

Reflections on Fibromyalgia - A New Interpretation

Antonio Ferrante¹, Alberto Ferrante², Claudia Ferrante³

¹*Odontostomatologist, master professor in Posturology University of Pisa, Univ. "Federico II" Naples*

²*Specialist doctor in Psychiatry and rehabilitation, Osteopath*

³*Physiotherapist*

Abstract

Introduction: The problem of fibromyalgia is extremely complex and evaluated in different and discordant ways by the various specialists.

Objective: Our research started from completely different bases, compared to specialized rheumatological studies, but perhaps, the possibility of looking for an explanation starting from a "clean slate", without any preconception, it allowed us to bring a partly new vision, based on our knowledge and skills, different from rheumatological ones. We wanted to show that many Fibromyalgias find their origin in swallowing dysfunction.

Methods: Our work was based on the use of devices suitable for measuring orofacial muscles (Myometer), muscle tone (surface electromyography), urinalysis to evaluate the catabolites of neuromediators and hormones produced. The results help to understand the mechanisms through which Fibromyalgia is created and worsened and indicate a way for its improvement. We evaluated 20 patients with a diagnosis of fibromyalgia, referred to our clinic for problems of the temporomandibular joints and who, according to our treatment method, required the re-education of the swallowing function before resorting to the application of a specific bite for mandibular repositioning. Inclusion criterion was the diagnosis of fibromyalgia. Exclusion criterion: presence of third or fourth degree short frenulum (extremely blocked tongue and frankly ankylotic tongue) which would not have allowed re-education of swallowing without performing a frenulotomy before the start of therapy oral rehabilitation.

Results: After four months of re-education, necessary to rebalance the tongue muscles, improvements in the general tone of the muscles were found in 16 patients. The patients, who had no or minor improvement, still had difficulty managing the muscles of the tongue. Evident improvements were obtained on the ATM symptoms (decrease or disappearance of joint noises), on the headache, with complete disappearance in the patients who had reduced the value of the contraction of the masseters, measured with the Myometer. An improvement in sleep and psychic attitude was also appreciated.

Discussion: From what has been said, it is clear that there is a beneficial effect following the recovery of the stimulation of the naso-palatine receptors. This opens up a new path for the control and disappearance of fibromyalgia.

Conclusion: Among the causes of fibromyalgia, incorrect swallowing plays an important role.

Keywords: Melatonin, Serotonin, Trigemini Nerve, Incorrect Swallow.

***Corresponding Author:** Antonio Ferrante,
*Odontostomatologist, master professor in Posturology
University of Pisa, Univ. "Federico II" Naples*

INTRODUCTION

We have extracted this definition from a specialist website. Fibromyalgia, also called fibromyalgia syndrome, is the leading cause of widespread pain syndrome, a chronic type condition associated with many other symptoms.

At the time of the visit, the pain is exacerbated if pressure is exerted on specific points and can also make it difficult for the sufferer to move. The causes of the occurrence of fibromyalgia are not yet known. At the moment, experts believe that it can arise due to a combination of genetic, infectious, hormonal factors and also following physical and psychological trauma. In practice there is no certain knowledge in the matter.

The main symptom of fibromyalgia is widespread pain throughout the body, which however can be associated with other symptoms such as asthenia, unsatisfactory night rest, headache more often with tensive characteristics, intestinal disorders such as irritable bowel syndrome (constipation alternating with diarrhea), difficulty concentrating and feeling swollen in the hands and feet (1,2,3,4). When these symptoms occur, those who suffer from it if subjected to a medical investigation do not report damage to joints, muscles or organs.

Fibromyalgia can appear gradually, getting worse over time, or it can arise after a triggering event, such as physical trauma, infection or psychological stress.

In order for the specialist to diagnose fibromyalgia, he must first make sure that the symptoms are not associated with other pathologies, also through blood tests that evaluate the autoimmune picture. Difficulty pinpointing a cause for these symptoms can be associated with and worsen anxiety and depression, which in turn can contribute to worsening chronic pain.

All the specialists find that in addition to the muscle-type symptoms there are other “accompanying” ones that are difficult to explain. In fact, the only reading capable of explaining all the symptoms, including hormonal, intestinal and psychic ones, is the one that derives them from a lack of stimulation of the nasopalatine receptors characteristic of impaired swallowing. We need to clarify some key points. The neurophysiological explanation comes from a research conducted in various animal species by Halata and Baumann (5), who had discovered the presence, at the emergence of the naso-palatine nerve (II trigeminal

branch), of the five exteroceptors most present in the human body.

