Reversing Segmental Osteotomies of the Upper Jaw

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Three patients are presented in whom retropositioning of the anterior upper teeth resulted in accelerated aging of the face. Two basically different approaches to correct these bad results are illustrated. It is shown that onlaying of the maxillary base is insufficient but can be the only solution possible. Reversing the primary procedure seems much more effective. The technique, however, can be very demanding. (Plast. Reconstr. Surg. 96: 86, 1995.)

The average survey describes 90 to 95 percent of the group as satisfied patients after orthognathic surgery. The reasons for not being satisfied are manifold and can range from a disturbance of sensibility in one branch of the trigeminal nerve to total relapse of an extensive osteotomy.

The number of patients who are not satisfied with a result because our planning was not best is probably a lot smaller. Usually nothing is said about this problem. Noorman van der Dussen and Egyedi have drawn our attention to the fact that some faces age more quickly after Wassmund and Wunderer procedures for protrusion of the upper anterior teeth. Deepening of the nasolabial folds, drooping of the tip of the nose, and relative lengthening of the upper lip are the main features. We agree with this conclusion. Another three cases will be presented. They came back with the request to “do something about it.” Our attempts at correction will be shown and the implications of the primary indication discussed.

CASE REPORTS

Case 1

This patient presented at age 43. The primary operation had taken place 6 months earlier, and she wanted to have it undone (Fig. 1).

The patient had a rather big nose; the base of the maxilla looked retropositioned. The occlusion was good. There was considerable parodontolysis.

It was concluded that a reosteotomy of the upper jaw, of whatever type, was inadvisable considering the periodontal situation. Therefore, paranasal onlays of autologous cartilage were placed.

The patient agreed that there was an improvement, but she was not yet satisfied. Since no further reasonable surgical propositions could be made, the patient invoked dental, i.e., prosthodontic, help. This resulted finally in a situation that was, although not perfect, acceptable to the patient.

Case 2

Within 2 years, the negative influence of the osteotomy on the aesthetics of this patient’s face had become evident, but it took the patient another 5 years before she asked for correction at age 39 (Figs. 2 and 3).

The main features were a fallen-in perioral area and almost complete invisibility of the upper anterior teeth buried behind the upper lip, but good function and perfect occlusion. Analysis of the casts showed that a forward-downward movement of neither anterior segment nor entire upper jaw re-
sulted in a more or less acceptable occlusion. It was therefore decided to do a downward rotation of the upper jaw (with bone grafting and plate stabilization) without significant change of occlusion and additional autologous cartilage grafts around the piriform aperture to simulate advancement.

Although no technical difficulties were encountered, a 100 percent vertical relapse of the osteotomy was seen after 6 months. This allowed us to judge the effect of the 7-mm cartilage onlays grafts. They survived, but their effect was insufficient, in part maybe also because the dentition was invisible again.

Since the occlusion was unchanged, treatment options did not really increase. The only alternative was a forward-downward movement of the upper jaw, simultaneously reversing the Wassmund procedure. The patient chose this operation, but long-term documentation is not yet available.

**Case 3**

At age 37, this patient wanted a reversal of the procedure done 10 years earlier because she felt that her features had dished in. Since the surgeon did not agree with the indication, treatment was started only after evaluation by a psychologist (Fig. 4).
The problem therefore is not a technical one but rather is to find the type of osteotomy in position reposition position.

The position in the face is then repositioned. The face is then aligned, but the lower half of the face is then aligned. This is the lower half of the face which has been moved. The repositioning is more often indicated for the corneal segment. The lower jaw is then repositioned with the facial segment. The bone grafts from the chin are bonded with bone cement with the grafts.
Fig. 3. Case 2. (Above) Six months after Le Fort I procedure and paranasal cartilage onlays at age 39. There is a total relapse of the Le Fort I osteotomy. The paranasal onlays improve the features only marginally. (Below) Two months after down-grafting the whole maxilla, additionally advancing the upper anterior segment. An improvement in the facial features seems to be obtained.

dicated to best correct the dysgnathia. Considering the complaints described above, one has to be reluctant to retroposition the anterior segment of the maxilla, especially in cases where a parallel backward movement of the incisal edges and the base of the segment is needed rather than only a backward rotation around an axis in the area of the base of the segment.

