

## CONSERVATIVE MODIFIED METHOD FOR TREATMENT OF RECENT UNILATERAL CONDYLAR FRACTURES

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### ABSTRACT

**Objective:** The purpose of the present study is to analyze the outcomes of conservative and modified method for the treatment of recent unilateral condylar fractures.

**Material and Methods:** The study was conducted by the Department of Oral and Maxillofacial Surgery at District Head Quarter hospital, Abbottabad. A total of 28 patients with unilateral condylar fracture was included in this study, where 12 patients are treated with modified method while 10 with conservative method. Moreover, 6 patients dropped out during study period. Post-operative jaw movement, pain and occlusion patency were analyzed as Intra incisal distance in mm, pain was recorded by patient response yes or no.

**Results:** Modified treatment group revealed that there is notable increase in mouth opening. Mouth opening prior to irrigation lavage of joint was 15-18 mm, which increases to 24-30 mm. A day after irrigation lavage, there is increase in opening at each visit and increase opening incisal edge to incisal edge 42 mm achieved at 6 month after injury. Whereas, in control group mouth opening ranges 11-20 mm, mean opening is 17.5 mm before treatment and 38 mm mean opening ranges from 33-42 mm 6 month after injury. The joint pain considerably decreased in modified treatment group from 96% before start of treatment to 60% at day one after treatment and 34% one month 19.6% and 12% respectively Three and six months after treatment no remarkable difference in pain in conservative treatment group. Ninety three percent experience pain before treatment, after three months of treatment pain decreases in 55% of patients, but there is remarkable difference between pre-treatment and 6 months after treatment, i.e., 34%.

**Conclusions:** Modified protocol with irrigation and steroid injection is a safe treatment modality for fresh condylar fractures. The final outcome is more or less is same for both groups. However, the modified treatment group shows the early, quick recovery and jaw function as well as decrease pain duration with recent condylar fracture than conventional treatments.

**Key words:** condylar fracture, unilateral, modified treatment method, pain.

### INTRODUCTION

In the contemporary dentistry, maxillofacial fractures are ranked as the second most common fractures after RTA<sup>1</sup>. For years Jaw exercises, rehabilitation and intrer maxillary fixation (IMF) is the main stay of conservative treatment for condylar fractures<sup>1-4</sup>. Despite of the fact that there are lots of controversies on treatment of condylar fractures throughout the world but the conservative treatment for condylar fractures re-

main same during last 70 years<sup>2,3,5,6</sup>. Analysis illustrates that Positive results of conservative treatment can be achieved with IMF, although normal recovery some time need prolong and disturbing rehabilitation<sup>2,3</sup>. According to Elis, Mandibular movement limits after the IMF procedure<sup>7</sup>. Consequently, it was called for that a treatment which brings smooth recovery for condylar fractures is studied. Arthrocentesis is the method used to irrigate the joint to relief the pain and dysfunction of TMJ<sup>8-11</sup>. The result of superior joint compartment is favorable for different joint problems<sup>5-6,8</sup>. Corticosteroids are potent anti-inflammatory agents they will reduce the inflammation within the joint, also relives pain and also improve the function of TMJ<sup>5,8,11</sup>.

After a methodical scrutinization, we experiment-

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ed with a modified technique of conservative treatment for condylar fractures, that includes early joint lavage of superior joint compartment with normal saline. This was followed by steroid injection in superior joint compartment (SJC). After the procedure, patients are persuaded to move the jaw followed by exercises after achieving the occlusion with heavy elastics only during night.

In this study, we tried to find out the results of our modified conservative method with SJC lavage and steroid injection with the conventional IMF for patients having recent unilateral condylar fractures.

## METHODS AND MATERIALS

This study was conducted at District Headquarter Hospital, Abbottabad from January 2013 to July 2015. Twenty eight (28) patients were taken into account in this study, who were experiencing with unilateral condylar fractures, with ages ranged from 12 years to 56 years and mean age is 28.3 years. Out of 28 patients, ten patients were females and eighteen were males. Six patients were dropped out from study as they did not come for follow ups including two females and four males. In this study, only patients with unilateral condylar fractures are included and patients with other associated injuries and fractures are excluded. It was noted that time period, patients took to report to oral and maxillofacial surgery department after injury ranges is from 1 to 7 days. The mean time from injury to first presentation was 3.36 days.

