

A CASE REPORT OF ALLOPLASTIC PARANASAL AUGMENTATION AS AN ADJUNCTIVE TREATMENT OF MANDIBULAR SET-BACK

Tae-Yung Lee, D.D.S., Myung-Sub Kim, D.D.S.

Div. of Oral & Maxillofacial Surgery, Dept. of Dentistry, National Medical Center

In the treatment of mandibular prognathism with concomitant features of narrow alar base and some paranasal deficiency, simultaneous paranasal augmentation for the additional esthetic effect can be considered, if it is determined to correct the mandibular prominence and class III by a mandibular set-back.

Alloplastic augmentation has several advantages upon the autogenous means in the respect of dimensional stability and simplicity of operation. This is a case report of silastic paranasal augmentation performed simultaneously with mandibular set-back surgery which has a period of 15 months of follow-up postoperatively.

I. INTRODUCTION

When a patient clearly exhibits a mandibular prognathism requiring setback yet the alar base width is narrow and some paranasal deficiency exists and it is determined to correct the mandibular prominence and class III by a mandibular set back, the alar base width and paranasal deficiency can be improved by simultaneous paranasal augmentation^{1,2)}. This procedure can be performed by autogenous bone graft or alloplastic materials, and the latter has several advantages upon the former in the respect of dimensional stability and resultant fine esthetics, simplicity of operation, etc^{1,3)}.

This is a case report of silastic paranasal augmentation performed simultaneously with mandibular set back in orthodontic - surgical case of mandibular prognathism.

II. CASE REPORT

A 25 - y - 0 female patient came to our department to seek proper management of her esthetic and func-

tional problem from protruding lower jaw and anterior cross-bite on 16/2, 89. she was diagnosed as skeletal mandibular anteroposterior excess and treated under the plan of orthodontic - surgical correction(Fig 1A).

After 5 months of preop. Orthodontics, mandibular set back by S.S.R.O. was scheduled. But, on preop. Cephalometric and clinical planning, esthetic problem of paranasal deficiency was noted.

We could have the chance of paranasal augmentation simultaneously with main operation.

Preoperatively, facial mask was made, and the wax build-up on the paranasal area could make it possible to precarve the silastic predictably(Fig 2).

On operation, after S.S.R.O. of mandible, anterior horizontal vestibular incision was made.

After careful subperiosteal dissection and tunneling to the zygomatic buttress area and along the lateral margin of nasal cavity.

The precarved implants was inserted into the paranasal subperiosteal pocket(Fig 3).

The implant was 4mm thick in the area of inferolateral piriform rims, symmetric bilaterally and 'L' sha-



Fig. 1A. Preoperative frontal photograph



Fig. 1A. Preoperative lateral photograph



Fig. 1B. Postoperative frontal photograph



Fig. 1B. Postoperative lateral photograph

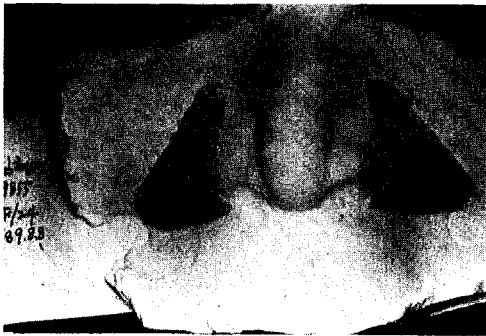


Fig. 2. Preoperative diagnostic Waxing-up



Fig. 3. Intraoperative photograph

ped feathered edge so that they would not be palpable on the face. Additional carving of implant for the close contact with underlying bone surface, and a single hole-wiring in piriform rim to provide stabilization and to prevent migration was necessary.

Skeletal fixation was performed onto the zygomatic buttress area rather than piriform rim area for the

prevention of increasing chance of infection of the paranasal implants.

Meticulous soft tissue closure was carried by first reapproximation the periosteum and then the mucosa. Postop. result was very fine and patient was satisfactory with the result(Fig 1B).

15 months follow-up was pleasing and there was no problem.

III. DISCUSSION

This type of augmentation is generally not indicated in major class III dentofacial deformities(greater than 10 to 12mm) in which true maxillary deficiency and mandibular prognathism coexist.

In these instances simultaneous maxillary advancement and mandibular set back are generally indicated 1,3,4,5,6,7).

