



Facial Palsy Secondary to Mandibular Condyle Fracture Surgery. A Physiotherapy Approach Case Report

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Abstract

There remains controversy of efficacy between surgical and nonsurgical management of mandibular condyle fracture. Generally, there is consensus in operating on significant dislocation and displacement cases. Even though different approaches have been studied to minimize the side effects, facial palsy frequently appears secondary to intervention, commonly diminishing by itself in a period of 6 months. Even though relatively short-term, how do we manage the patient during this period? Can physiotherapy help in recovery? The purpose of this case report is to present the clinical and photographic evaluation and management of a woman who suffered a facial trauma resulting in mandibular condyle fracture with angulation and luxation when the posterior surgery treatment results in a facial palsy. One-year follow-up results are also presented.

Keywords: Facial Palsy; Mandibular Fracture; Rehabilitation; Physical Therapy; Psychological Distress

Abbreviations

FN: Facial Nerve; FNP: Facial Nerve Paralysis; TMJ: Temporomandibular Joint; CT: Computed Tomography.

Introduction

Mandibular fractures are the second most common fracture in the face region, second only to nasal fractures [1]. The main causes for this fracture are car accidents, personal violence, falls or bike falls [2]. Despite this high prevalence, there is still controversy on how to manage it. The literature reviews different ways to manage them [3,4]. The doubt exists due to evaluating the benefits or the possible consequences of surgical treatment compared with non surgical treatment. In the last few years there has been more and more consensus on operating on the cases with huge angulation or deviation of the fragments and cases with a malocclusion [5,6].

The open techniques are compared with each other to determine which is safer. The most common consequences of this kind of surgeries are: facial nerve injuries, salivary fistula, frey syndrome, malocclusion or problems with scars. Authors consider that there is a non negligible range from 3.2 to 30% of a postoperative incidence of facial nerve injury [7]. This range variability is caused because the different approaches have different probability risk of injuring the nerve depending on how close they go to the nerve. The surgeon's experience is important too, papers suggest that 3 or more years of surgeon's experiences considerably reduces the risk [6].

This secondary facial palsy, similar to other etiologies of facial paralysis, is considered to diminish by itself in a period of 3 to 6 months, without rehabilitation treatment needed, with almost no permanent paralysis cases [8,9]. Because of the expected sponta-

neous recovery, the medics do not usually do a proper follow up, assuming that functional recovery will happen without rehabilitation and disregarding other patient levels like the emotional, psychological or aesthetic level.

The House-Brackmann [10] grading scale is the most commonly used tool to classify and assess the degree of the facial weakness. Here we report a grade V paralysis case secondary to a surgery of condyle mandibular fracture.

Case presentation

A 23 year-old woman attended our physiotherapy practice two weeks after having undergone emergency surgery of a mandibular right condyle fracture after falling from a bicycle.

The X-rays and CT scan showed a right condyle fracture with deviation and angulation of the fragment. No other structures showed damage. The surgeons decided to operate 2 days after the fall. The huge deviation of the fragment meant they had to undertake two different surgical approaches. They used a preauricular approach and a cervical approach (Risdon) in order to perform the condyle replacement and osteosynthesis fixation. They supported the surgery with an intermaxillary block (Figure 1).

branches were preserved. No specific medical treatment was prescribed. She was only asked to take “take care” measures with her eye.

On the anamnesis she reported that she wanted to know what she could do to accelerate the recovery process. She was worried about the possible duration of the palsy and anxious about whether it could be permanent. Apart from the paralysis in the expression face muscles, she was having some annoying postoperative sensations and wanted to treat them. She had sensations like “water in the ear”, dry mouth, dry eye, and difficulty sleeping due to posture but no pain at that point. She could only close the eye slowly with effort, right eye spontaneous blinking was almost nonexistent. In the exploration of muscle activity, she had no movement on the forehead, eyebrows, cheeks, nostrils and chin. She could close the lips lightly in the kiss posture with effort. For the activities of daily living examination, the patient showed some problems in talking, eating and drinking. There was deformation in repose and the corners of the mouth were unaligned at rest. It was determined as a grade V paralysis on the House-Brackmann scale (Figure 2). The sensibility given by facial nerve on the periphery and posterior part of the ear was also altered. She had an edema on the parotid and mandibular angle region.