At this point I must explain that the naso-palatine hole (fig.1) (defined Spot in Myofunctional therapy)(6) is considered the point of support of the tongue on the palate during physiological swallowing. In subjects presenting an incorrect swallow, stimulation of the aforementioned receptors is almost always decreased or lacking. Many are the causes of alterations in swallowing mechanics.(7). The numerically most important reason is feeding with artificial methods (8). In breastfeeding the newborn unconsciously learns to swallow with the pressure of the tongue against the palate, compressing the nipple to obtain the squeezing. In bottle feeding, the newborn is forced by the teat to a low tongue position and learns to use only the lingual muscles with a horizontal function, losing the ability to lift the tip of the tongue in contact with the palate. In this case the tongue will become inefficient for swallowing and will be replaced by the buccinator muscles. These are able to help swallowing, but cause problems both on the structure of the jaws and in even distant areas. Other causes are given by birth compressions of the hypoglossal nerve during natural childbirth and anatomical problems such as a very short frenulum and ankylotic tongue (9). If stimulation of the palatine receptors in the dysfunctional patient can only be impeded or diminished, in the patient with ankyloglossia it is completely prevented. This last cause is frequent in the fibromyalgic patient. In fact, the presence of an anatomical impediment to lift the tongue against the palate determines the often absolute absence of trigeminal stimulation with all the consequences.



Figure 1. *Nose-palatinal hole*

Let us now analyze the symptoms of the fibromyalgic patient read in the light of the alteration of the tongue function. Muscle pains are caused by widespread hypertonicity due to a lack of serotonin. This substance is produced by stimulating the second branch of the trigeminal nerve at its emergence on the palate. In previous research we have demonstrated the ability to increase serotonin production up to three times when the receptors are rhythmically stimulated for three months (10,11). Serotonin is also responsible, together with noradrenaline (produced directly by the Locus coeruleus), for the emotional aspect, for controlling anxiety and depression. Palatine receptors are also responsible for the secretion of melatonin. Again ignorance dominates. Melatonin is proposed for sleep problems, but has no direct effect on sleep. Instead, it controls all circadian rhythms, including sleep-wake rhythm. But much more important are the timed control of the production of Cortisol, Leptin and Ghrelin (the substances responsible for hunger and satiety). Thyroid control is also fundamental, as is participation in the control of immunity. It is unbelievable that there are thousands of indexed searches on its functions and that it is instead linked only to sleep. All these symptoms are related to the lack of stimulation of the palate. There are others instead linked to the altered swallowing mechanism. In the correct, physiological function, during the swallowing act, only the group of muscles that make up the tongue is activated and subsequently the pharyngeal and laryngeal muscles contract. This allows food to be ingested with the help of a negative air pressure that is generated in the pharynx. In incorrect swallowing, the tongue is unable to do its job and is replaced by the contraction of the orbicularis labii and buccinator muscles. These muscles allow you to swallow through the generation of a positive air pressure. This means that the food is swallowed together with large amounts of air. The ingested air distances the stomach favoring an increase in the production of hydrochloric acid. Ipeacidity stimulates an increase in peristalsis which has the purpose of removing the acid and pushing it into the intestine. Being produced in excess, not all the acid is neutralized and this causes a series of symptoms. Among the main ones the tendency to the so-called irritable bowel (12), to the alteration of the absorption of various substances among which iron is greatly affected by the substitution of saprophytic bacteria with acidophilic bacterial colonies, capable of sometimes producing toxins and facilitating intestinal ulcers.

We started to take an interest in fibromyalgia because almost all fibromyalgia sufferers come to our office for TMJ problems. By measuring the stomatognathic muscles during the initial visit, especially the lingual activity (Prof. Harold Gelb, one of the world's leading gnathologists, stated that a jaw cannot be repositioned if the tongue has not been treated), all patients presented, both with the Myometer and with surface electromyography, an evident hypertonia, which is precisely the main sign of fibromyalgia. Patients began with lingual re-education to facilitate subsequent comfortable use of the mandibular positioner. After the first months of rehabilitation of the swallowing function, the patients, when questioned on the persistence or otherwise of the symptoms presented at the first visit, almost always denoted an evident decrease in pain corresponding to the reduction in the hypertone values presented at the beginning of the therapy. Almost all patients had the explanation: "perhaps the improvement is due to the improvement in the weather". At six months and more the discomfort continued to improve or to disappear completely and the response of the treated subjects was almost invariably; "maybe it wasn't true fibromyalgia because fibromyalgia is incurable!"

