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A long term chronic fibrotic adhesion of elbow muscles alleviated by applying hivamat 200 deep oscillation therapy

Yuin-Chiau Gao, Chiung-Chi Peng, Robert Y. Peng

Abstract
Deep Oscillation® clinically is good for reducing fibrosis and scar tissues. A male, age 75, has had a painful and weakened right elbow for 35 years, which was diagnosed to be fibrotic adhesion with musculi extensor capri ulnaris and extensor digitorum communis at the right elbow. HIVAMAT® 200 (Physiomed Electromedizin AG, Germany) was applied five times a week at frequency=40 Hz; modes =5, pulse time =3, pause time=1; each treatment for 12 min; and duration of treatment = 45 days (still going). The physiological data were greatly improved: elbow strength (initial vs. post-treatment) 05.kg vs. 2.5 kg; shaking frequency, 1/15 min vs. 1/32 min; interior bending (degree^{o}), 45^{o} vs. 30^{o}; pronation (degree^{o}), 70^{o} vs. 102^{o}; adhesion relaxing sound 'Kachi!', big vs. lower; midnight pain, always vs. disappeared. Conclusively, HIVAMAT® 200 is good for the soft tissue pains or chronic inflammation that are not treatable by means of common physical therapy.

Keywords: Deep Oscillation Therapy®; HIVAMAT® 200; muscular fibrotic adhesion.

1. Introduction

The name 'HIVAMAT®' is short for a rather wordy description: (HI) Histological (VA) Variable (MA) Manual (T) Technique (HIVAMAT®). By applying to rehabilitation it has been referred as the Deep Oscillation® Therapy. Deep Oscillation®originated in Germany in 2007. HIVAMAT® 200 (Physiomed Electromedizin AG, Hutweide 10, D-91220 Schnaittach/Laipersdorf, Germany) is a massage-intensifying system which is successfully used in various areas of Physical Therapeutic Medicine (Fig. 1). Mechanically, Deep Oscillation® uses the HIVAMAT to create low frequencies of gentle electrostatic impulses that 'knead' the skin's tissue by attracting and releasing it between 5-250 times a second. Deep Oscillation® had significant and clinically relevant influence on swelling, spontaneous pain and tenderness (Johanning-Csik, 1994).

Deep Oscillation® is good for 1) anti-fibrosis; 2) reduction in bruising; 3) accelerating wound healing (dynamic wound healing) (Mikhalchik, Titkova, Anurov, Suprun, Ivanova, Trakhtman & Reinhold, 2005a; Korkina, Reinhold, Rota, Primavera & Raskovic, 2007) based on anti-inflammatory, anti-oxidant, decreasing swelling and edematous phenomena (Mikhalchik, Titkova, Anurov, Suprun, Ivanova, Trakhtman & Reinhold, 2005b) including lymph oedema (Hernández Tápanes, 2010); 4) enhancing nutrient flow; 5) detoxification treating cellulite (Korkina, Reinhold, Rota, Primavera & Raskovic, 2007); 6) stimulating collagen production and cell regeneration; 7) lifting and toning muscles; 8) improving skin elasticity; 9) anti-aging treatment for face-neck-décolleté; 10) respiratory problems (Korkina, 2005); 11) scar tissues; 12) surgery after care; 13) burns treatment (Hernández Tápanes, 2010); 14) stimulating milk flow (Johanning-Csik, 1994); and 15) sports injuries (Aliyev, 2009). A lot of experience has been accumulated with Deep Oscillation® in other indications like reducing pain, promotion of motoricity, improvement in trophicity and quality of the tissue (Aliyev, 2009). Scientifically researched frequencies can penetrate the skin tissue by 8-12 cm and have been proven to remove excess inflammatory caused by products, protein solids and lymph fluid buildup (Aliyev, 2009). The soft mode of action is the reason that in contrast to other electric and mechanical therapies it is no contraindication in immediate therapy (Aliyev, 2009).

