

Prognosis of the Mandibular Reconstructions Using AO-Reconstruction Plates

Myung-Rae Kim

Department of Dentistry(Oral Surgery), College of Medicine, Ewha Womans University

ABSTRACT

Forty one cases(37 patients) of mandibular reconstruction using AO-plates were reviewed. The patients aged from 27 to 83 years old(52.3 ± 18.1 years) were followed for 5 to 42 months (mean 12.7 ± 8.3 months). Cases were grouped by the location of reconstruction ; Anterior mandible crossing midline as Group A(12 cases), body segment of the mandible as Group B(16 cases), condyle & ramus of the mandible as Group C(13 cases). The incidence of revision as a measure of outcome was calculated by actuarial methods accounting for loss or death.

Revision or plate removal occurred in 22.2% (9 of 41 cases) with an incidence of 52.2% (6 of 12 cases) in Group A, 12.5% (2 of 16 cases) in Group B, and 7.7% (1 of 13 cases) in Group C. Combined use of AO-plate and bone graft had a revision rate of 33.3% (4 of 12 cases), while the reconstructions with plate only had a rate of 17.2% (5 of 29 cases). The difference between the immediate reconstructions(19.2% ; 5 of 26 cases) and delayed reconstructions(26.7% ; 4 of 15 cases) was not significant, but the delayed reconstruction of the anterior mandible resulted in highest failure rate of 57.1% (4 of 7 cases).

The revision incidence was significantly high when the area had been radiated. 33.3% of 24 radiated cases, while 5.7% of not-radiated cases required revision. Particularly, the radiated Group A resulted in remarkable higher failure rate(63.2% of 10 cases). Mouth opening over 30mm was obtained in 92.3% of Group C, in 63.8% of Group B, but only in 52.2% of Group A. Joint pain which was mild and tolerable was noted in 3 of 13 Group C patients.

The large defects of the mandibles following massive trauma, resection of refractory osteoradionecrosis and ablation of tumors lead to deficiencies in mastication and esthetic function. To replace the mandibular defects and to restore the function properly, bone graft and/or alloplastic

support have been used.

Autogenous corticocancellous bone blocks¹⁾²⁾, particulated cancellous bone marrow in allogenic bone tray¹²⁾¹⁴⁾¹⁷⁾¹⁸⁾ and the vascularized bone grafts²¹⁾ following the composite resection have been considered more acceptable than the allo-

lastic replacements, but high morbidity due to untoward complications such as infection, necrosis or functional impairment have been followed frequently⁴⁾¹²⁾. Oral incompetence with drooling leads to masticatory difficulty and a very unsatisfactory life, particularly when the defect is combined with soft-tissue loss or contracted severely⁷⁾¹²⁾.

Even the advent of myocutaneous pedicled and microvascular free flaps has provided better soft tissue covering, primary osseous grafting in irradiated beds and delayed reconstruction of anterior mouth floor which was not sustained properly remains a challenge in the oral and maxillofacial reconstructive surgery.

Currently, primary internal stabilization of remained segments using the metal plates and delayed reconstruction with bone graft have been recommended most widely⁶⁾⁷⁾¹⁰⁾¹¹⁾²²⁾. AO Mandibular Reconstruction Plates(AOMRP) are rigid enough to hold the remained mandibular stumps without intermaxillary fixation, and are easy to use¹⁹⁾²⁰⁾. However, immediated wound dehiscence and the thinning of soft tissue covering were followed in 20~48%, and they resulted in eventual exposure of the plate and disfigurement of the lower face with limited function⁴⁾⁵⁾⁷⁾¹⁰⁾¹⁵⁾.

Therefore, this study is to review the complications following the mandibular reconstructions using AO-plates and to evaluate the prognosis by the location, by the timing(immediate or delayed), by the modes(AO only or combined use with bone graft), and by the radiation effects.

Materials and Methods

Forty one cases(37 patients) of mandibular reconstruction using AO plates following the composite resection undergone at Massachusetts General Hospital(Boston, MA) since 1986 were reviewed and reexamined until December of 1989. 26 cases had undergone malignant tumor ablative



Fig. 1. Primary reconstruction of the mandible with AO-plates following the composite resection.

