



7.3.2 Surgically assisted rapid palatal expansion (SARPE)

The terms “surgically assisted rapid palatal expansion (SARPE)” and “surgically assisted rapid maxillary expansion (SARME)” are used synonymously for a surgical procedure which is one of the most frequently performed orthognathic operations. It is indicated for adult patients with fused midline palatal sutures, to allow for a gradual transverse expansion of the lower midface including the dental arch. Before fusion of the palatal suture transversal expansion of the dental arch is performed with tooth-anchored orthodontic appliances. After bony fusion of the suture which is completed after the age of 20, the attempt to expand the dental arch with orthodontic appliances alone does not widen the palate and the lower maxilla, but will lead to a lateral flaring of the canines, premolars, and molars, which is usually neither desired nor part of the orthodontic treatment concept. In patients with fused palatal sutures, a widening of the dental arch without tilting of the above mentioned teeth is only possible after a surgical intervention with the aim to reopen the midline palatal suture.

Historically, only an osteotomy of the midline palatal suture was performed for this purpose, either from an anterior superior vestibular approach or a palatal approach. However, in some adult patients the anterior and lateral vertical midfacial buttresses (paranasal and zygomaticoalveolar buttresses) are so strong that the alveolus including the teeth tends to flare out laterally during a widening procedure. In addition, it is important to completely detach the basal nasal septum during this procedure to avoid basal septum deviations to one side during rapid palatal expansion. To avoid these problems and to make expansion easier it is recommended to perform a subtotal Le Fort I osteotomy.

As in a Le Fort I osteotomy (chapter 7.3.1 Le Fort I) the surgical approach is a high vestibular approach (often a hockey stick approach) from first molar to first molar. Exposure of the lower maxilla, pterygomaxillary junction, and basal parts of the septum are identical to the exposure performed for a Le Fort I osteotomy. The vertical bone cut is similar to a low Le Fort I osteotomy; a pterygomaxillary disjunction is only done in posteriorly very narrow palates (**Fig 7.3.2-1a-b**). After that a sagittal osteotomy is performed

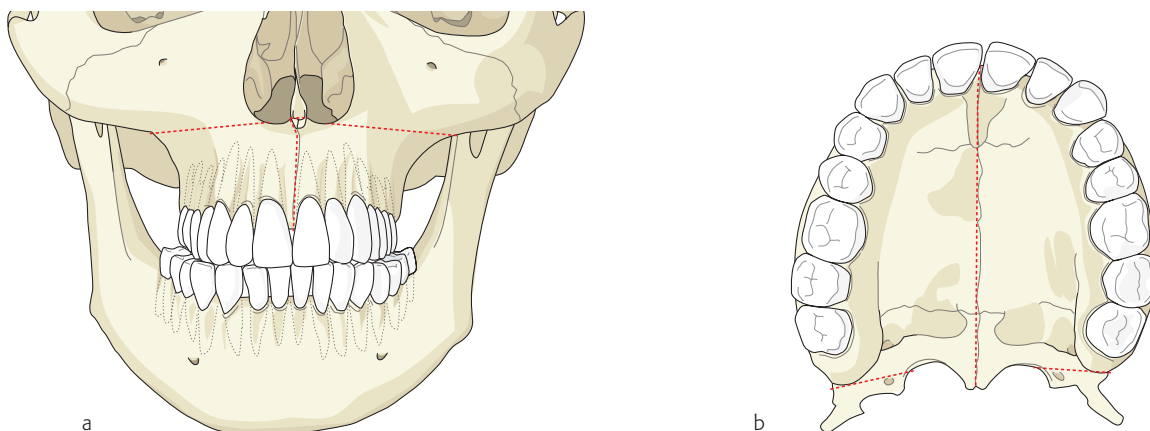


Fig 7.3.2-1a-b Typical bone cuts for a surgically assisted rapid palatal expansion.

- a** Separation of the anterior facial buttresses and vertical osteotomy between the central incisions.
- b** Midline osteotomy of the palate. The pterygomaxillary disjunctions are optional.