2. Instrument Overview

Legend

1	Mains Module	2	Massage Key
3	Frequency Selector	4	Mode Selector
5	Timer	6	Intensity Control
7	Intensity Display	8	Turn-Down Signal
9	Connector Sockets	10	Patient Indicator
11	Charge Display		

Fig 1: Shows the instrument HIVAMAT® 200.

Fig 1: The outerlook of HIVAMAT® 200. a) Front panel**;** b) Gear panel. (Modified from "Physiomed Electromedizin AG").

3. Chief complaint

A male patient Mr. PX, age 75, (Pathological Record: 0075924-7, Taipei Medical University Hospital) appeared at OPD of rehabilitation on June 1, 2014, complaining about his painful right elbow unable to raise anything even as light as 0.5 kg.

He claimed about his long term (about 35 years long) of elbow weakness, painful, sour sensation with frequent loss of strength in raising anything heavier than 0.5 kg. He showed much difficulty in pronation movement (Fig. 2).

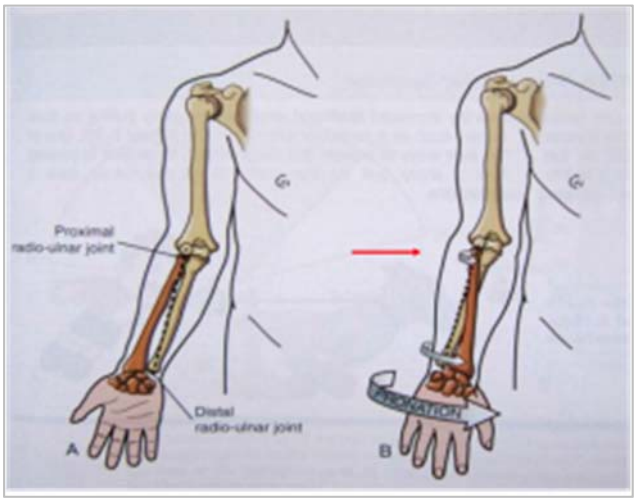

Fig 2: Schematic showing pronation movement.

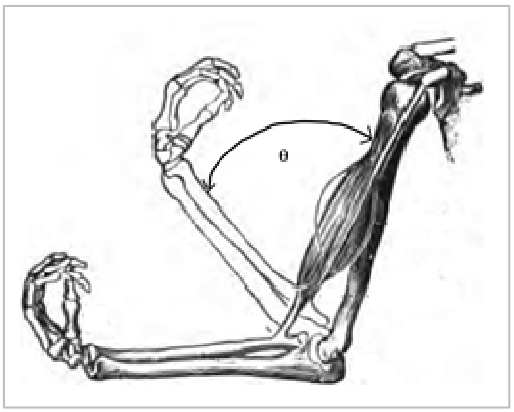

Fig 3: Schematic showing elbow interior bending movement.

(Modified from "Search elbow muscle anatomy; www.Taiwan.com/elbow+muscle+anatomy").

At the same time, he has to shake his elbow from time to time from the interior side of elbow 45º angle degree down to the exterior side of elbow to release the adhesive sensation and pain, and each time the adhered parts would utter a sound yelling 'Kachi! Kachi!' from the elbow and the frequency was very high (approx. once every 15 min). The initial accident occurred about 35 years ago (since year 1980) when he climbed up a reactor (H×D=3 m×1.8 m) in a factory, suddenly he fell down to ground when he supported himself with a single right palm widely stretched. The sudden stress caused his right palm fingers over extended and distorted, yet now painless (not shown). As mentioned, initially before treatment, he was totally unable to furnish freely elbow pronation movement (Fig. 2) and interior bending movement (Fig. 3).

4. Diagnosis

He showed adhesive capsulities of elbow. At the same time the damages with musculi extensor capri ulnaris and extensor digitorum communis at his right elbow were apparently noted (Fig. 4) which is supposed to have induced the long term chronic inflammatory adhesion of these muscles.