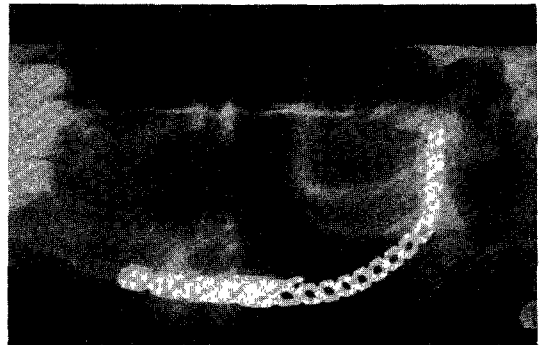


Fig. 2. An AO-plate restored the defect of lateral mandibular segment.

surgeries and radiation therapy, other 15 jaws had been lost due to massive trauma and invasive benign tumors.

The age range of patients was 27 to 83 years old(mean 52.3 ± 18.1 years), and cases were followed for 6 to 42 months(mean 12.7 ± 8.3 months).

Cases were grouped by location of the reconstruction : Anterior mandible crossing mid-line as Group A(12 cases), body segment of the mandible as Group B(16 cases), condyle and ramus of the mandible as Group C(13 cases).

The incidence of revision or removal of the plates due to untoward complications were used as an objective measure of outcome and was calculated using actuarial methods accounting for loss to follow and death. Intentional removal of the plate was excluded.

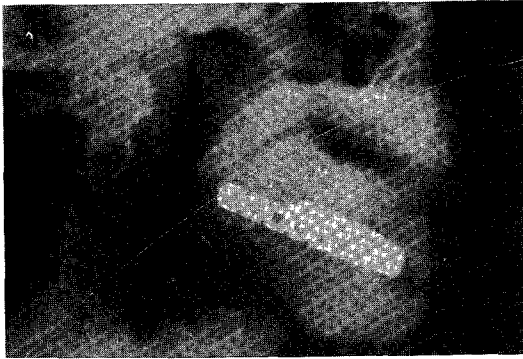


Fig. 3. An AO-plate placed in anterior mandible properly with adequate soft tissue covering.



Fig. 4. A plate was exposed with findings of intra-oral fibrotic scar contracture and pulling-down of a pedicled Delto-Pectoral flap.

Independent variables included plate location, immediate versus delayed reconstruction, plate alone versus combined use of bone graft, and radiation. Dependant variables included satisfactory mouth opening (over 30 mm), infection, plate exposure and joint pain.

The differences between the groups and variables were compared by Chi-square test and critical ratio from the standard error, and were defined significant at $p < 0.05$.

Results

1. Complications encountered

Following the reconstructive surgery using

AO-plates, postoperative infection was occurred in 26.8% (11 of 41 cases). The incidences of infection according to the type of reconstruction between AO-plate reconstructions (27.6%, 8 of 29) and cases combined with bone grafts (25.0%, 3 of 12) were not significant. Also, there was no difference in the incidence of infection following the immediate reconstruction (26.9%, 7 of 26 cases) and the delayed reconstruction (26.7%, 4 of 15 cases).

Wound dehiscence was followed in 17.1% of 41 cases with incidence of 33.3% in Group A, 12.5% in Group B and 7.7% in Group C. And the incidence in AO-plate group (20.7%, 6 of 29 cases) was higher than the combined reconstructions (8.3%, 1 of 12 cases), but the differences were not significant (Table 1).

However, radiation had been related significantly with wound dehiscence; 7 of 24 cases (29.2%) in the radiated area and none of 17 cases in not-radiated area ($p < 0.02$). And when the soft tissue covering was inadequate, additional flaps complicated high (46.2%, 6 of 13 cases) requiring revision, while only 3.6% in flap not-added cases perforated later ($p < 0.001$).

Other complications included joint pain in 14.6%, limited mouth opening in 29.3%, swallowing difficulties in 14.6%, and occlusal changes in 9.8% of 41 cases. But these are not related significantly with variables (Table 1).