At the second visit, without the intermaxillary blocks, the TMJ was assessed with the outcomes of 16 mm of active opening mouth, 7 mm in lateral deviation to the right and 2 mm in lateral deviation to the left with pain in the end on range movement.

As clinical guidelines [11] do not offer recommendations for physiotherapy treatment due to insufficient evidence or low-quality trials supporting it, the treatment was consistent with Evidence Based Practice (EBP) which considers the best research evidence available integrated with the clinical expertise and patient’s values [12].

The physiotherapy treatment aims were to normalize the facial nerve function in the least time possible with the best outcomes possible: facial symmetry, effective medical emotion expressions, proper eye function like blinking or good humidity; to avoid adherences on the scar tissue; to improve occlusion and function of TMJ with better outcomes in mandibular movements: eating, blowing, swallowing or talking. With the final goal to return the patient to her daily routines: work-sport-study, with good quality of life.

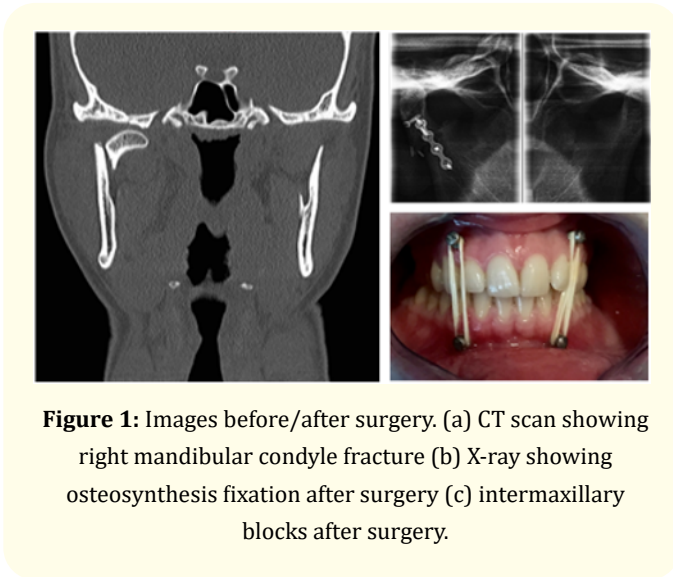


Figure 1: Images before/after surgery. (a) CT scan showing right mandibular condyle fracture (b) X-ray showing osteosynthesis fixation after surgery (c) intermaxillary blocks after surgery.

The patient was discharged from hospital three days later with a diagnostic of right facial palsy with complete paresis of the frontal branch and upper buccal part of the facial nerve, and a light paresis in the zygomatic branch. The marginal and the buccal lower



Figure 2: patient facial movements two weeks after surgery showing right facial palsy. (a) no right movement raising eyebrows (b) inactivity of procerus muscle (c) inability to smile (d) softly closure in labial orbicularis muscle (e) incomplete eye closure.

The resultant management program was conducted over 6 months with 2 one-hour sessions per week during the first 3 months and 1 session every 2 weeks during the last 3 months. The program included passive cranio-facial manual techniques, neurodynamic slides, myofascial release, active-assisted movements of facial muscles, isometric jaw exercises and a home exercise program.

Discussion

In this case study, the patient showed a total facial palsy recovery classified as Grade I of House-Brackman scale, after 3 months and the total recovery of TMJ function after 6 months (Figure 3). The patient could return to work and studies after 4 months and because of fear, she returned to sports after a year.



Figure 3: Evolution process during physiotherapy program. (1) first month, (2) second month, (3) third month. (4) one year follow up; (a) kissing, (b) raising eyebrows, (c) smiling showing teeth.

Even though total spontaneous recovery timing is estimated at 6 months, patients generally do not have any medical support or follow up assistance during that period. The medics do not usually do a closer follow up on the patients assuming that the recovery will happen without rehabilitation and disregarding other patient levels like emotional, psychological or aesthetic level [13], and taking no consideration of the length of this time. Patients experience fears and concerns during their recovery and anxiety regarding the management and prognosis of the injury, which negatively interfere and affect their daily lives. If the patient has catastrophic attitudes, they may become depressed, which could slow or stop recovery [14].

Usually the studies never report any case of permanent paralysis but a recent review of almost 3 hundred patients found a 5% of permanent paralysis [3]. One of the criticisms of some articles is that the examiners who evaluate the facial nerve are always the surgeons who did the intervention. Obviously it would be better for independent observers to do this [6].

