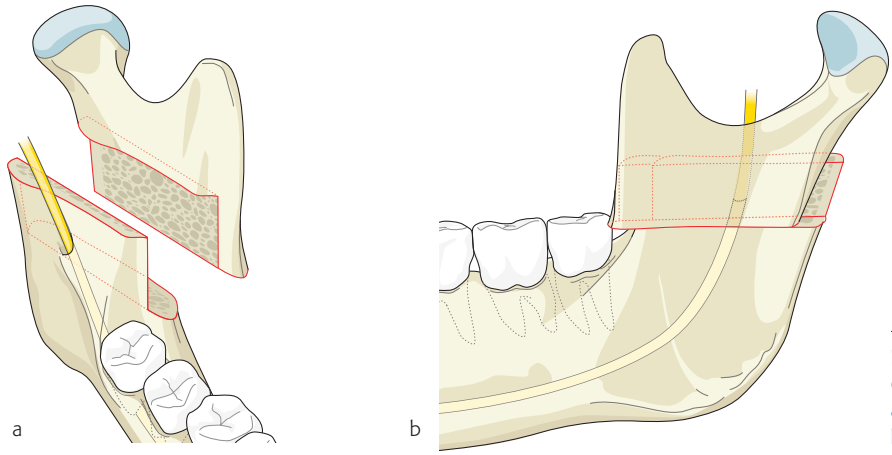


Fig 7.2-1a–b Horizontal step-shaped osteotomy (Trauner/Obwegeser).
a Lingual side.
b Buccal side.

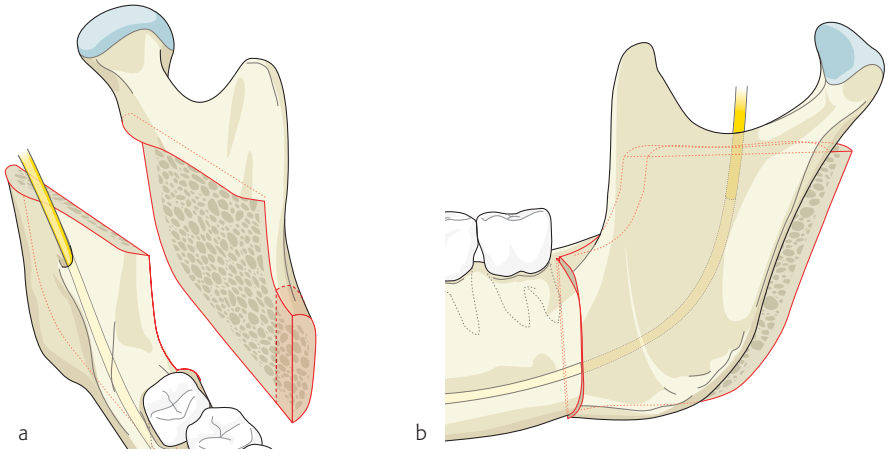


Fig 7.2-2a–b Sagittal split osteotomy according to Obwegeser/Dal Pont.
a Lingual side horizontal cut of lingual cortex above the mental foramen. Vertical cut of buccal cortex just posterior to second molar. A piece of bone is marked that needs to be removed prior to retropositioning of the distal tooth-bearing fragment.
b Buccal side after mandibular setback.

The osteotomy lines can first be marked with a round burr. After that, the drill holes are connected with a fissure burr involving the whole thickness of the cortex. A saw, a piezoelectric device, or a burr are used for the medial horizontal and lateral vertical osteotomies (**Fig 7.2-3**). Any unnecessary stretching of tissues on the medial region of the ramus should be avoided while carrying out the medial osteotomy and identifying the nerve bundle. The splitting is finalized using thin, narrow osteotomes, slowly advancing from thinner to thicker (**Fig 7.2-4a–c**). The splitting can also be made with special separation forceps. It should be undertaken with extra care to avoid fractures of the buccal plate (bad split). Piezoelectric cutters can be used instead of saws and burrs for better soft-tissue and nerve protection.

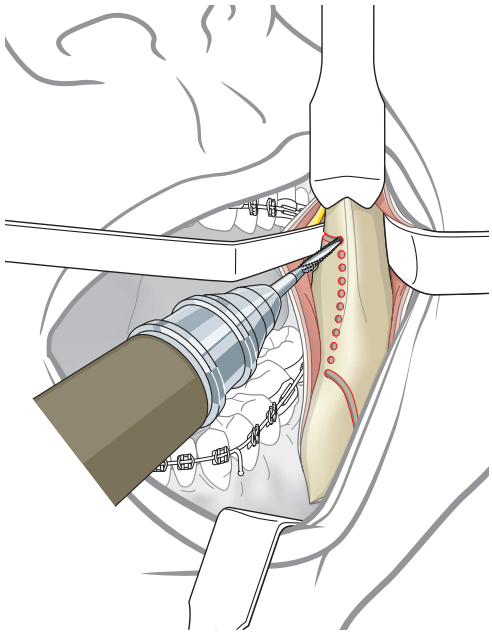
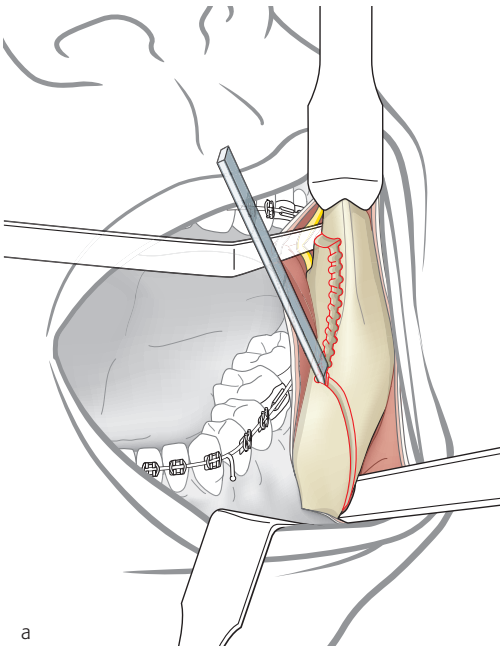


Fig 7.2-3 Connecting the initial burr holes with a Lindemann drill.



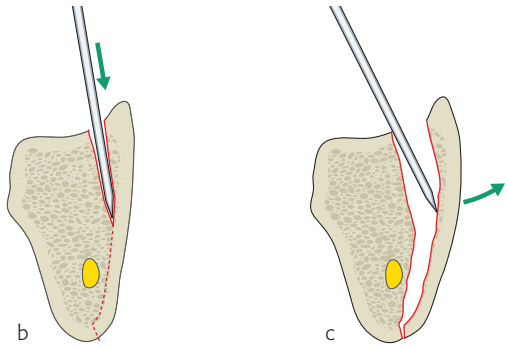


Fig 7.2-4a–c

a Splitting of the ramus with a thin narrow osteotome strictly alongside the inner aspect of the outer cortex in order to avoid damage to the mandibular nerve.

b Osteotome gliding down alongside the inner aspect of the outer cortex.

c Final split laterally from the nerve bundle.