Premature aging, however, is a complaint never heard from patients 10 years ago, which demonstrates that the aesthetic demands of patients have increased further. The importance of psychological screening is stressed. By preference, it should be done before osteotomy, but it also can be of importance when considering correction of the primary result.

The aim of the treatment after a Wassmund
The class II profile is very evident: We are back to the initial situation. The patient is suspected.

Her features are not conspicuous. Nevertheless, she was not satisfied. Patient: 3 months after removal of the Wassmund-Ascher procedure. The outcome is good. (Case 2) Patient at age 27 before osseotomy. (Case 3) Patient at age 37, 10 years after the Wassmund-Ascher procedure.

Figs. 4 Case 3 (Above) Patient at age 27 before osseotomy. (Case 3) Patient at age 37, 10 years after the Wassmund-Ascher procedure.

The second corrective osseotomy is question (case 2). It was unsuccessful because of a com-
enhanced by aging. The problems can be severe
resulting in deplorable features. Furthermore,
It also can be just a question of bad indications

achieve this if we obtain a more anterior profile
procedure in general terms is to give the patient

should have been the treatment in the first place.

Pic. 3. Case 3 (left and right) appearance 1 year after advancement of the lower jaw. This
the Wassmund procedure will help to improve the overall aspect.

Case 3 demonstrates that reversal of the primary osteotomy is a good option in most cases. In case 3 it was feasible to obtain a reasonable occlusion. It shows, however, that whoever says A sometimes has to say B also. Thus it became evident what the result would have been if we had chosen a different treatment plan primarily. This also indicates that probably the best plan would not have been just a reversal of the primary operation but a total advancement of the upper and lower jaws, although then corrective surgery is several times more important than the primary operation.

Reversibility of osteotomies can be quite a problem. Many of them, especially total jaw movements, can be undone relatively easily in the lower jaw if the sagittal splitting technique has been applied. Also, additional impairment of sensibility due to reoperation is not expected. The chin prominence can be returned to its original position, if need be, using some bone transplants. The same goes for a Le Fort I osteotomy. The anterior segmental osteotomy of the lower jaw is sufficiently versatile to be reversed; however, an empty space is seen in the dental arch after advancing a primarily retropositioned segment.

The most difficult to turn back seems to be the osteotomy of the upper anterior segment. Of course, here also empty spaces in the dental arch will occur and will have to be bone-grafted and filled prosthetically. The main problem, however, is the soft-tissue pedicle. In the case of the Wassmund technique, the segment is pedicled mainly on the palatal mucosa, which cannot be stretched and will therefore impede advancement. If on the vestibular side vertical incisions have been used, one can switch to the Wunderer approach, detaching the palatal mucosa and leaving a vestibular pedicle exclusively. This was chosen in case 3. The nude palatal bone areas were protected with Jodoform-Vaseline gauze, and spontaneous epithelialization occurred. The problem was much more difficult in case 2, where after a primary Wassmund operation a secondary Le Fort I osteotomy was done, leaving a circular vestibular scar. This was considered a compromised pedicle. We would not dare then do a Wunderer procedure, relying on a vestibular pedicle exclusively, and have left the palatal mucosa attached anteriorly, searching to release the tension by extended posterior mobilization. With this safety measure, no ischemia and consequent necrosis of mucosa with delayed healing occurred.

**CONCLUSION**

An aesthetically questionable decision for an osteotomy may be challenged nowadays. In these cases, one has to consider reversing the primary osteotomy, restoring the old situation, and, departing from there, making a new treatment plan. Technically, this is possible, although sometimes demanding. Compromises have not paid off in our little series.

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**REFERENCES**