OBJECTIVE

Our research started from completely different bases, compared to specialized rheumatological studies, but perhaps, the possibility of looking for an explanation starting from a "clean slate", without any preconception, it allowed us to bring a partly new vision, based on our knowledge and skills, different from rheumatological ones. We wanted to show that many Fibromyalgias find their origin in swallowing dysfunction.

METHODS

Our work was based on the use of devices suitable for measuring orofacial muscles (Myometer), muscle tone (surface electromyography), urinalysis to evaluate the catabolites of neuromediators and hormones produced. The results help to understand the mechanisms through which Fybromialgia is created and worsened and indicate a way for its improvement. We evaluated 20 patients with a diagnosis of fibromyalgia, referred to our clinic for problems of the temporomandibular joints and who, according to our treatment method, required the re-education of the swallowing function before resorting to the application of a specific bite for mandibular repositioning. Inclusion criterion was the diagnosis of

fibromyalgia. Exclusion criterion: presence of third or fourth degree short frenulum (extremely blocked tongue and frankly ankylotic tongue) which would not have allowed re-education of swallowing without performing a frenulotomy before the start of therapy oral rehabilitation. A group of ten fibromyalgia subjects who did not undergo therapy was the control group.

The initial values of the orofacial muscles (compressive capacity of the lips, anterior lingual thrust, contractile activity of the masseter muscles) were evaluated with a specific device, the Myometer. We reevaluated the masseter muscles with surface electromyography. We analyzed the excretion of a serotonin catabolite 5-hydroxyindoleacetic acid in the urine of patients. Serotonin, as stated above, is produced during physiological swallowing through the stimulation of the trigeminal palatine receptors, We retested the patients in the same way after four months of re-education of the muscles involved in swallowing.

RESULTS

After four months of re-education, necessary to rebalance the tongue muscles, improvements in the general tone of the muscles were found in 16 patients. The patients, who had no or minor improvement, still had difficulty managing the muscles of the tongue.

Evident improvements were obtained on the ATM symptoms (decrease or disappearance of joint noises) 14/20, on the headache 15/20, with complete disappearance in the patients who had reduced the value of the contraction of the masseters whose hypertonicity causes tension headaches (Tab.1), measured with the Myometer, compared to a group of ten fibromyalgia subjects who did not undergo therapy was the control group (Tab.2)

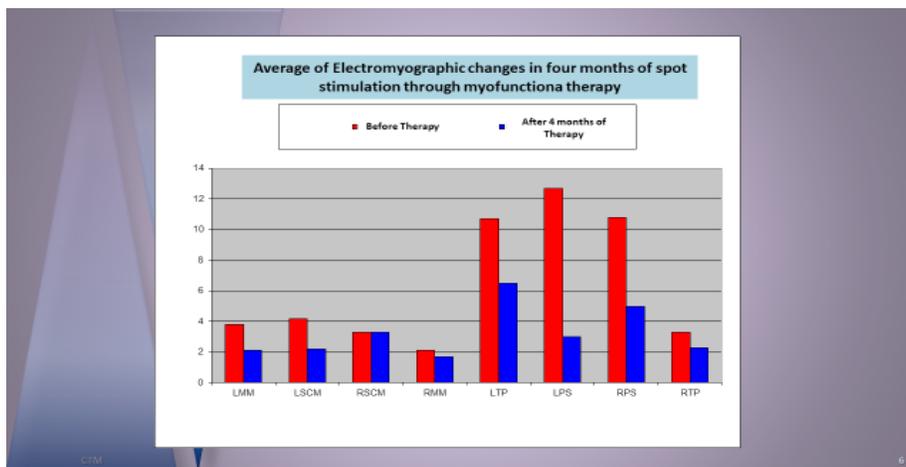


Table 1. Average of Electromyographic changes in four months of spot stimulation through myofunctiona therapy