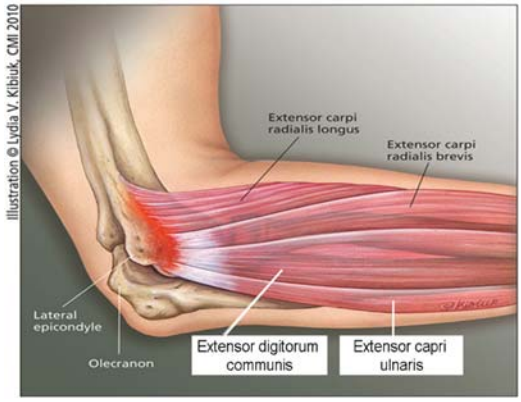

Fig 4: Schematic showing the muscles around exterior of right elbow.

(Depicted from Kibiuk, 2010). (Modified from "Search elbow muscle anatomy; www.Taiwan.com/elbow+muscle+anatomy"). The patient was hurt at musculi extensor capri ulnaris and extensor digitorum communis.

During the past seven years, he had received many times of multiple treatments before coming to our OPD. He intermittently received acupuncture, at least ten times at intervals of 4-6 months, and moxibustion at least four times since three years ago, however, all in vain.

5. Treatment

For treatment of his long term chronic inflammatory adhesion of musculi extensor capri ulnaris and extensor digitorum communis, the physiotherapist decided to apply intensive deep massage with HIVAMAT® 200. The treatment program was applied five times a week. Each time the massage frequency was set at a medium frequency of 40 Hz. The instrument modes were operated at position (mode) =5, pulse time=3, pause time=1, to yield an intense vibration. The duration for each time treatment was 10-12 min. This treatment started from December 1, 2014 until present. The prognosis was evaluated from the duration starting from December 1, 2014 to January 10, 2015. Worth noting, the therapy is still going on expecting to get better outcome.

6. Prognosis and Discussion

This patient showed much promising improvement, in particular, regarding the interior bending and pronation exercise after treated with HIVAMAT® 200 (Table 1).

Table 1: The outcome of chronic inflammatory adhered musculi extensor capri ulnaris and extensor digitorum communis after treated with HIVAMAT® 200

Parameters	Before	After
Strength (kg)	<0.5	2.5
Shaking frequency, (#/min)	1/15	1/32
Interior bending, degree, θ[a]	45º	30º
Pronation angle, degree	70º	102º
Sound 'Kachi!!	big noise	Lower sound
Midnight pain	always	disappeared

[a]Angle 'θ' shown in Fig. 3.

Technically speaking, the HIVAMAT 200™ produces its unique method of massage therapy based on the action of a pulsating, low-frequency, two-phase alternating electrostatic field generated between the practitioner's hands and client's skin (ebay net, HIVAMAT® 200 Physical Therapy, 2013).

When the HIVAMAT 200™ is applied to the patient's body, the patient's tissues (skin, connective, and muscular) will be rapidly — but gently — pulled up and down. These quickly moving and soft vibrations safely generate several effects to your body's tissues, including 1) decongestive (to reduce swelling and eliminate toxins); 2) anti-spasmodic (to relieve muscle tension and cramps); 3) normalization of tone (to improve muscle function), 4) improvement in microcirculation (to bring more blood to the region); and 5) promote better tissue integrity and nourishment (to enhance cellular metabolism) (ebay net: HIVAMAT® 200 Physical Therapy, 2014). HIVAMAT® 200 Physical Therapy positively influences inflammation and cell regeneration (Touching Well net, 2014).

Deep Oscillation® stimulates blood flow and thus prevents white blood cells building up in the vessels. So fewer inflammatory chemicals are produced (Mikhalchik, Titkova, Anurov, Suprun, Ivanova, Trakhtman & Reinhold, 2005a). This reduces the swelling, heat and redness of inflammation, but still allows healing to take place. It soothes pain and it is very relaxing. In chronic inflammation, tissues start to thicken and lose elasticity due to the build-up of fibrosis. Deep Oscillation® helps to disperse fibrosis by gently disrupting and "loosening" it. This enables the patient to gain better movement in the affected area, which, in turn, can stimulate a virtuous cycle where increased flexibility makes it harder for further fibrosis to develop and the client can get onto the road to recovery.

