

CLINICAL STUDY ON SURGICAL MANAGEMENT OF MANDIBULAR CONDYLAR FRACTURES

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하악 과두 골절의 외과적 처치에 관한 임상적 연구

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민 승 기

1993년 1월부터 1995년 12월까지 원광 대학교 치과대학 구강악안면외과에 하악 과두 골절을 주소로 내원한 환자중 관혈적 정복술 적응증에 해당되는 79명의 환자에 대하여 관혈적 정복술을 시행하였다(이 중 25명은 Dr. 남씨법을 행한 환자임). 평균 환자 나이는 32.5세(8-65세)이였으며 환자 관찰기간은 약 18.4개월(3-28개월)이었다. 62명(81%)에서 편측 과두 골절 양상이었으며, 57명(72%) 환자가 하악골내 다른 부위와 연관되어 골절되었고 이중 47명(59%)에서 정중부와 관련되어 골절되었다. 환자 나이, 골절된 과두의 심한 정도, 임상 증상, 방사선 사진상 등을 통하여 수술 방법을 선택하였으며 과두부 골절이 아닌 경우 대개 골절 부위의 견고 고정 및 근심쪽 과두 골편 제거, 관절 성형술 및 관절원판 정복술, lag screw고정 등을 시행하였다. 술 후 약간 고정은 약 2주 정도 하였으며 이후 수동적 개구 운동 및 능동적 개구 운동을 2에서 4주, 4주이상에서 시행하였다. 술후 방사선학적 관찰시 과두 흡수 및 후방 부위로 근심 과두부 변위 등, 약 21.5%에서 술 후 방사선학적 변화를 가져왔으며 특히 Dr. 남씨법에서 더 많이 나타났다(Dr. 남씨법(32%), 다른 정복술(16%)). 술 후 임상 증상은 19%의 일시적 안면신경 마비, 개구시 하악 변위(16.4%), 악관절 동통(15.2%), 35mm 이하에서의 개구제한(10%), 기타 부정교합, 관절잡음, 가성 관절 강직 등의 합병증을 나타냈으며 이중 Dr. 남씨법에서 더 많은 합병증을 나타냈다.

과두 골절의 외과적 처치는 가능한 견고 고정을 시행하는 것이 좋으며 이중 Dr. 남씨법은 그 사용에 있어 고려 해 보는 것이 좋다고 사료된다. 특히 과두 골절 처치에 있어 무엇보다도 술 후 지속적인 환자 관리 및 장기간 예후 관찰이 필수적이라 사료된다.

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I . INTRODUCTION

The management of fractured mandibular condyles is still considered the issue. Numerous reports on care of patients with fractured mandibular condyles suggest that nonsurgical management produces satisfactory results¹⁻⁵).

The method of treatment of condylar fractures depends mainly on the type of fracture. Severe displacement of the fractured condyle in cases with displacement of the condyle out of the fossa can cause malocclusion, abnormal opening, and impaired function. It is desirable to reposition the condylar fragment, if possible. But it is difficult to replace and reposition the displaced condyle by means of nonsurgical methods⁶).

The luxation of the condyle may lead to various long-term complications such as open bite on the contralateral side, deviation in opening and closing movements, dysfunction, and aberrative changes of the contralateral joint, as well as bone apposition leading to ankylosis^{7,8}). In 1983, Zide and Kent published an article on the rationale for open reduction of condylar fractures⁹). The absolute indications for open reduction are 1) displacement into the middle cranial fossa, 2) impossibility of obtaining adequate occlusion by closed reduction, 3) lateral extracapsular displacement of the condyle, and 4) invasion by a foreign body. The relative indications certain primarily to adults with condyles displaced out of the fossa and associated malocclusion. They include 1) bilateral condylar fractures in an edentulous patient when a splint is unavailable or when splinting is impossible because of alveolar ridge atrophy, 2) unilateral or bilateral condylar fractures when splinting is not recommended for medical reasons or where physiotherapy is impossible, 3) bilateral condylar fractures associated with comminuted mi-

dfacial fractures, 4) bilateral condylar fractures and associated gnathologic problems, such as retrognathism or prognathism, open bite with¹) periodontal problems or lack of posterior support, loss of multiple teeth and later need for elaborate reconstruction. The relative indications are arguable, and patients may be treated differently by each surgeon.