The patients are divided into two groups according to treatment methods employed. Group one included twelve patients in which supra joint compartment irrigation (SJI) was done and group two included ten patients in which only conservative treatment (CT) was given. However, all twenty-two patients were administered with 200 mg Brufen tablet three times a day for three days at first visit. The patients allocated for SJC group were administered, Irrigation lavage of injured TMJ supra joint compartment with normal saline and dexamethasone injection is done in SJI group at first visit. The procedure is performed by blocking auricular temporal nerve with 2.2 ml local anesthesia injection of lignocain. A 22 G disposable needle is inserted in supra joint compartment and inject 2 ml solution of normal saline in SJC to distend the compartment, the fluid then aspirated. This

process is done for four to eight times on every joint. The solution was changed two to four times during this process. Finally, after aspiration of normal saline solution one ml 2 mg dexamethasone was injected in SJC. Arch bars are placed and occlusion achieved by heavy elastics and patients are instructed to place them at night for two months. The movement of mandible is free during the day time. All patients are instructed to perform self physiotherapy until the range of mouth opening achieved up to 35 mm.

The CT group is treated with conservative IMF fixation for two weeks by tie wires with arch bars after achieving the occlusion after two weeks of IMF jaw movement free during day time and heavy elastics used for correct occlusion by patient at night for two months. All patients were instructed to perform self physiotherapy for jaw movement until range of mouth opening achieved to 35 mm.

Range of mouth opening was calculated as intraoral distance (mm) in both groups. Presence of pain during, chewing, mouth opening, excursion and protrusion of jaw, was recorded by patients response as yes or no. In SJI group, range of mouth opening and presence of pain, recorded at first visit one day and one week after procedure and one month, three month, six month after injury. In CT group, range of mouth opening and association of pain, were clinically recorded at first visit and one month, three months and six months after injury.

Pre and post treatment cast models were taken to compare the occlusion before and after treatment.

In all cases Orthopantogram and reverse townes view of patient were taken before treatment. Location of fracture and position of condylar fragment were classified using standard classification techniques<sup>15</sup>. Follow up OPG were taken after one month, three month and six months after treatment, and were compared with pre-treatment radiographs.

## RESULTS

The data collected for SJI group reveals that there is notable increase in mouth opening. The mouth opening prior to irrigation lavage of the joint was 15 to 18 mm, nevertheless mouth opening increased to 24~30 mm one day after irrigation lavage of the joint space with normal saline followed by dexameth-

asone injection. There is increase in opening at each measurement on every visit and mean opening incisal edge to incisal edge 42 mm is achieved at final visit at sixth month after injury. Correspondingly in CT group mouth opening ranges 11 to 20 mm, mean opening is 17.5 mm before treatment to mean opening of 38 mm ranges from 33 to 42 mm six month after injury.

The study reveals that at one month and three month after injury, range of mouth opening is higher in SJI group then in CT group. After one month, the average range of mouth opening in SJI group are 33 mm as compared to that of CT group average range of mouth opening is 24 mm. After three months, the average range of mouth opening in SJI group are 36 mm, whereas, in CT group, this reading are 27 mm. After six months, the final average mouth opening achieved in SJI group was 42mm, whereas, mouth opening average for same period for CT group was 38 mm. The joint pain considerably decreased in SJI group from 96% before start of treatment to 60% at day one after irrigation and dexamethasone injection. Pain is greatly decreased after one month of treatment to 34% when we compare it with pre-treatment data, pain continues to decrease to 19% after three months period and to 12% at six months of treatment. In CT group, there is no remarkable difference in pain, it decreases with time. 93% patients experienced pain before treatment, after three months of treatment pain decreased to 55%. But there is remarkable difference between pre-treatment and six months after treatment i.e., 34%. Disturbed occlusion was seen in 86% patients i.e., 19 out of 22 patients before treatment. There is poor posterior segment contact, anterior open bite is not present in most of the cases. In these two patients, with minor contact discrepancies of posterior segment in SJI group and one patient in CT group after six months of treatment were observed. The level of fracture shown in pre-treatment radiograph out of 22, 13 joints shows condylar head fractures, 5 joint shows sub-condylar area fractures and in 4 joint there are neck of the condylar fracture. Dislocation of the fracture part is present in 12 joints. Sclerotic changes and slight change in shape of condylar is observed in both groups after six month of treatment, no ankylotic changes seen.

