IF : 4.547 | IC Value 80.26 VOLUME-6, ISSUE-11, NOVEMBER-2017 • ISSN No 2277 - 8160

Original Research Paper Physical Medicine

FRACTURE OF RADIAL HEAD, THERAPEUTIC APROACH AND REHEBILITATION – CASE REPORT

Valentina Matijević	Asist. prof. specialist in physical medicine and rehabilitation, University Department of Rheumatology, Physical Medicine and Rehabilitation, Sestre Milosrdnice University Hospital Center,Vinogradska cesta 29, 10000 Zagreb, Croatia, Faculty of Medicine, Cara Hadrijana 10e, 31000 Osijek, Croatia
Goranka Radmilović	Specialist in physical medicine and rehabilitation, Special Hospital for Medical Rehabilitation, Daruvarske toplice, Julijev park 1, 43500 Daruvar, Croatia; Faculty of Medicine, Cara Hadrijana 10e, 31000 Osijek, Croatia
Kraljević Marija	Speech therapist, University Department of Rheumatology, Physical Medicine and Rehabilitation, Sestre Milosrdnice University Hosptal Center,Vinogradska cesta 29, 10000 Zagreb, Croatia, Faculty of Medicine, Cara Hadrijana 10e, 31000 Osijek, Croatia
Barbarić Bernarda	Psychologist, University Department of Rheumatology, Physical Medicine and Rehabilitation, Sestre Milosrdnice University Hosptal Center,Vinogradska cesta 29, 10000 Zagreb, Croatia, Faculty of Medicine, Cara Hadrijana 10e, 31000 Osijek, Croatia
Juraj Kolak	MD., Public Health Office, Zvonarska ulica 57e, 32000 Vinkovci

ABSTRACT The goal of treatment of radial head fractures is a successful functional outcome with full range of motion in elbow and without pain. Treatment can be closed in undislocated fractures, or opened, with surgical reconstruction in dislocated fractures. The most common results of radial head fractures are arthritis and permanent movement restriction in elbow so the rehabilitation and physical therapy are unavoidable factors in reversing elbow functionality. We report a case of 11-year old boy who suffered an isolated radial head fracture. After 3 weeks of immobilization and 2 cycles of physical therapy the boy still had an incomplete range of movement in the elbow with pain. The Vojta principles were aplied for elbow and hand and gave the result of full range of motion without pain. The aim of this report is to point out the importance of specific individualized approach of rehabilitation.

KEYWORDS : *Radial head fracture, Physical therapy, Vojta, Multidisciplinary approach*

INTRODUCTION:

Fractures of the radial head and the olecranon are two of the most common fractures of the elbow and together occupy more than half of the fractures that occur in the elbow.[1]

Mason-Hotckiss classification is very useful in treatment of radial head fractures. Mason-Hotckins type:
I - simple fractures with a displacement of less than 2mm
II – fractures with displacement more than 2mm
III – comminuted radial head fractures.[1,2]

It is inicated closed, conservative treatment with early motion for type I fractures and opened treatment with surgical reconstruction for type II and III fractures. The primary goal of treatment of all type of fractures of radial head is a successful functional outcome with full range of motion in elbow and without pain. This goal is very often unavailable and as a result of the fracture the most commonly is found arthritis and permanent movement restriction in elbow. Early mobilisation in stable fractures, rehabilitation and physical therapy represent the unavoidable factors in achieving the primary goal of treatment. It is desirable to carry out rehabilitation exercises while the immobilisation is still on. Until the hand is immobilisated it is possible to perform controlled movements with a fist and shoulder to maintain the scope of movement and flexibility. It is also possible to do exercises in the opposite, healthy hand, because by improving the functionality of one side of the body, we have a partial influence on the improvement of the other side.

MATERIALS AND METHODS - CASE REPORT:

A 11-year old boy injured while playing football in August 2016. He suffered a contussion of right elbow, revised by traumatologist and on the X-rays was recorded an isolated radial head fracture that involves less than one third of the articular surface with a minimal displacement of single fragment and less than 30° of angulation. The immobilization was applied for 3 weeks. He started to conduct a physical therapy in University Hosptal Center Sestre Milosrdnice in Zagreb, University Department of Rheumatology, Physical Medicine and Rehabilitation and on the first examination the limits of elbow motion were 20/120° flexion, 80° pronation and 65° supination with pain in lateral epycondil of the elbow.