2. Incidence of Revision or Plate Removal

Revision or plate removal occurred in 22.2% (9 of 41 cases) with an incidence of 52.2% in Group A (6 of 12 cases), 12.5% in Group B (2 of 16 cases), and 7.7% in Group C (1 of 13 cases). Reconstruction of the anterior mandible has been complicated more frequently than the lateral segment or the condylar restoration. The differences between the groups are significant ($p < 0.02$, Chi-square test) (Table 2).

Table 1. Untoward complications following the mandibular reconstruction using AO-plates with or without bone grafts

Complications	Number of incidence	% (n=41)
Postoperative infection*	11	26.8
Wound dehiscence, plate exposure*	7	17.1
Pain of TMJ	6	14.6
Limited mouth opening	12	29.3
Swallowing difficulty	6	14.6
Occlusal change	4	9.8
Unsatisfactory facial contour	3	7.3

*Infection and perforation were the major causes of revision : 77 % of all.

Table 2. Incidence of revision or plate removal by the location of reconstruction.

Location	No. of Reconstruction	No. of Revision	Revision Incidence*(%)
Group A	12	6	52.2
Group B	16	2	12.5
Group C	13	1	7.7
Total	41	9	22.2

Rev. Incidence* ; claculated by actuarial analysis considering the lost or the dead. Differences between the groups are significant($P < 0.02$, chi-square)

Time of revision ; post-operative 8.2 ± 3.7 months

Table 3. Revision incidence according to the type of reconstruction

Location	AO plate only (n=29)	AO+bone (n=12)	total (n=41)
Group A	3 (7)	3 (5)	6 (12)
Group B	2 (11)	0 (5)	2 (16)
Group C	0 (11)	1 (2)	1 (13)
Total	5 (17.2%)	4 (33.3%)	9 (22.2%)

() ; number of the reconstructed mandibles($p > 0.05$, chi-square test).

Of the post-operative complications, infection was the most common cause of revision(3 of 9 revised cases). 2 cases were revised due to wound dehiscence soon after reconstruction, and other 2 plates were removed due to delayed exposure. Other causes of revision were a case of unsatisfactory facial contour and a case of trismus.

All of the revisions were done within a year following the reconstruction ; 3 of 9 cases within 6 months, 6 of 9 cases between 6 and 12 months (mean 8.2 ± 3.7 months).

1) Revision According to the Mode of Reconstruction

Primary reconstructions with AO-plates required revision in 17.2% (5 of 29 cases), while reconstructions with AO-plate and bones had been reopened in 33.3% (4 of 12 cases). Particularly, higher incidence of revision was noted in the anterior mandible(Group A), but there was no significant difference between the AO-plate alone and combined use with bones(Table 3).

2 of 4 revised cases which AO-plates had been placed with bone grafts had solid bones not requiring further surgeries.

2) Revision According to the Timing of Reconstruction

Immediate reconstructions were revised in 91.2 % (5 of 26 cases), while delayed reconstruction had a little higher with 26.7% (4 of 5 cases). The anterior mandibles which had been complicated most frequently had also lower revision rate(40.0 %, 2 of 5 cases) in the immediate reconstructions than in the delayed reconstruction(57.1%, 4 of 7 cases). But the difference is not significant, and none of the delayed reconstructions for the lateral and condylar defects were revised(Table 4).

Therefore, the immediate reconstruction via the intraoral approach may not be worse than the

Table 4. Revision incidence according to the timing of reconstruction

Location	Immediate (n=26)	Delayed (n=15)	Total (n=41)
Group A	2 (5)	4 (7)	6 (12)
Group B	2 (13)	0 (3)	2 (16)
Group C	1 (8)	0 (5)	1 (13)
Total	5 (19.2%)*	4 (26.7%)*	9 (22.2%)*

() ; number of the reconstructed mandibles

*($p > 0.05$, chi-square test).

delayed reconstructions via the extra-oral approach.

3) Revision Incidence According to the Radiation

Of 9 revised cases, 7 cases had been irradiated before and a case after surgery. 33.3% of 24 radiated cases required revision, while only a case of 17 cases(5.9%) in not-radiated area was revised ($p < 0.05$)(Table 5).