In the management of any wound, restoration of function with the least harm to the patient should be the primary focus¹⁻⁵). In mandibular condylar fractures adequately restored function of the jaw consists of following determinable features ; pain free mouth opening with an interincisal distance beyond 40 mm, good movement of the jaw in all excursions, preinjury occlusion of teeth, non-symptomatic temporomandibular joint, and good facial and jaw function. If these criteria are met, it matters little how fractures of the mandibular condyles are managed¹⁰). In 1967, Boyne summarized two potential outcomes in condylar fractures : 1) spontaneous repositioning and remodeling of the fracture fragments, and 2) complete resorption of the fractured condyle and regeneration of a new condyle¹¹).

The aim of surgical treatment of condylar fractures is to restore the preexisting anatomic relationships by means of functionally stable fixation. Dr. Nam introduced the unique surgical technique on the condylar fractures as means of of reduction of displaced condylar fragment. It is sometimes desirable to limited surgical approach in selected displaced condylar fractures¹²).

The purpose of this study is to evaluate 79 patients treated with open reduction according to clinical and radiographic results, which included in Dr. Nam's methods of the mandibular condylar fractures retrospectively.

II. PATIENTS AND METHODS

1. Patients

From Jan. 1993 to Dec. 1995, 79 patients with mandibular condylar fracture (male : fe-

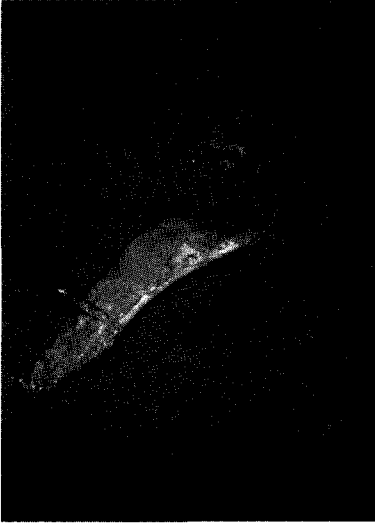
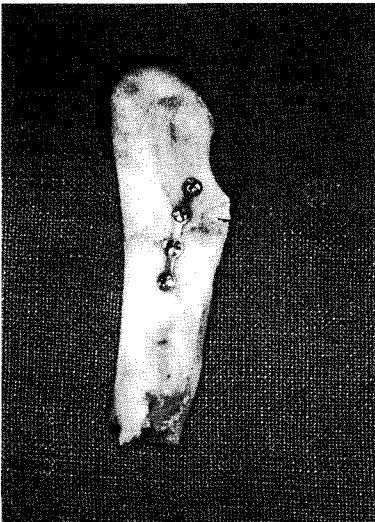


Fig. 1. Showed severe displaced mandibular condyle and performed oblique osteotomy, and retrieved the posterior mandibular fragment.



A

male ratio, 5.1 : 1) were treated when considered in surgical indications at Department of Oral & Maxillofacial Surgery, Wonkwang University Hospital.

2. Methods

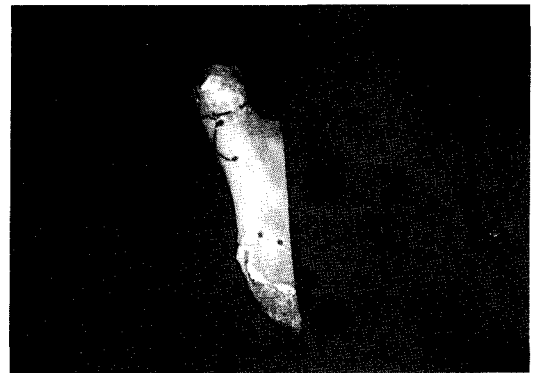
—Surgical Technique —

Before surgery, intermaxillary fixation was applied for correction of disturbed occlusion. Applied surgical techniques were variable depend on patient's clinical sign and symptoms, jaw functions and injured status of the condyle : fragment removal of displaced medial pole and condylar reshaping and eminoplasty, rigid fixation with titanium mini- or microplate, interosseous wiring, Lag screw, K-wire fixation and Dr. Nam's method were applied via submandibular or preauricular incision.

Especially, twenty-five cases of these with more complicated cases of condylar fracture were treated by Dr. Nam's surgical technique which free grafting technique of the proximal segment of the condyle.

Describing the Dr. Nam's surgical technique introduced in 1977 as follows :

Submandibular incision is applied. First, exposing the mandibular ramus, an oblique vertical ramus osteotomy is made by sawing and



B

Fig. 2. Reduction and Fixation with microplate (A) or interosseous wiring (B) in out of the body.