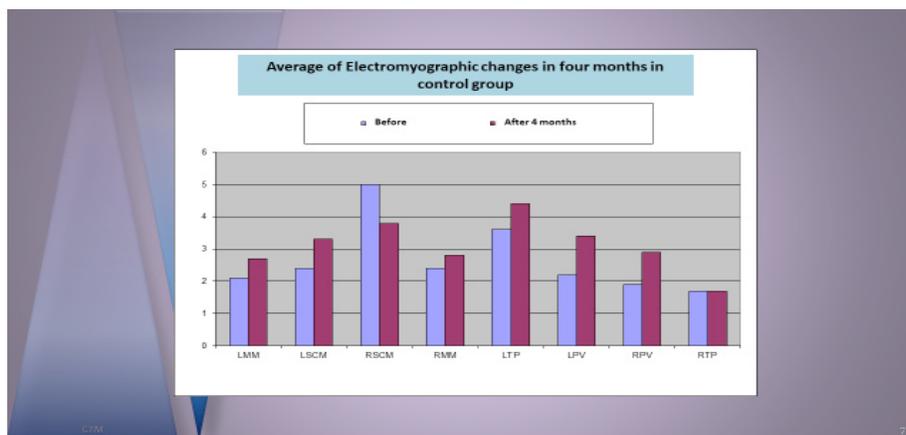


Table 2. Average of Electromyographic changes in four months in the control group

The results obtained with electromyography (Fig.2,3,4) were similar in each case to the results of the myometer. Improvement in digestive system problems, sleep and psychic attitude was also appreciated.

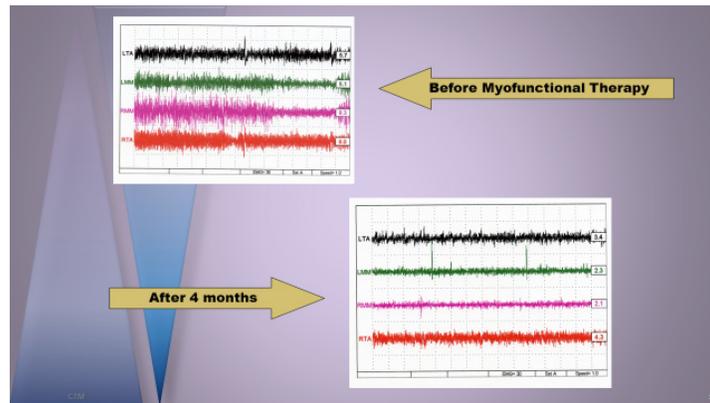


Figure 2. Emg before and after 4 months

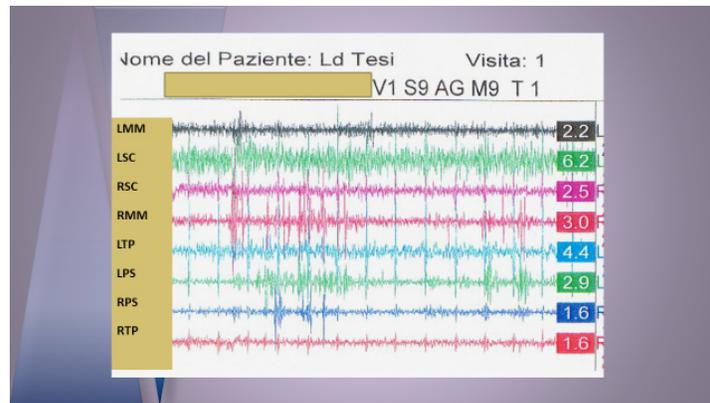


Figure 3. Emg head and trunk muscle

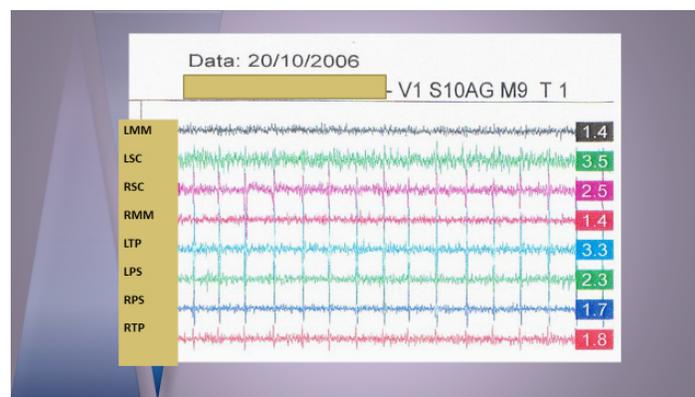


Figure 4. Emg after 4 months of Myofunctional stimulation

DISCUSSION

From what has been said, it is clear that there is a beneficial effect following the recovery of the stimulation of the naso-palatine receptors. This opens up a new path for the control and disappearance of fibromyalgia.