Taking into account this possibility of permanent paralysis cases and regarding psychological aspects of patients too, it would be interesting to include physiotherapy intervention by means of rehabilitation techniques and patient education to support this process [15].

Conclusion

Facial Palsy is a common sequelae of mandibular condyle fracture surgery. Most recover by themselves in a period of 6 months. Some cases take a year to recover and 5% are permanent. Patients experience concern, anxiety, fear or depression during this recovery period apart from the annoying disabilities of the face. It seems that physiotherapy can help these patients to assume greater control in their own recovery, resulting in an improvement of the physical function, an increase in self-esteem, personal satisfaction and better quality of life. While there are no clinical guidelines that include physiotherapy in the rehabilitation of facial paralysis, it seems that the best way to adapt rehabilitation programs properly is by following Evidence-Based Science.

In our conclusion more studies are needed including qualitative assessment as well as quantitative and patients' feelings should be considered, not only cost effectiveness, when best procedures or management are evaluated. Patients appreciate guidance during the recovery process.

Conflict of Interest

Consent was obtained by all participants in this study. All authors have declared that no financial support was received from any organization for the submitted work and they have no financial relationships or activities that could appear to have influenced the submitted work.

Bibliography

1. Karthik Ragupathy and i Pasupathy Sanjay. "Incidence, Aetiology and Pattern of Mandibular Fractures in Pondicherry". *Journal of Evolution of Medical and Dental Sciences* 4.104 (2015): 16946-16950.
2. Zachariades Nicholas., *et al.* "Fractures of the mandibular condyle: A review of 466 cases. Literature review, reflections on treatment and proposals". *Journal of Cranio-Maxillofacial Surgery* 34.7 (2006): 421-432.
3. Rozeboom AVJ., *et al.* "Open treatment of condylar fractures via extraoral approaches: A review of complications". *Journal of Cranio-Maxillofacial Surgery* 46.8 (2018): 1232-1240.
4. Boffano Paolo., *et al.* "Current opinions on surgical treatment of fractures of the condylar head". *Cranio-maxillofacial Trauma and Reconstruction* 7.2 (2014): 092-100.
5. Croce A., *et al.* "Transparotid approach for mandibular condylar neck and subcondylar fractures". *Acta Otorhinolaryngologica Italica* 30.6 (2010): 303-309.
6. T Kanno., *et al.* "Does a Retromandibular Transparotid Approach for the Open Treatment of Condylar Fractures Result in Facial Nerve Injury?" *Journal of Oral and Maxillofacial Surgery* 74.10 (2016): 2019-2032.
7. Bruneau Stéphane., *et al.* "Facial Nerve Injury and Other Complications Following Retromandibular Subparotid Approach for the Management of Condylar Fractures". *Journal of Oral and Maxillofacial Surgery* 76.4 (2018): 812-818.
8. Moin Ayesha., *et al.* "Facial nerve injury in temporomandibular joint approach". *Annals of Maxillofacial Surgery* 8.1 (2018): 51-55.

9. Ravikumar Chandini and i Mimansa Bhoj. "Evaluation of post-operative complications of open reduction and internal fixation in the management of mandibular fractures: A retrospective study". *Indian Journal of Dental Research* 30.1 (2019): 94-96.
10. Reitzen Shari D., *et al.* "Significance and reliability of the House-Brackmann grading system for regional facial nerve function". *Otolaryngology - Head and Neck Surgery* 140.2 (2009): 154-158.
11. Baugh Reginald F., *et al.* "Clinical Practice Guideline: Bell's Pals". *Otolaryngology-Head and Neck Surgery* 149 (2013): S1-27.
12. Rosenberg William and i Anna Donald. "Evidence based medicine: An Approach to clinical problem-solving". *BMJ* (1995).
13. Robinson Mara Wernick and i Jennifer Baiungo. "Facial Rehabilitation: Evaluation and Treatment Strategies for the Patient with Facial Palsy". *Otolaryngologic Clinics of North America* 51.6 (2018): 1151-1167.
14. Walker DTT., *et al.* "The psychosocial impact of facial palsy: Our experience in one hundred and twenty six patients". *Clinical Otolaryngology* 37.6 (2012): 474-477.
15. Butler., *et al.* "Facial palsy: What can the multidisciplinary team do?". *Journal of Multidisciplinary Healthcare* 10 (2017): 377-381.

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