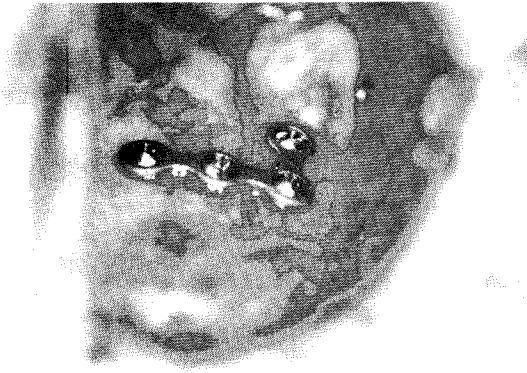


Fig. 3. Repositioning the reduced condyle into mandibular fossa and fixed with miniplate.

detach the posterior segment of the mandibular ramus out of the body to get an operation access intentionally. Second, fractured fragment of the proximal pole can be retrieved out through the detached posterior space (Fig. 1). Third, handed frgment were reduced into original position and fixed together easily with micro-plate or stainless steel wire in out of the body (Fig.2). Finally repositioning the fixed posterior segment with proximal fragment into mandibular fossa and fixed with miniplate on distal segment of the ramus in downward traction of lower border of the mandible (Fig.3,4).

—Postoperative Care—

Usually patients treated with surgical techniques were keep in maxillomandibular fixation routinely for two weeks and followed to passive jaw movement without pain during mouth opening exercise. Active jaw movement starts at four weeks postoperatively. During managing the mouth opening exercise, physiotherapy with rest, non-steroidal anti-inflammatory drugs, hot pack, soft diet, etc, were continued till mouth opening of over 35mm, with full range of excursion. In the follow-up examination, The patients were evaluated

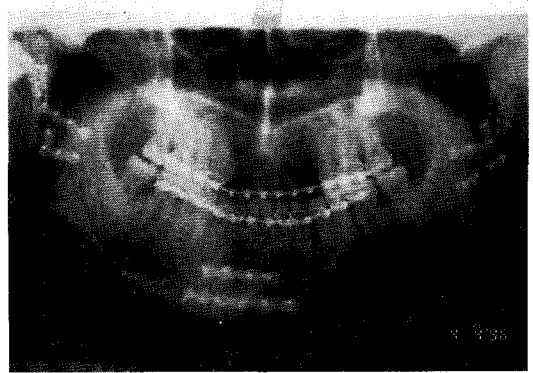


Fig. 4. Postoperative finding ; fixed with miniplate in both condylar and symphysis fracture.

from that standpoint of : occlusion, maximum jaw opening without any deviation, lateral or protrusive jaw movement, unique temporomandibular joint signs and symptoms and radiographic changes on affected portion.

—Analysis of This Study—

All the patients were evaluated into age and sex distribution, Condylar fractures combined with other portions of the mandible, treatment methods, follow-up periods, exact maxillomandibular fixation periods, postoperative radiographic findings and late complications. Radiographic findings routinely checked were skull P-A, Modified Townes view, Orthopantomogram, Condyle P-A, and sometimes CT scanning. Treatment methods were decided by degree of condylar fractures which have into four grade ; level I is fracture within capitular area, level II is involved in subcapitular fracture, level III is condylar neck portion fracture and finally level IV is basal portion fracture of the condyle.

III. RESULTS

There were 66 (84%) male and 13 (16%) female patients, with a mean age of 32.5 years

(range, 8 to 65 years). The higher frequency of condylar fractures were registered among patients aged 21 to 30 years, especially male group (Table 1).

Of all 79 patients, 57 condylar fracture patients (72%) had fractures in other portion of the mandible. Of these, 47 patients (59%) were situated in the symphysis region, between the each canines. There were 4 fractures (5%) combined with in the body and angle region, only 2 cases in three associated mandibular fractures. 22 fractures were condylar region alone. And 64 (81%) had unilateral fractures and 15 (19%) bilateral mandibular fractures (Table 2).

According to patient's injured condition, various surgical technique were applied ; mostly

rigid fixation have performed in 35 patients, in 25 patients with Dr. Nam's method and 16 patients with fragment removal of fractured mesial pole of the proximal segment of the condyle, alone or combined with another surgical technique. And the rest of applied treatment were reshaping of the fractured condylar head and eminoplasty, lag screw fixations, inter-osseous wirings and K-wire fixations in order (Table 3).