In the reconstructions of the anterior mandibles, 6 of 10 cases(63.2%) required revision. But only 2 of 9 cases in the body and none of 5 cases in the Group C were reopened to remove the plates.

4) Revision Associated with Additional Flap Surgeries

To ensure the soft tissue covering, 13 myocutaneous flaps(11 cases of Pectoralis Major flap, a case of Lattissimus Dorsi flap and a case of Sternocleido-Mastoid flap) were made to cover the defects at the time of mandibular reconstruction.

Of 13 cases which underwent additional flap surgeries, 30.8% (4 of 13 cases) were revised due to infection and wound dehiscence. Other 28 cases without flap surgeries had 17.9% of revision($p > 0.05$).

In the reconstructions of the anterior mandibles, Group A with flap surgeries had a revision incidence of 75% (3 of 4 cases), while Group A without flaps 37.5% (3 of 8 cases). But in the Group B and C, there were no notable differences

Table 5. Revision incidence according to radiation

Location	Radiated (n=24)	Not radiated (n=17)	total (n=41)
Group A	6 (10)	0 (2)	6 (12)
Group B	2 (9)	0 (7)	2 (16)
Group C	0 (5)	1 (8)	1 (13)
Total	8 (33.3%)*	1 (5.9%)*	9 (22.2%)*

() ; number of the reconstructed mandibles.

*The difference is significant($p < 0.05$, chi-square test).

Table 6. Revision incidence associated with flaps added simultaneously

Location	Flap-added	Flap-not added	Total
Group A	3 (4)	3 (8)	6 (12)
Group B	1 (4)	1 (12)	2 (16)
Group C	0 (5)	1 (8)	1 (13)
Total	5 (13)* (30.8%)	5 (28)* (17.9%)	9 (41)* (22.2%)

() ; number of the cases.

*($p > 0.05$, chi-square test).

whether they had additional flaps or not(Table 6).

And the flaps radiated before were followed by revision in 33.3% (of 24 cases), only one of 17 cases(5.9%) in not-radiated area were revised ($p < 0.05$)(Table 7).

3. Functional Recovery

1) Mouth Opening

70.7% (29 of 41 cases) were able to open the jaw as high as 30mm in interincisal distance or over 40mm intermaxillary distance. 52.2% in

Table 7. Revision incidence associated with flaps and radiation effect

Flaps	Radiated	Not radiated	Total
Flap added	4 (13)	0 (0)	4 (13)
Flap not added	4 (11)	1 (17)	5 (28)
Total	8 (24)* (33.3%)	1 (17)* (5.9%)	9 (41)* (22.2%)

() ; number of reconstructions.

*($p > 0.05$, chi-square test).

Table 8. Mouth opening following the mandibular reconstruction with AO-plates

Location	≥ 30 mm MMO*	< 30 mm MMO	Satisfactory (%)
Group A (n=12)	6	6	52.2
Group B (n=16)	11	5	68.8
Group C (n=29)	12	1	92.3

* ≥ 30 mm MMO ; over 30mm in maximum mouth opening and 40mm for the edentulous patients : 29 jaws(70.7%) are satisfactory.

Group A, 68.8% in Group B, and 92.3% in Group C were assessed as satisfactory (Table 8).

Reconstruction of the mandibular ramus have been relatively good in mouth opening, but half of the anterior mandibles reconstructed with AO-plates had some degree of limited jaw excursion.

2) Pain of the Temporomandibular Joints

Pain of temporomandibular joints was complained in 14.6% with incidence of 18.8% in Group B and 23.1% in Group C, but none of 12 cases in the Group A. Mild and tolerable pain occurred ipsilaterally in 2 cases and contra-laterally in 4 cases.

There was no cases showing degeneration of the glenoid fossa radiographically.

3) Clinical and Patient's Self assessment

Accounting 3 withdrawn cases, 70.8% (28 of 41 cases) of patients who underwent reconstructive surgeries satisfied with the result and would recommend same procedures to other patients.

11 cases (26.8%) had been in excellent progress without any disability or pain. Other 11 cases (26.8%) were in good status with some degree of disability but no pain, and 7 cases (17.1%) had limited function with infrequent pain.