In the next 10 days the physical therapy was applied:

- Magnet on right elbow – pulsed electromagnetic fileld stimulation every day for 30 minutes. The magnet has an effect on bone repair through stimulaimulation of caltification between two segments of bones, effect on ionics calcium channals as a source of improved bone healing, inhibiton of the resorptive phase on wound repair leading to an early formation of calus and through its influence on increasing the rate on bone formation by osteoblasts.[3] The main contraindications for magnetotherapy are acute tuberculosis, pregnancy, malignancy, pacemaker, digestive tract bleeding, dermatomyctosis and juvenile diabetes.[4]
- Excercises of movement and strenght for shoulder, elbow and hand every day for 45 minutes.
- Skilled finger movement excercises trained by speech therapist every day for 20 minutes. In our team the speach therapist deals not only with speech problems but also fine motor activity problems.
- Psychological therapy – psychologist was involved in therapy because the child suffered psychologically. Since the boy is a right handed and an excellent student, he was frustrated by the fact that he can no longer excel at school. The therapy was conducted every day for 30 minutes.

All treatments are prescribed by specialist physicians and conducted by professional physiotherapists.

There was the slight improvement on the control examination, the limits of elbow motion were 10/120˚ flexion, 80˚pronation and 65˚supination and the pain in lateral epycondil was still present. The same physical therapy was approved for aditional 10 days. On the re- control examination the flexion and pronation were full but the extension was lagging behind for 10˚, supination for 15˚ and the pain was still present. The Vojta principles were applied for elbow and hand.

RESULTS AND DISCUSSION:

5 continuous therapy by the Vojta principles for elbow and hand gave the result of full range of motion in elbow without pain.

The Vojta therapy, a reflex locomotion, is actually a neurophysiologic facilitation system for the whole CNS and neuromuscular apparatus and it consists of all components, in a reciprocal manner of locomotion: automatic control of posture, uprighting and aimed movements.[5] During the therapy, a specific stimulation is given to the patients in order to cause the patient's body to perform certain reflexive pattern movements. [6] Vojta described 10 zones on the arm, legs and on the body and the physiotherapist only gives a stimulation on that zones and they encourage the patterns of movement.[7,8] Through a combination of different zones and changes in pressure and extension both patterns of movement, reflex rolling and reflex creeping, can be activated.[7]

By combining the pressure variations and the angles of the pressurized zones, the therapy can be adjusted to each patient individually. Vojta's therapy affects breathing control, increasing vital capacity, achieved a control of neurovegetative reactions, allows a harmonius work of the locomotor system and prevents the development of contractures.

Therapy by Vojta principles presents a therapeutic tool that combines initial positons, zones and stimulation adapted especially for central or peripheral neurological disorders by the possibility of provoking complex muscle activity, which works synergistically on selected body parts, and modulating these synergies in time and space.

CONCLUSION:

With this case report we wnted to point out the importance of specific individualized approach of rehabilitation in accordance with patients primary injury and limitations that arising from the same. Successful rehabilitation after the fracture is considered full of movement and painlessness, and any other deviation from the above means that the primary goal is not achieved. In the present case report the effect of Vojta therapy is manifested by reaching the full range of motion in the elbow, without pain.

REFERENCES:

1. Morrey, B. F. (1995). Current concepts in the treatment of fractures of the radial head, the olecranon, and the coronoid. *JBJS*, *77*(2), 316-327.
2. Van Glabbeek, F., Van Riet, R., & Verstreken, J. (2001). Current concepts in the treatment of radial head fractures in the adult. A clinical and biomechanical approach. *Acta orthopaedica belgica*, *67*(5), 430-441.
3. Shupak, N. M., Prato, F. S., & Thomas, A. W. (2003). Therapeutic uses of pulsed magnetic-field exposure: a review. *Radio Sci Bull*, *307*(12), 9À30.
4. I.Jajić i suradnici(2000).Fizikalna Medicina i Opća Rehabilitacija, 2nd ed. Zagreb, Cro, (ch. 14, pp. 116-121), Medicinska Naklada.
5. Bauer, H., Appaji, G., & Mundt, D. (1992). Vojta neurophysiologic therapy. *Indian journal of pediatrics*, *59*(1), 37-51.
6. Khan, M. H., Helsper, J., Yang, C., & Grzegorzek, M. (2016, June). An automatic vision-based monitoring system for accurate Vojta-therapy. In *Computer and Information Science (ICIS), 2016 IEEE/ACIS 15th International Conference on* (pp. 1-6). IEEE.
7. "Vojta-therapy", [online] Available: http://www.vojta.com, Visited: October 19th 2017.
8. von Aufschnaiter, D. (1992). Vojta: A neurophysiological treatment. In *Movement Disorders in Children* (Vol. 36, pp. 7-15). Karger Publishers.