In the case of preop. Orthodontics which was necessary for the optimum results, a more esthetically pleasing result is attained if the upper incisor teeth are slightly more prominent than might be otherwise planned¹⁾.

When skeletal stabilization is to be employed, an alternative to piriform rim wires must be chosen for skeletal stabilization because piriform rim wires significantly increase the chance of infection of the paranasal implants. Such alternative stabilization is provided by suspension wires from zygomatic butt-

ress area¹⁾.

All of the facial edges of the implants must be carefully tapered to feather edges so that they will not be palpable on the face and they must not extend superiorly into the region of the frontal process of the maxilla, since overlying soft tissues are thin in this area and they become palpable. Furthermore excessive sup. extension will interfere with the wearing of eyeglasses^{1,2,3)}. When paranasal augmentation is performed with autogenous or allogenic bone grafts, the result is highly unpredictable & unstable.

One side may resorb more than the other and result in an asymmetry. In addition, the precise contouring of graft is difficult, and additional operation is necessary.

Thus alloplastic implants are preferred for paranasal augmentation with alloplasts, the esthetic results are superior & very stable^{1,2,3,8)}.

Within the scope of large alloplastic materials, silastic & proplast are most widely used in spite of some problems such as bone erosion^{2,8,9,10,11)}.

In this case, silastic was used because of better carvability & flexibility and this result in fine bone contact.

IV. Summary

With this adjunctive approach, esthetics may be greatly improved in orthognatic patients of mandibular prognathism with paranasal deficiency.

Procedures are simple, straight-forward, and no additional operation of donor site is necessary because of use of alloplastic material with the major advantages predictable results & long-term dimensional stability.

At present time, 15 months F/U is accomplished

with fine result. But more long-term F/U will be necessary because of the known possibility of resorption of underlying bone.

REFERENCES

1. Epker BN, Fish LC : Dentofacial Deformities 1st ed. St. Louis, The C.V. Mosby, pp. 464, 1986
2. Bell WH, Proffit WR, White RP : Surgical Correction of Dentofacial Deformities 1st ed. Philadelphia, W.B. Saunders, pp. 501, 1980
3. Bell W.H : Augmentation of the nasomaxillary & nasolabial regions. J Oral Surg 41 :691, 1976
4. Epker B N, Turvey TA, and Fish L C : Indications for simultaneous mobilization of the maxilla & mandible for the correction of dentofacial deformities. Oral Surg 54 :369, 1982.
5. Jacobson A et al. : Mandibular prognathism. Am J Orthodontics 66 :140, 1974.
6. Rakosi T, schilli W : Class III abnormalities, a coordinated approach to skeletal, dental, and soft tissue problems. J Oral Surg 39 :860, 1981.
7. Sperry TP et al. : Differential Treatment planning for mandibular prognathism. Am J Orthodontics 71 :531, 1977.
8. McCarthy JG : Plastic Surgery, Philadelphia, W. B. Saunders, pp. 1188, 1990
9. Laskin DM : Oral and Maxillofacial Surgery, St. Louis, The C.V. Mosby, pp.292, 1980
10. 鬼塚 卓彌著, 白世民監修 : 성형외과 수술서 4 판, 서울, 군자, pp. 753, 1988
11. Wolfe SA, Berkowitz S : Plastic surgery of the facial skeleton First ed. Boston, Little, Brown and Company, pp. 25, 1989

하악골 전돌증 환자의 악교정술시 부가적 방법으로서의 이물성형 재료를 이용한 비익기저부증강술

국립의료원 치과 구강·악안면외과

이태영·김명섭

하악골 전돌증 환자의 악교정 수술시 비익기저부가 좁고, 발육부전을 보일경우 수술의 심미적 효과를 증진시키기 위한 부가적 방법으로서의, 하악골의 후방 이동술과 함께 비익기저부의 증강술을 고려할 수 있다.

이물성형 재료에 의한 증강술은 자가골 이식술에 비하여 술후 체적변화가 적고 안정성을 보이며, 간편하게 시술될 수 있다는 장점을 가진다.

저자들은 하악골 전돌증 및 비익기저부의 발육부전을 보이는 환자의 악교정예에서 하악골 후방 이동술과 더불어 부가적인 비익기저부 증강술을 시행하여 술후 15 개월이 경과된 현재 좋은 결과를 보이고 있으므로 이에 보고하는 바이다.