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A Wrist drop case study

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ABSTRACT

Wrist drop is very common with humerus shaft fracture due to radial nerve injury. It significantly affect motor and sensory impairment of the arm and the wrist. It is a type of neuropraxia which recovers completely in five months without any surgical repair.

Keywords: Humeral shaft fracture, radial nerve injury, wrist drop

Title: A 30-year-old Male who underwent Open Reduction Internal Fixation (ORIF) due to fracture at mid-shaft level in left sided Humerus. Therefore, patient experienced wrist drop at left side. After that he completed physical rehabilitation and successfully recovered.

1. CLIENT CHARACTERISTICS

Patient is a 30-year-old man. He is a professor in a college. He is friendly, interactive in nature.

2. MEDICAL DIAGNOSIS

He was experienced with a bike accident five months earlier. He was injured at left side of his arm. He was hospitalized and X-ray showed the displaced mid-shaft humerus fracture. Pain and swelling were present at affected site. Therefore, it was corrected with ORIF surgical procedure.

3. PAST MEDICAL HISTORY

Non-diabetic, non-smoker and non-alcoholic. Good cognitive function and can follow instruction.

4. EXAMINATION FINDINGS

- Patient unable to move his wrist in post-operative phase.
- Hypersensitivity in hot and cold temperature was seen in muscles group of extensors in forearm.
- Impaired motor function in supination and pronation of forearm with elbow flexion.
- Impaired precision and prehension grip.

5. OBJECTIVE

5.1 Short Term Goal

- (a) Mobilize shoulder with limited range of motion, improve the function of trapezius.
- (b) Passive and active assisted movement performance for wrist and forearm.
- (c) To improve daily activity goal within 3 months.

5.2 Long Term Goal

- (a) To perform daily activities by hand efficiently within 5 months.
- (b) To reach normal forearm and wrist function by strengthening of muscles.

5.3 Activity Limitations

- (a) Avoided any pressure on operated site during any movement and mobilization.
- (b) Resistance exercise for shoulder and elbow did not perform until fracture healed completely.
- (c) During rehabilitation period outdoor activity was banned.

6. INTERVENTION

6.1 0-1 month

- (a) Passive stretching and range of motion exercises for wrist.
- (b) Active assisted exercise for forearm.
- (c) Faradic electrical stimulation was used for 30 mins daily for 5 days in a week. It was used to stimulate the motor points of wrist extensors.
- (d) 'dynamic cock-up splint was used to improve the postural position of wrist and it helped to prevent the contracture in flexors in hand.
- (e) Used hydrotherapy to enhance the wrist movement and grip.
- (f) Gentle mobilization for shoulder and neck muscles.

6.2 1-2 month

- (a) Faradic stimulation was used 4 days a week for 30 minutes/day. Muscle contraction was better responded.
- (b) Exercise with hand grip gel ball were performed. Active assisted finger grip training and holding object retraining program helped to initiate motor function.
- (c) Active assisted shoulder and elbow function was improved.

6.3 2-4 month

- (a) Surge Faradic stimulation created motion enhancement in progress of motor function. The dose of stimulation was 3 days/week.
- (b) Tried to regain the daily function like typing, holding, touching with finger etc.
- (c) Active assisted and active exercises tried to co-ordinate with opposite hand function. Hydrotherapy also was useful method to make easy the wrist function. Wall climbing exercise with fingers was performed.
- (d) Patient abled to comb of his hair, hold the mobile phone, close the button of his shirt at end of fourth month.
- (e) Wrist extension was fully performed against the gravity. Independent finger extension was improved though the middle finger performed lower than another finger.

6.4 4-5 month:

- (a) Faradic stimulation (Surge) for 15 mins in wrist extensors and Faradic hand bath technique (15 mins) for finger function improvement. (Dose 1-2 sitting/week)
- (b) Supination and pronation exercises for forearm, fast specific exercises, prehension and precision grip training, Hydrotherapy and daily activities training.

7. OUTCOME

- Improved sensory function at extensors of forearm.
- Improved holding object with mild to moderate weight.
- Wrist function was corrected by rehabilitation method.
- Performed daily activity's goal well.
- Co-ordination with other hand progressed.
- Finger function was restored.

8. CONCLUSION

The radial nerve injury is very common with humerus shaft fracture. Wrist drop is outcome of neuropraxia of radial nerve. Proper electrodiagnosis can measure the severity of nerve injury. Physiotherapy intervention is important to recover the wrist function without harm the surgical area. Prognosis can be monitored by systematic study.

9. REFERENCES

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