Follow-up call periods in surgically managed condylar fracture patients were a minimum of 3 months to 28 months after treatment. The average periods were 18.4 months (Table 4).

(Within 3 months were 7 cases which was invaluable to evaluated due to very short pe-

Table 1. Age and Sex Distribution of Condylar Fracture Patients(%)

	0-10	11-20	21-30	31-40	41-50	51-60	61-70	Total
Male	3	14	17	12	7	11	2	66(84)
Female	2	5	4	0	1	0	0	13(16)
Total	5	19	21	12	9	11	2	79(100)

Table 2. Mandibular Condylar Fracture With and Without an Associated Mandibular Fracture(%)

Class Type	Condyle alone	Angle	Symphysis	Body	Above 3 Fragments	Total
Bilateral	3	0	10	2	0	15(19)
Unilateral	19	4	37	2	2	64(81)
Total	22(28)	3(5)	47(59)	4(5)	2(3)	79(100)

* Class = classification

Table 3. Treatment Methods According to Degree of Condylar Fractures(%)

Tx. Degree	Fragment Removal	Reshaping& Eminoplasty	Rigid Fixation	Intraosseous Wiring	Dr.Nam's Method	Lag Screw	K-Wire	Total
I	12	5	0	0	2	0	0	19(23)
II	4	0	3	1	8	0	0	16(19)
III	0	0	8	1	9	1	1	20(24)
IV	0	0	24	0	1	3	1	29(34)
Total	16(19)	5(6)	35(42)	2(2)	20(24)	4(5)	2(2)	84(100)

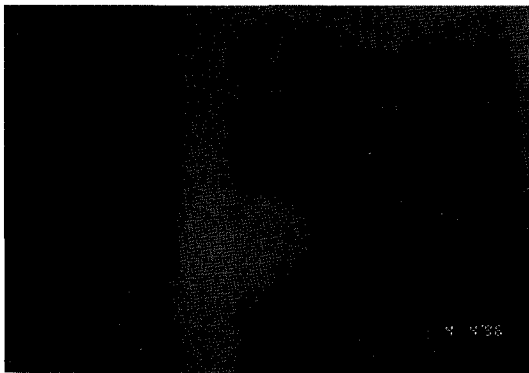
Table 4. Follow-up Periods in Condylar Fracture Patients

Periods	0-3 Mon	3-6 Mon	6-12 Mon	1-2 Yrs	Above 2Yrs	Total
Total	7	10	22	26	12	79

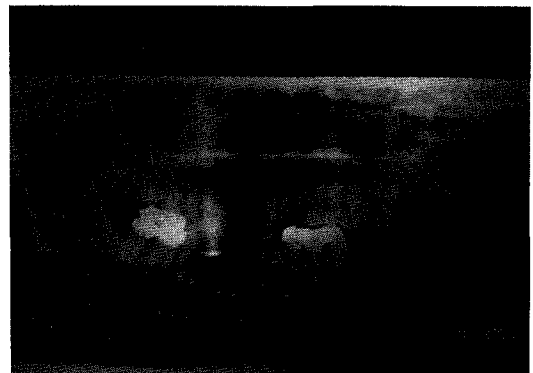
* Mon=months. Yrs=years

Table 5. Maxillomandibular Fixation Periods After Operation(%)

Weeks Degree	No MMF	0-1	1-2	2-3	3-4	4-6	Above 6	Total
Lvel I	0	3	9	2	1	0	0	15(20)
Lvel II	1	2	9	3	1	0	0	14(19)
Lvel III	1	1	13	3	2	0	0	19(25)
Lvel IV	0	5	18	3	2	0	0	28(36)
Total	2(2)	11(14)	49(62)	11(14)	6(8)	0	0	79(100)



A



B

Fig. 5. Postoperativie 6 months radiographic findings : (A) severve condyle head resorption was revealed, (B) posterior deviation of the proximal head of the condyle.

riod I though.)

MMF periods after operation was mainly 2 weeks for 49 cases. Within 7 days and 3 weeks MMF were also maintained for 11 cases. No MMF cases have performed in case of I or IV level fracture of the condyle (Table 5).

There were average radiographic changes in 21.5% of all cases, especially Dr. Nam's methods were more 32% than another surgical means in 16%, General changes of condyle were condylar resorption with fragment and

posterior deviation of the fractured condyle (Fig.5). Some cases were examined in arthritic changes, but one case was reported in false ankylosis (Table 6).