12 cases (29.3%) had been infected, dehisced and in poor state. Of them, 9 cases (22.0% of 41 cases) required revision.

Discussion

Of the various methods available in the reconstruction of the mandibular defects, autogenous bone graft has been the most acceptable biologically. Especially, particulated cancellous bone marrow in the allogenic or alloplastic tray has been the most widely used⁽²⁾³⁾¹²⁾¹⁸⁾²³⁾. The traumatic defects and segmental resections of the be-

nign tumors have been restored superbly, but the defects followed by composite resection of malignant tumors remains difficult and failure rates remain relatively high ranging from 15% to 47.3% according to the literatures⁽¹⁰⁾¹¹⁾¹²⁾.

The primary reconstruction with bones, the use of myocutaneous flaps and free vascularized grafts have been advocated for these purpose, but the immediate post-surgical morbidity is great with higher infection rate and does not offer satisfactory functional recovery as we expected⁽⁷⁾¹¹⁾¹²⁾.

Therefore, many clinicians have preferred delayed bone graft in 4 to 6 months after immediate stabilization of the remained soft tissues and segments. For these purpose, the AO reconstruction plate provides so rigid to support the remained segments and maintains compromised occlusion and facial contour⁽¹⁹⁾²⁰⁾. But infection and wound dehiscence may follow immediately, and delayed exposure of the plates is the most common complications⁽⁷⁾⁹⁾¹⁰⁾.

Krüger¹⁰⁾ reported removal of the plates in 20% (2/10) of the immediate reconstructions with ribs but only in 4.8% (2/42) of secondary reconstructions with iliac bones, and Komisar et al⁹⁾ removed 8 of 11 plates (73%) implanted with bones of which 9 cases were immediate grafts.

In this study, however, 26.9% of 26 immediate grafts and 26.7% of delayed grafts were infected, then 19.2% of immediate grafts and 26.7% of secondary grafts were revised. The incidence of infection may not be related with the modes of reconstructions (27.6% in AO-plates vs. 25.0% in AO-plates with bones), and also it is hard to conclude that immediate reconstruction may be less recommendable.

The revision rate of 22.2% (9 of 41 cases) is not higher than other reports. However, when the mandibular stumps are not stabilized well at the time of resection, significant contraction develops over time. Murphey et al¹⁵⁾ experienced plate exposure in 27.8% of 18 cases and the lost or remo-

ved in 22.2%, and Gullane & Holmes⁵⁾ lost 21% of 28 plates of which 20 had been placed after irradiation.

The contracted fibrosis, secondary collapse of the dental arch and perioral tissue makes delayed reconstruction very difficult to accomplish and the functional rehabilitation becomes unsatisfactory¹²⁾¹³⁾.

Of the failures, in this study, two thirds (6 of 9 failed cases) were occurred in the reconstruction of the anterior mandibles. The incidence of revision in the anterior mandibles is remarkably high (52.2%). Kellman & Gullane⁷⁾ reported also higher complications in the anterior mandibles with plate exposure in 48% and removal in 35% of 23 reconstructions with AO-plates & myocutaneous flaps.

Although the internal fixation by the plates minimizes the undesirable sequelae and gives more rapid and functional recovery with a low incidence of complications, defects of the anterior mandible crossing mid-line complicated more frequently. Initial breakdown of intra-oral wound was a common occurrence and often led to flap retraction and plate exposure¹⁰⁾. A steel bar may put pressure against the undersurface of this distal portion of the flap. The pulling down of the pedicle by the weight probably increase the pressure of the flap against the plate, particularly in the anterior mandible⁷⁾¹⁶⁾.

Also, the revision or plate removal occurred more frequently in the radiated area. Kellman & Gullane⁷⁾ reported no correlations could be made with the incidence of failure, but the significant higher incidence of revision with 33.3% in the radiated area (5.9% in the not-radiated tissues) might be related with poor vascularity and scar contracture. Post-radiation scar and fibrosis may induce the gradual pulling-down of the soft tissues to denude the plates. This follow-up study suggest us that radiation seems to be one of the important critical factors of unfavorable results.

so that the radiation before the reconstructive procedures may not be recommendable in view of maxillofacial reconstruction. However, to evaluate the correlation of AO-plates and postgraft radiation effect, further prospective studies are recommended.