CONCLUSION

Certainly fibromyalgia is a complex and disabling disease that affects countless areas of the body with varied symptoms. It is equally true that the explanations proposed so far make patients feel condemned to “chronic

pain". This new interpretation, based on objective criteria and multidisciplinary skills, allows us to open a window on the possibility that it is in fact a dysfunction that has lasted for years, but which can be resolved or in any case improved by resuming a fundamental function such as correct swallowing.

REFERENCES

- 1 Sarzi-Puttini P, Giorgi V, Marotto D, Atzeni F; Fibromyalgia: an update on clinical characteristics, aetiopathogenesis and treatment; Nat Rev Rheumatol. 2020 Nov;16(11):645-660
- 2 Chinn S, Caldwell W, Gritsenko K; Fibromyalgia Pathogenesis and Treatment Options Update; Curr Pain Headache Rep. 2016 Apr;20(4):25
- 3 Binkiewicz-Glińska A, Bakuła S, Tomczak H, Landowski J, Ruckemann-Dziurdzińska K, Zaborowska-Sapeta K, Kowalski I, Kiebzak W.: Fibromyalgia Syndrome - a multidisciplinary approach; Psychiatr Pol. 2015;49(4):801-10.
- 4 Theoharides T C, Tsilioni I, Arbetman L, Panagiotidou S, Stewart J M, Gleason R M, Russell I.J.:Fibromyalgia syndrome in need of effective treatments; J Pharmacol Exp Ther. 2015 Nov;355(2):255-63.
- 5 Halata Z, Baumann K I: "Sensory nerve endings in the hard palate and papilla incisiva of the rhesus monkey"; Anatomy and Embriology, vol.199, iss.5, pp 427-437,1999
- 6 Ferrante A: Terapia miofunzionale - dalla deglutizione atipica ai problemi posturali", Futura Publ. Society, 1997
- 7 Ferrante A: La nuova Terapia Miofunzionale; Ed.Centro Terapia Miofunzionale, 2022
- 8 Ferrante A, Silvestri R, Montinaro C:The importance of choosing the right feeding aids to maintain breast-feeding after interruption; I.J.O.M.; vol.32,pg. 58, 2006
- 9 Ferrante A: Frenulo linguale corto; ed. Centro Terapia miofunzionale.10/2017
- 10 Locati F, Fedeli R: Correlazione tra deglutizione scorretta, secrezione di serotonina e scoliosi in età evolutiva. Università La Sapienza, Roma, anno acc. 2008/2009.
- 11 Tamburro S, Severino A, Nastro S: Valutazione dei valori urinari di serotonina in ragazzi scoliotici, prima e dopo tre mesi di rieducazione della deglutizione. Università Sapienza, Roma, anno acc. 2009/2010.
- 12 Guan Q: A Comprehensive Review and update on the pathogenesis of Inflammatory Bowel Disease;J Immunol Res. 2019 Dec 1;2019:7247238.
- 13 Weiss G A, Hennes T: Cell Mol Life Sci. 2017 Aug;74(16):2959-2977.
- 14 Liu S, Gao J, Zhu M, Liu K, Zhang HL: Gut Microbiota and Dysbiosis in Alzheimer's Disease: Implications for Pathogenesis and Treatment. Mol Neurobiol. 2020 Dec;57(12):5026-504
- 15 Han H, Li Y, Fang J, Liu G, Yin J, Li T, Yin Y.: Int J Mol Sci. 2018 Mar 27;19(4):995

Cite this article: Antonio Ferrante, Alberto Ferrante, Claudia Ferrante. *Reflections on Fibromyalgia - A New Interpretation. International Journal of Research in Medical and Clinical Sciences; 2023; 1(2); 08-13.*

Copyright: © 2023. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.