**DISCUSSION**

A conservative modified treatment method is used which includes supra joint space irrigation and steroid injection for fresh condylar fractures patients. This method result in decreased symptoms and improve function of fractured condyle patients. The range of mouth opening is greatly increased in SJI group one day after treatment and its continued to improve with passage of time, during follow-up period. The average openings are 36 mm in SJI group after three months of trauma, whereas, the average mouth opening in CT group was 38 mm after six months of treatment. IMF for two weeks may have effect on jaw movement in CT group. It is evident from previous studies that 40 mm+3 is achieved in six months to twelve months time, the same result achieved after surgery as by conventional treatment<sup>8,10,11,12</sup>. We are convinced on that the early improvement in SJI group

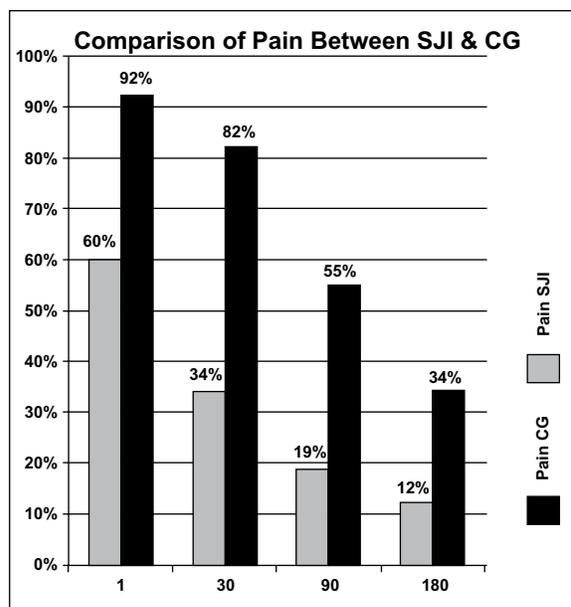


Figure 1: Comparison of pain between SJI and CG

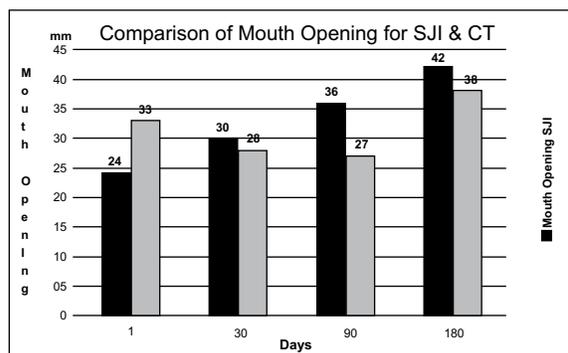


Figure 2: Comparison of mouth opening for SJI and CT

is due to irrigation and dexamethasone anti-inflammatory properties. The Complain of pain in SJI group decreases on every follow-up visit. Whereas, 78% patient complaining of pain in CT group after one months. It has been observed that pain is decreased with the passage of time in this group. By these findings we observed that joint pain relived earlier in SJI group, joint pain is a major complain in 6-15% of patients after conservative treatment in former studies after one year<sup>2,3,4</sup>. Nitzan introduced intra-particular irrigation for the first time and their result for TMJ dysfunction is documented<sup>13</sup>. It is believed that irrigation washed out the inflammatory products present in the joint space of disfunctioning TMJ. There are some arguments on the unfavorable effects of steroids on bony joint surfaces. Successful clinical trials for the treatment of TMJ pain and dysfunction are doucoumented<sup>7,12-14</sup>. The role of non-steriodal anti inflammatory drugs when used with joint irrigation reduced inflammatory reaction in clinical trials. Brufen in SJI group for three days may reduce the joint pain related to joint fracture. However, it is not that effective for CT group. The frequency of malocclusion is 17.2% to 39% at over one year after conservative treatment<sup>7-15-16</sup>. In the present study, after six month slight malocclusion was seen in four joints 40% in CT group and three joint 25% in SJI group. Remodeling of fracture condyle depend on age of patient. In children, minor fragment is resorted totally and remodeling activity are higher than the adult patients<sup>3,4</sup>. In adults, remodeling does not restore the fractured condyle completely. Condyle deformation is present because of partial restoration of fracture fragment of condyle. No ankylotic changes or other radiographic changes except condylar deformation and slight sclerotic changes on radiograph. Thus, the effect of irrigation and dexamethasone were appear to be minimal on remodeling process of fractured condyle. Worsening of clinical symptoms considered as complications not observed during and after treatment.

## CONCLUSIONS

The modified protocol with irrigation and steroid injection is a safe treatment modality for fresh condylar fractures patients. The final outcome is more or less is same for both groups. However, the irrigation and steroid group shows early and quick recovery of jaw function and decrease the pain duration in patients with recent condylar fractures when compared with conventional treatment along with two weeks IMF.

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