Reviewing the cases of AO-plates with bone grafts, revision does not mean whole failure of the reconstruction. In this study, 4 of 12 plates were removed, but 2 of 4 revised cases had grafted bones solid enough to support the remained segments without additional bone grafts.

Kennady et al⁸⁾ reported a study on the stress shielding effect when the plates and screws are left in site for long periods. The plates often sink into the bone, and grafted bones become weaker due to lack of stimuli. Krüger & Krumholz¹⁰⁾ advocated to remove the plates 3~4 months after reconstruction in order to expose the bone to a functional stimuli.

Therefore, the AO plates is not the final solution to a difficult reconstruction problems although they provides rigid stabilization for the defects of the mandible. To prevent wound dehiscence and delayed exposure of the plates, particularly in the reconstruction of the anterior mandibles, we have to consider adequate soft tissues which are free of strain to cover the plate, proper holding them without dead space, smaller shaping of the plate, and avoidance of pregraft radiation if feasible.

Conclusion

On the bases of clinical observations, the following conclusion and summary can be made.

1) Complications following the mandibular reconstructions using AO-plates were more frequent in the anterior defects crossing midline.

2) Mandibular reconstructions using either AO-plate only or combined use of AO-plates with bone had no significant difference in the

incidence of revision.

3) Immediate or delayed reconstruction showed no significant difference in the prognosis.

4) Incidence of revision was significantly high when the reconstruction area had been radiated before.

5) Simultaneous skin-flaps with AO-plates were complicated more frequently than the reconstructions without additional flaps, particularly when they were treated by radiation before the surgery.

6) Mouth opening was satisfactory as high as 92% in the condylar reconstructions, but rather as low as 52% in the anterior reconstructions.

7) Joint pain which was mild and tolerable was noted in 23% of the condylar reconstructions.

8) Main causes of failure are considered to be post-operative infection, immediate wound dehiscence and delayed exposure of the plates.

9) 70.8% of patients satisfied the functional and esthetic results.

References

- 1) Adekeye EO : *Reconstruction of mandibular defects by autogenous bone graft : A review of 37 cases. J Oral Surgery* 1978 : 36 : 125-128
- 2) Boyne PJ, Zarem H : *Osseous reconstruction of the resected mandible. Am J Surg* 1976 : 132:49-53
- 3) Byrd DL, Holton J : *Immediate mandibular replacement with stainless steel mesh prosthesis. J Oral Surg* 1971 : 29 : 436-440
- 4) Chow JM, Hill JH : *Primary mandibular reconstruction using the AO reconstruction plate. Laryngoscope* 1986 : 96 : 768
- 5) Gullane PJ, Holmes H : *Mandibular reconstruction : New concepts. Arch Otolaryng Head Neck Surg* 1986 : 112 : 714-717
- 6) Hellem S, Olofsson J : *Titanium-Coated Hollow Screw and Reconstruction Plate System (THORP) in mandibular reconstruction. J Cranio Maxillofac Surg* 1988 : 16 : 173
- 7) Kellman RM, Gullane PJ : *Use of the AO mandibular reconstruction plate for bridging of mandibular defects. Otolaryngol Clin North Amer* 1987 : 20 : 519-533
- 8) Kennady MC, Tucker MR, Lester GE, Buckley MJ : *Stress shielding effect of rigid internal fixation plates on mandibular bone grafts. Int J Oral Maxillofac Surg* 1989 : 18 : 307
- 9) Komisar A, Warman S, Danziger E : *A critical analysis of immediate and delayed mandibular reconstruction using AO plates. Arch Otolaryngol Head Neck Surg* 1989 : 115 : 830
- 10) Krüger E, Krumholz K : *Results of Bone Grafting after Rigid Fixation. J Oral Maxillofac Surg* 1984 : 42 : 491-496
- 11) Kudo K, Fujioka Y : *Review of bone grafting for reconstruction of discontinuity defects of the mandible. J Oral Surg* 1987 : 36 : 719-793
- 12) Lawson W, Baek SM, Loscalzo LZ, Biller HF, Krespi YP : *Experience with immediate and delayed mandibular reconstruction. Laryngoscope* 1982 : 92 : 5-10
- 13) Manchester WM : *Immediate reconstruction of the mandible and TMJ. Br J Plast Surg* 1965 : 18 : 291-295
- 14) Marx RE, Kline SN : *Principle and methods of osseous reconstruction. Int Adv Surg Oncol* 1983 : 6 : 167-228
- 15) Murphy JB, Weisman RA, Kent K : *The use of stabilization plates in the immediate repair of defects following mandibular resection. Oral Surg Oral Med Oral Pathol* 1989 : 68 : 380-384
- 16) Papell ID, Price JC, Kashima HK, Johns ME : *Compression plates in the treatment of advanced anterior floor of mouth carcinoma. Laryngoscope* 1986 : 96 : 722-825
- 17) Raveh J, Stich H, Sutter F and Greiner R : *Use of the Titanium-coated Hollow Screw and reconstruction plate system in bridging of lower jaw defects. J Oral Maxillofac Surg* 1984 : 42 : 281-294
- 18) Salyer KE, Newton HT, Holmes R, et al : *Mandibular reconstruction. Am J Surg* 1977 : 134 : 461-464
- 19) Schmoker R, Spiessl B and Mathys R : *A total mandibular plate to bridge large defects of the mandible, in the New Concepts in Maxillofacial Bone Surgery, Springer-Verlag Co., 1976 : pp156-166*
- 20) Spiessl B : *Reconstruction of Segmental Defects in Tumor Surgery, Internal Fixation of the Mandible,*

