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Physiotherapy Management of Post Operative Case of Temporomandibular Joint Ankylosis: A Case Series

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Abstract

Temporomandibular joint (TMJ) ankylosis involves fusion of the mandibular condyle to the base of the skull. Surgical treatment is the only choice of treatment in this condition. One main drawback is that despite of extreme care during surgery, facial nerve get damage. The present study aims to determine the effect of electrical stimulation & facial exercises for improving the motor function of facial nerve & mouth opening exercises in patients with reduced mouth opening. The commonly used outcome measure was House Brackmann Score & Maximum mouth opening (MMO). Both the parameters showed improvement by the end of the intervention program.

Keywords: Temporomandibular Joint (TMJ) Ankylosis; House Brackmann Score & Maximum Mouth Opening (MMO).

Introduction

Temporomandibular joint (TMJ) ankylosis is usually seen during the first decade of life. The most common etiology of this condition is trauma; other causes may include infections from the middle-ear, inflammation, tuberculosis, etc [1]. During growth period, it can cause gross facial deformities especially, when not identified in time or if treatment is delayed. Surgical treatment is the only choice of treatment in this condition. The approach for the joint is varied; however, preauricular incision and its modifications are mostly preferred.

One main draw back in this approach is the Facial nerve and its branches, which courses along the entire length of the incision. Facial nerve is one of the most vulnerable anatomic structures that should be given utmost importance while performing the surgery for TMJ ankylosis. Despite extreme care taken during the procedure, the facial nerve may get affected [2]. Most frequently involved are the temporal and zygomatic branches leading to weakness of frontal and orbicularis oculi muscle. Therefore, identification, evaluation, and follow-up of this surgical complication are very important. Among the clinical methods employed for evaluation of frequency and degree of nerve injury, the House-Brackmann grading system appears to be quick, comprehensive, and widely used [3].

In this study we treated two postoperative case of TMJ ankylosis, both were suffering from facial palsy and reduced mouth opening.

The decreases in Temporo-mandibular joint mobility were mobilized by forced passive movements & manipulations to permit more mouth opening.

Facial exercises & electrical stimulation were used for the recovery of facial palsy.

Method

The case series were conducted on two young subjects, with the history of TMJ ankylosis. They both were treated surgically by gap arthroplasty. Both the patients were having complain of reduce mouth opening & loss of one side facial movements.

The study was conducted in the out patient department of subharti college of physiotherapy, Subharti University, Meerut.

Before the treatment sessions, mouth opening was assessed as the inter-incisal distance as measured

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from the mesio-incisal edge of the upper left central incisor tooth to the mesio-incisal edge of the lower left central incisor tooth. The measurement was made using a geometric divider and scale and was recorded in millimeters [4].

Temporomandibular joint mobilization was given by Antero-inferior glides to improve jaw depression; lateral glides for improving mandibular deviation with joint distraction were done. Patients were also taught home exercise programme to maintain the joint in distraction by placing ice-cream sticks between the jaws and increasing one by one to provide stretch and maintaining for 3-5 minutes for 2-3 times a day [5,6].

For evaluation of degree of facial nerve injury, the House-Brackmann Grading system were used.

Facial exercises and electrical stimulation were used to stimulate & recover the function of facial nerve. Patients were also asked to do facial exercises at home, infront of the mirror [7,8].

Treatment was given six days per week for three weeks.

Out Come Factors

1. Measurement of maximu mouth opening(M.M.O) in mm. before & three weeks after the treatment.
2. House brackmann score. before & three weeks after treatment.

Subject 1

1st subject was 18 years old female with the known case of tubercular meningitis. There was ankylosis of left TMJ with degenerative changes. There was also history of chronic infarct of left middle cerebral artery territory & her taste sensation was intact.

On assessing her twelve days after surgey her mouth opening was 18mm and her House–Brackmann score was Grade V(severe dysfunction).

After three weeks of the treatment her mouth opening increases to 24mm & House–Brackmann score becomes Grade II (mild dysfunction).

Subject 2

2nd subject was 22 years old male patient with the history of road traffic accident. There was ankylosis of right TMJ due to trauma.

On assessing him fifteen days after surgey his mouth opening was 24mm and his House–Brackmann score was Grade IV(moderately severe dysfunction).

After three weeks of the treatment his mouth opening increases to 33mm & House–Brackmann score becomes Grade II (mild dysfunction).

Results

MMO in MM Pre & Post Treatment

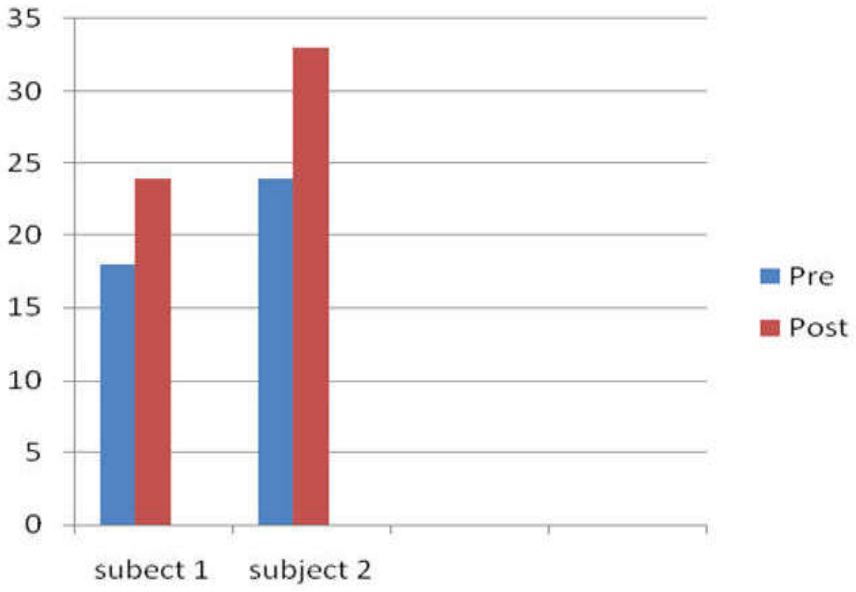


Fig. 1:

Fig. 2:

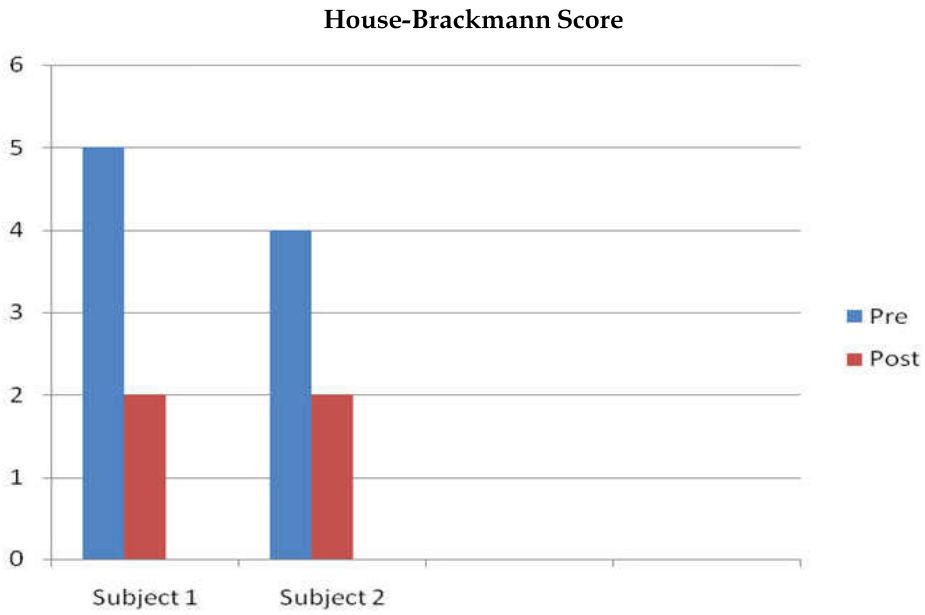
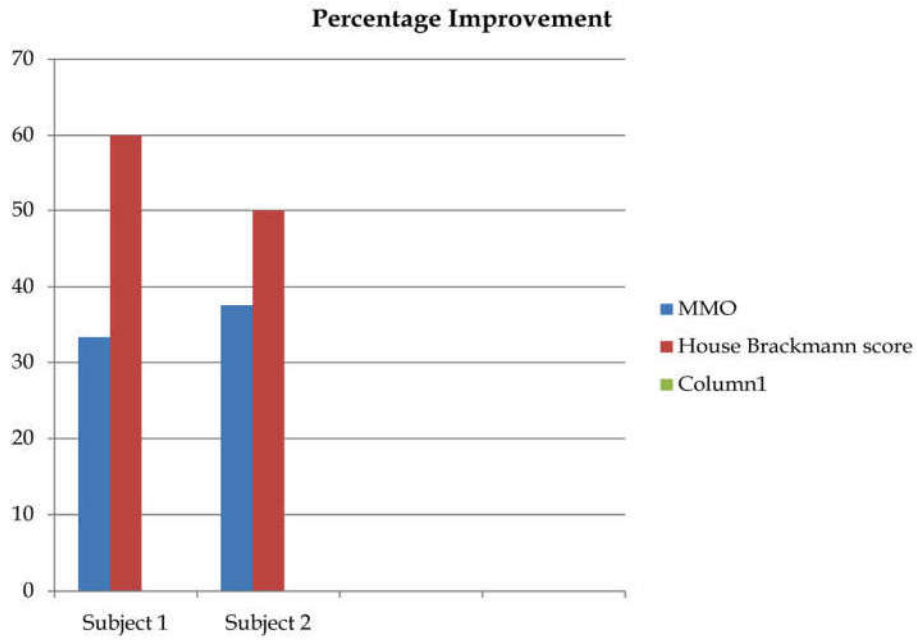


Fig. 3:



Discussion

The case report was conducted on two subjects one female (18 years) & one male (22 years) with the complain of reduce mouth opening and inability to do one side facial movements after gap arthroplasty for treating TMJ ankylosis.

The subjects in our study demonstrated the improvement in mouth opening after three weeks of mouth opening exercises. Our result is in accordance with Vijayakumar M, Priya D who studied role of Physiotherapy for improving mouth opening & tongue protrution in patients with Oral Submucous Fibrosis [5].

There was also improvement in House–Brackmann scores in subjects after giving electrical stimulation and facial exercises. This was also supported by Tucany *et al.* who noted that the addition of Electrical Stimulation to physical therapy and corticosteroids significantly improved House–Brackmann scores in subjects with acute Bell's palsy [9]. And LM Pereira et al who performed a systematic review & found Facial exercise therapy is effective for facial palsy for the outcome functionality [7].

According to Nogueira *et al.* study, out of the 9

patients in whom gap arthroplasty was carried out, 2 patients had Grade 4 injury of which 1 patient recovered to Grade 3 after 1 week, Grade 1 after 1 month. The second patient showed no recovery after 1 week; however, recovered to Grade 2 after 1 month and Grade 1 after 3 months. In contrast, in this study, out of 32 joints in which gap arthroplasty was performed, 2 patients had Grade 4 facial nerve injury after 24 h of surgery which recovered to Grade 3 injury after 1 week and remained so after 1 month. However, 3 months later it recovered to Grade 1 [10].

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