The most complication was 19% facial nerve injury which regressed in up to 3 months in general surgical approaches, but which solved in later time except one case, but no incidence of Dr. Nam's method. And following complications were facial asymmetry during mouth opening (16.4%), Temporomandibular joint pain and tenderness (15.2%), mouth

Table 6. Radiographic Changes of Condylar Fracture During Follow-up Periods(%)

Type of Tx X-ray Findings	Surgical Approaches	Dr. Nam's method	Total
Condyle Resorption	3(7.4)*	2(16)**	5(10)
Deviated Condyle	2(5.6)*	2(16)**	4(8.8)
Double Condyle	0(0)	2(8)	2(2.5)
Arthritic Changes	3(7.4)*	2(8)**	5(7.6)
Ankylosis	1(1.8)	0(0)	1(1.2)
Total	9(16)	8(32)	17(21.5)
Total Tx. Case	54(100)	25(100)	79(100)

Tx.= Treatment

*= each only one case among that cases in bilateral

**= all of bilateral cases

Table 7. Clinical Signs and Symptoms During Follow-Up Periods(%)

Types Sing & Symptom	Surgical Approaches	Dr. Nam's method	Total
M/O Limitation (<35mm)	5(9.3)	3(12)	8(10)
Deviation during M/O	7(8.8)	5(20)	13(16.4)
Malocclusion	4(7.4)	2(8)	6(7.6)
Ankylosis	1(1.8)	0(0)	1(1.3)
Clicking Sound	3(5.6)	1(4)	4(5)
TMJ Pain & Tenderness	8(15)	4(16)	12(15.2)
Facial Nerve Injury (temporary)	15(28)	0(0)	15(19)
Total Tx. Case	54(100)	25(100)	79(100)

* M/O= mouth opening. Tx=treatment

open limitation within 35mm (10%), malocclusion, clicking sound on affected side and only one case of TMJ ankylosis in order (Table 7). Usually Dr. Nam's method revealed more complications clinically than other surgical approaches.

IV. DISCUSSION

The majority of mandibular condylar fractu-

res are treated by closed reduction, and long-term results have proved this procedure to be satisfactory in most instances^{1,2,13-15}. The reasons treated by closed reduction : first, experience has shown good results in most patients after such a procedure, second, surgical procedures in the temporomandibular joint area may result in complications involving the facial nerve, vessels, as well as other problems, third, technical problems may exist in

manipulating the fracture segments into original anatomic position, because of comminution, fragment size, or fracture characteristics, lastly, open reduction leaves a scar on the face⁹.

Usually, closed reduction of condylar fractures has been the treatment by maxillomandibular fixation alone¹⁶. Duration of immobilization usually ranges from 2 to 4 weeks, depending on the type of fracture and degree of condylar dislocation. Early mobilization of the jaw as possible and subsequent functional physiotherapy are considered of important¹⁷. It is my thoughts to be as conservative as possible regarding surgery in management of fractures of the condylar process.

According to previous studies, the longest reported follow-up of mandibular fractures treated by closed reduction is around twenty years¹. The length of follow-up call is important if decisions about therapy are to be made.

The major problems resulting from treatment of displaced condylar fractures by closed reduction are not only early dysfunctions, deviation during mouth opening and open bite, and later arthritic changes occurring 10 to 50 years later in a joint that is not in its appropriate anatomic position¹⁸.

Complications such as malocclusion, mandibular asymmetry, impaired masticatory function, and pain located to the affected joint or masticatory muscles were seen significantly more frequent in patients treated with closed reduction compared with those treated surgically in unilateral dislocated low subcondylar fractures⁹. Fernandez and Mathog have reported that if badly displaced condylar process fractures are treated with closed techniques, the patient is at risk for late complications, such as malocclusion, ankylosis, and temporomandibular joint dysfunction¹⁹. In a more recent experimental study by Zhang and Obeid,

open reduction and plating of condylar fractures in rabbits produced more favorable results than closed reduction²⁰.

Several studies of such treatment of condylar fractures have shown favorable clinical results. However, other studies show signs of dysfunction in about one third of adult patients^{14,21,22}. In children, studies of condylar fractures have shown that a remarkable remodeling process takes place^{14,23-25}. Open reduction and fixation of the fractures has been recommended in selected cases, and different indications have been reported^{9,26-30}. A relatively large number of patients (56.15%) were considered to have an indication for open reduction of the condylar fractures³¹.