This selected medium and low frequencies are effective for larger area and deeper tissue (Table 1). HIVAMAT® 200 is aimed at supporting, intensifying and thus improving the effects and lastingness of manual massage techniques, such as classic massage, anti-edema therapy, vibration-intensified massage, massage in sports and manual lymphatic drainage. Due to its enormous depth effect with minimal mechanical action, the application of the HIVAMAT® 200 opens up the possibility of treating indications, with various effects to ensure the tissue receiving the massage.

It is worthy noting, resent study showed that the physiotherapy device HIVAMAT® 200 substantially suppressed both local inflammation in the lungs and redox imbalance induced by quartz in the lungs of experimental rats evidenced by the decrease of neutrophil content, protein level, and GPx activity in the bronchoalveolar larvage (BAL) fluid as well as by the increase of reduced form glutathione (GSH) concentration in the lung tissue. At the same time, HIVAMAT® 200 did not affect generalized oxidative stress in the blood. HIVAMAT® could be recommended for the treatment of acute lung inflammations of different origin in combination with conventional therapies (Mikhalchik, Titkova, Anurov, Suprun, Ivanova, Trakhtman & Reinhold, 2005b).

7. Conclusion

Conclusively, HIVAMAT® 200 should be considered when the soft tissue pains or chronic inflammation are not treatable by means of common physical therapy. Basically, massage with HIVAMAT® 200 consists of several sequences. With HIVAMAT® 200, the patient can acquire an extremely versatile massage-intensifying system depending on the frequency range selected.

8. References

1. Aliyev R. Klinische Wirksamkeit des Therapieverfahrens Tiefenoszillation bei Sportverletzungen. (Clinical effectiveness of Deep Oscillation® in the treatment of sport injuries).Sportverl Sportschad 2009; 23:1–4.

2. Hernández Tápanes S. Valor de la Terapia con oscilaciones profundas en la cicatrización de las quemaduras AB. Revista Cubana de Medicina Física y Rehabilitación_RNPS 2244- FOLIO 148- ISSN 2078-7162 Rev Cub MFR v.2 n.1 Ciudad de la Habana ene-jun. (The Value of Deep Oscillation® therapy in the healing of burns AB), 2010.
3. Johanning-Csik F. Behandlung postpartaler Brustschmerzen und spannungen mit dem Intensivierungssystem Hivamat®. (Post pregnancy related problems: plugged milk ducts, pain, healing from Caesarian section, stretchmarks). Medical Dissertation. Erlangen – Nürnberg, 1994.
4. Korkina L. Biological effects of low intensity electromagnetic fields and electrostatic massage in the model of quartz-induced acute lung inflammation. Publication in progress, 2005.
5. Korkina L, Reinhold J, Rota L, Primavera G, Raskovic D. Treatment of Gynoid Lipodystrophy (Cellulite) with Deep Oscillation®: A Pilot Clinical Study. Presented at 29th. Annual Meeting of The Bioelectromagnetics Society, Kanazawa, Japan, 2, 2007.
6. Mikhalchik E, Titkova S, Anurov M, Suprun M, Ivanova A, Trakhtman I, Reinhold J. Wound Healing Effects of Deep Oscillation. 1st. International Conference on Skin and Environment, Moscow- St. Petersburg, 2005, 71.
7. Mikhalchik E, Titkova S, Anurov M, Suprun M, Ivanova A, Trakhtman I, Reinhold J. Effects on blood parameters of Deep Oscillation. 1st. International Conference on Skin and Environment, Moscow- St. Petersburg, 2005, 59.
8. ebay net, (2013). Hivamat® 200 (Physical Therapy, ebay net, 2013).
9. Physiomed Electromedizin AG. Operating Instructions, Hivamat® 200. Physiomed Electromedizin AG, Hutweide 10, D-91220 Schnaittach/Laipersdorf, Germany.
10. “Search elbow muscle anatomy” (2014, November); www.Taiwan.com/elbow+muscle+anatomy
11. Touching Well net (2014, December). Massage that is right for you. Deep Oscillation® positively influences inflammation and cell regeneration.