Springler-Verlag Co., Berlin, 1989 : pp290-321

21) Taylor GI, Daniel RK : *Aesthetic aspects of microsurgery : Composite tissue transfer to the face. Clin Plast Surg 1981 : 8 : 333-339*

22) Vuillemin T, Raveh J, Sutter F : *Mandibular reconstruction with the THORP condylar prosthesis after*

hemimandibulectomy. J Cranio Max Fac Surg 1989 : 17 : 78-87

23) Wilson GW, Bosack RC : *Reconstruction after hemimandibulectomy using a costo-chondral rib graft and a Dacron-Urethane tray with autogenous iliac bone. J Oral Maxillfac Surg 1988 : 46 : 138-142*

AO-Reconstruction Plate를 이용한 하악재건의 예후에 대한 임상적 연구

김 명 래

이화여자대학교 의과대학 치과학교실 구강외과

= 국문 초록 =

중양 및 외상에 의한 하악골의 결손을 AO-Reconstruction Plate를 이용하여 재건하고 6개월 이상 42개월까지 추적조사된 37명(평균 52.3±18.1세), 41예를 재건부위, 골이식 병행여부, 재건시기 및 방사선치료 여부에 따라 합병증에 의한 재수술율을 보험통계법(actuarial method)으로 조사하고 비교 평가한 바 다음과 같은 결론을 얻었다.

1) 전 예의 22.2%가 합병증으로 제거되었으며, 하악전방의 재건후 52.2%가 재수술을 받아 가장 불량한 예후를 보였고 하악골체부는 12.5%, 상행지의 재건은 7.7%에서 제거되어 유의성 있는 차이를 보였다.

2) 재건방법에 따라서는 AO-plate 단독사용 후 17.2%, 골이식과 병행한 경우 33.3%의 재수술율을 보였으며, 특히 하악전치부에서 골이식을 병행한 경우 60%의 실패율을 보였다.

3) 절제와 동시에 재건한 경우 19.2%, 절제후 이차적 재건 후에 26.7%의 재수술율을 보였으나 유의성있는 차이는 없었다.

4) 재건부위가 방사선 치료를 받은 경우 33.3%, 특히 하악전방에서는 63.2%가 합병증으로 제거되었으나 방사선이 조사되지 않은 예에서는 5.7%만이 재수술을 받았다.

5) 개구기능은 하악전치부의 재건후에 가장 불량하며, 하악과두를 포함한 상행지의 재건 후 23.1%에서 경도의 측두하악관절통이 속발하였다.