As a results, Not all mandibular condylar fractures should be treated by closed reduction regardless of pre-existing or traumatically induced problems; each fracture is unique. It is important to decide the treatment methods when indicated in open reduction. For this reason, decisions on how to treat most fractures should not be based on the radiograph alone. It is the essence of good treatment to ascertain the patient's age, medical and dental history, the pathogenesis and severity of the injury, and behavior patterns that might modify the treatment expectations. With these ideas in mind, treatment modalities, which include open reduction techniques, may be chosen on the basis of sound surgical judgement and experience⁹.

In recent years, open reduction of condylar fractures has attracted interest, and various new surgical methods have been described³²⁻³⁵. The Raveh et al reported about surgical technique of condylar fractures that a broad and extensive exposure of the fossa and the stump of the ascending ramus can help assure sufficient visibility to avoid severe complications in such cases⁷. Also, it should be reposi-

tioned the displaced disc prior to the definitive replacement of the condyle and they not to fix with wire ligatures or miniplates, only maintained in maxillomandibular fixation for ten days with subsequent physiotherapy.

The age of the patient with condylar fracture has a bearing of treatment, because growth potential influence long-term results. When a fracture condyle occurs in a child under 3 years old, the fracture is usually of the compression type because of the stubbiness of the condyle. In children over 3, most fractures are linear. In a child between 3 and 11, the malposed fractured condylar segment tends to resorb after successful therapy. Remodeling of the distal stump may occur with formation of an architecturally normal condyle in fairly normal anatomic position. Growth disturbances may cause asymmetry when fractures occur prior to completion of growth. In adults, fractures show remodeling only as a functional adjustment according to "functional matrix theory". The need for surgical approaches therefore, is evidently greater in the postpubertal patient, so that optimal anatomic alignment can be achieved^{14,36,37}. In this study under 10 years, only 5 treated with open reduction of whom level IV condylar base fracture and obtain a good prognosis. The mean aged of higher frequency of condylar fracture was 32.5 years which similar age groups to some authors^{6,31}. Nearly one quarter of the condylar fracture patients (57, 72%) had fractures in other parts of the mandible. Of these, 47 patients (59%) were situated in the symphysis region, between the canines. That results revealed to general concept and were more higher frequency than Silvennoinene's reports (48%). In contrast to symphysis region, body and angle region (5%) were less frequency in this study. Silvennoinen et al reported that, when there was an associated fra-

cture another part of the mandible, the degree of condylar dislocation was less among patients with unilateral fractures³¹.

In deciding the time period of MMF, Varying periods of MMF have been suggested in the literature^{9,15,26,38-43}. Converse indicated that the occlusion must be maintained by MMF until fibrous union is established Takenoshita suggested the period of MMF to three weeks after operation, that is enough the fractured site would have sufficient fibrous tissue and callus formation³⁹.

The surgically treated patients were kept in MMF for an average of 6 weeks to allow osseous stabilization at the fracture site. Although patients treated with open reduction were immobilized 2 weeks more on average, the mouth opening of surgically and non-surgically treated patients was not significantly different. Some authors reported that the wide mouth opening usually has been noted earlier in the operated group than in the group with conservative treatment^{41,43,44}.

Open reduction with rigid fixation, using plates or lag screws instead of transosseous wiring of the fracture, the MMF period and the postoperative follow-up may be reduced significantly^{29,30,45}.

Rigid fixation after repositioning will introduced rapid healing and allow the mandible to function as soon as possible^{27,46,47}. But, Takenoshita et al reported that the MMF period should not be less than 2 weeks because there is need for some rest for good wound healing to occur after operation²⁷.

In spite of the finding that clinical union is not obtained until 8 weeks, in this study, usually two weeks were maintained for MMF, and got a good results. But not suggested to Dr. Nam's method due to more complications than another surgical means, longer MMF period should be maintained in Dr. Nam's me-

thod I thought.

The pathogenesis and severity of the injury in the mandibular condylar fractures are the most significant factors influencing the outcome of treatment. Penetrating fractures that are severe enough to cause meniscal disruption, perforations, or tears are the wounds that result in dysfunction with hypomobility and asymmetry. In the child, severe meniscal disruption without proper physiotherapy easily leads to bony ankylosis. In the adult, this severe disruption is more likely to lead to a fibrous limitation of jaw motion or long-term arthritis, which may be difficult of management conservatively^{16, 48)}.

