Discussion


In this study the authors evaluated the intra-, peri-, and postoperative complications of a group of 1000 consecutive patients who underwent LeFort I osteotomies for correction of dentofacial deformities. All patients underwent preoperative orthodontic preparation; all patients had preoperative autologous blood donation. From 1983 to 1988 all patients had maxillomandibular wire fixation, and after 1988 patients underwent rigid fixation with miniplates and screws without intermaxillary wire fixation. All patients underwent preoperative antibiotic and steroid treatment immediately before surgery. In more than 90% of the patients, the osteosynthesis material was removed after 9 to 12 months after the LeFort I osteotomy. All cases were performed by an experienced surgeon or by an experienced surgeon supervising a surgeon in training.

Of the total group of 1000 patients, 6.4% had some form of complication. When the patients were separated according to diagnosis, patients who presented with major anatomical irregularities, such as cleft lip and palate, craniofacial dysplasias, or vascular malformations, had a higher complication rate of 25.2%. Excluding the patients with major anatomical irregularities, patients with just dentofacial deformities had a cumulative risk of complications of 3.9%.

Problems encountered included anatomical complications, such as postoperative deviation of the nasal septum, nonunion, and/or malposition of the maxilla after surgery. This group accounted for 1.6% of the complications. Hemorrhage was documented in only 1.1% of the patients. In one patient, management of postoperative bleeding included ligation of the external carotid artery. Of the patients, 1.1% had septic complications, which were resolved with local drainage or antibiotic therapy. In 0.5% of the patients there was insufficient fixation of the maxilla, resulting in nonunion. In the whole sample of 1000 patients there was one case of cerebral hypoxia. This patient had postoperative maxillomandibular wire fixation. In 1.1% of the patients, there were ischemic complications ranging from gingival retraction to partial necrosis of the maxilla and, in one case, subtotal aseptic necrosis of the maxillary alveolar process. All patients exhibiting ischemic complications had major anatomical irregularities or had maxillary advancements exceeding 9 mm and also transverse maxillary segmentations.

The authors truly have to be commended for reporting on the complications exhibited by their large sample of patients. The most salient features of this study include the relatively low level of complications in patients with just dentofacial deformities compared to the high complication rate in patients with anatomical irregularities, such as orofacial clefts, and patients who require large advancements and segmentalization of the maxilla.

The authors indicate what sort of measures they have taken to prevent some of the most common complications, including elimination of intermaxillary wire fixation to facilitate the postoperative course. In addition, they have introduced rigid skeletal fixation to improve stability. Their rate of septic complications was quite low and is what is usually expected with the use of perioperative antibiotics and meticulous and aseptic technique. Hemorrhagic events were most common in patients with irregular anatomy, and also were attributable to irregular fractures of the pterygomaxillary junction during the down fracture procedure. Although not discussed in the article, this complication could be avoided with meticulous technique and even the use of an endoscope for placement of the pterygomaxillary chisel during the disjunction procedure.

It would have been of interest to divide the patients with complications according to the physician performing the operation. From the academic standpoint, this is valuable information that could be of tremendous assistance in the surgical training programs. However, most of the patients who experienced complications had anatomical irregularities, so it is unlikely that these surgeries in these cases were performed by the surgeon in training and is more likely they were performed by the experienced surgeon. Another aspect that was not discussed in the study is how the authors plan to eliminate the extremely high risk for the patients with anatomical irregularities that require a LeFort I osteotomy. With the introduction of distraction osteogenesis techniques in the craniofacial skeleton, we now perform maxillary advancement surgery through a LeFort I osteotomy in this group of patients using gradual distraction of the osteotomized bone. This approach has significantly reduced the morbidity of the LeFort I osteotomy in the challenging cleft maxillary hypoplasia and has allowed the stable repositioning of the

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maxilla without the use of bone grafts, rigid fixation, and the need for blood transfusions. As our experience with maxillary advancement with distraction techniques has improved, we now apply the technique for patients without cleft deformities who require significant maxillary advancements that do not require posterior repositioning of the mandible. In addition, in patients with severe deformities and significant scarring, we may combine distraction techniques for the major advancement and complete the case with a finishing osteotomy for final occlusal and aesthetic refinements.

The article by Kramer et al is a significant contribution to the literature because it clearly describes the potential complications that the reconstructive surgeon might encounter at the time of a LeFort I osteotomy for correction of a maxillomandibular discrepancy. Reading this study is a must for the experienced surgeon, the surgeon in training, and for orthodontists working with surgeons in the care of patients with maxillomandibular discrepancies.

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