Warsaee reported that a careful, nontraumatizing, anatomically correct repositioning of a dislocated condylar fragment no more frequently predisposes to such later complications than a nonreduced, malpositioned condylar process fracture⁶⁾. Goss and Bosanquet have suggested that injuries to the disc might play a role in the development of the subsequent complications⁴⁹⁾. Chuong and Piper reported that it is important to simultaneous discal repositioning and repair using techniques of microsurgery required open reduction and internal fixation in treating condylar fractures of the mandible⁵⁰⁾. I thought that surgically managed condylar fractures were another important meaning to examine and correct the displaced or injured disc portion into original position.

The surgical management of condylar fractures also remains a lot of late problems. Problems related to complications of those fractures could be temporomandibular joint ankylosis, facial disfigurement, difficulty of mouth opening and so forth according to long term follow-up like as complications of conservative management of condylar fractures⁵¹⁾. Zide and Kent reported that in about 15%, there were

short-term problems such as pain, 9).

In this study, there were general complications have been occurred during follow-up, 13% asymmetry during mouth opening, which might be corrected to original function according to bone modelling, 12% temporomandibular joint pain and tenderness, 10% mouth open limitation, and 6% malocclusion. But, temporary facial nerve injury have occurred in 15% which not existed for long time over 18.5 months except one. Comparing to Dr. Nam's method cases, other open approaches generally have less complications than Dr. Nam's, but except facial nerve injury.

In relation to that complications, I analysed radiographic findings which taken into orthopantomogram, modified townes's view, skull P-A, and sometimes computerized tomograph, and examined 25% radiographic changes into partial condylar resorption, arthritic changes, deviated condylar fragment, double condyle formation, and only ankylosis, which was double incidence in Dr. Nam's cases.

Dr. Nam's technique in terms of oblique osteotomy, interosseous wiring extraorally, and replantation has been employed in high level condylar fractures⁵²⁻⁵⁴⁾. Several reports from Dr. Nam have been successful results after open reduction since 1975. One of the advantages of Nam's technique to treat patients is that can easily operate on patients with those fractures due to good vision and optimal anatomic reduction I guess.

Boyne reported the good results in 35 cases after free grafting technique of traumatically displaced mandibular condyle⁵⁵⁾. That technique similar to Dr. Nam's, also, in extreme cases of comminution or traumatic loss of the condylar height of the ramus. Maxillomandibular fixation were maintained for 3 to 4 weeks. But, slight resorption of the condyle, condylar change with minimal was observed.

This resorptive tendency occasionally produced a slight flattening of the condyle with no occlusal discrepancies. In my study almost cases were maintained in maxillomandibular fixation for weeks according to concept of early mouth open exercise as possible, and some condylar bone resorption and posterior proximal segment deviation were noted.

Rigid osteosynthesis of the condylar fracture is contraindicated due to a relatively minimal aberration of the configuration of the condyle in comparison to the original one will often lead to resorption and dysfunction along with involvement of the contralateral joint. But, lower level of condylar fractures were recommended rigid fixation or lag screw for stability of early mouth opening⁷.

V. SUMMARY

79 surgically managed mandibular condylar fracture patients included the 25 patients treated with Dr. Nam's method were analysed the postoperative results in Oral and Maxillofacial Surgery, School of Dentistry, Wonkwang University since 1993 to 1995. Mean patient's age is 32.5 years (range, 8 to 65 years), and follow-up periods were a minimum of 3 months to 28 months. 19% condylar fractures were associated with mostly symphysis portion. According to the patient's age, severity of condylar fractures, clinical signs and symptoms, radiographic findings, treatment plans had been performed. Rigid fixation have performed greatly, and then fragment removal of fractured mesial pole of proximal segment of the condylar and little cases of reshaping and eminoplasty and lag screw have been applied.

Two cases of the both condylar resorption and deviated condyle posteriorly in Dr. Nam's method. None of infection or necrosis signs

of treated condyle surgically.

In my opinion, whenever possible, displaced condylar fracture can be managed surgically with rigid fixation, but not Dr. Nam's method. Usually if perform the surgical management of condylar fractures you should maintain maxillomandibular fixation for 2 weeks, or more and has to follow-up functional mandibular exercise should be kept continuously.

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