WEP Warwick Evans Publishing

International Journal of Public Health and Medical Research

ISSN: 3006-7707 (Print), ISSN: 3006-3752 (Online) | Volume 2, Number 2, Year 2024
DOI: https://doi.org/10.62051/ijphmr.v2n2.20
Journal homepage: https://wepub.org/index.php/IJPHMR/index

Observation on the Efficacy of Fasciotome Technology Combined with Italian Fascial Manipulation for Non-Specific Low Back Pain

Jun Luo [1], Lijuan Xiao [2]

[1] School of xi'an shiyou University, Xi'an 510400, China
[2] Guangdong Work Injury Rehabilitation Hospital, Guangzhou, 510000, China

ABSTRACT

Objective To observe and study the efficacy of fascia knife technique combined with Italian fascia manipulation in patients with non-specific low back pain. Methods From May 2022 to November 2022, 40 interns and students with non-specific low back pain in Guangdong Industrial Injury Rehabilitation Hospital were selected as the study subjects. Randomized controlled experiment was used to divided them into control group and observation group, with 20 students in each group. The control group was treated with Italian fascia manipulation alone, and the experimental group was treated with fascia knife technique. After 4 weeks of treatment, the long-term course of treatment was evaluated comprehensively, and the pain score and the degree of dysfunction before and after treatment were compared between the two groups. Results After 4 weeks of treatment, the effective rate of observation group was 95.00% higher than that of control group (90.00%), but there was no significant difference between groups (x^2=3.14, P > 0.05). Before and after treatment, there were significant differences in PRI sensory score, PRI emotional score, PRI total score, VAS and PPI scores between the two groups, which showed a decreasing trend, and the decrease rate of observation group was greater than that of control group (t=4.90, 3.68, 4.69, 3.40, 3.39, P < 0.05). The dysfunction scores of the two groups were significantly different before and after treatment, and showed a downward trend, and the dysfunction scores of the observation group after treatment were significantly lower than those of the control group (8.23±2.43) points (10.67±3.23) points (t=4.89, P < 0.05). Conclusion The combination of fascia knife technique and Italian fascia manipulation can achieve significant long-term results in patients with non-specific low back pain, alleviate pain symptoms and improve functional dysfunction.

KEYWORDS

Nonspecific lower back pain; Italian fascia manipulation; Fascial knife technique

1. INTRODUCTION

Chronic non-specific low back pain is a chronic pain syndrome accompanied by obvious pain and discomfort in the waist, lumbosacral and buttocks but lacks a clear clinical cause. Clinically, neither exact histopathological structural changes can be found, nor can it be diagnosed through Objective examination confirms the cause of the disease [1-2]. Non-specific low back pain refers to low back pain caused by certain specific pathological factors, such as infection, tumor, inflammation or fracture [3]. There are many clinical treatments for non-specific low back pain, including Western medicine treatment such as anti-inflammatory drugs and analgesics, and comprehensive non-surgical treatment options such as traditional Chinese medicine, acupuncture, and massage [3-4]. Fascia has been hotly researched in clinical research in recent years and is recognized from the musculoskeletal system. Fascia plays an important role in the overall diagnosis and treatment perspective and pain

management. By treating pain through fascia and tracing the source of pain, we can Achieving long-term efficacy has gradually become a research focus in the treatment of non-specific low back pain. Fascial knife technique therapy refers to the use of special medical stainless steel tools and different techniques to loosen the target adhesion tissue, thereby restoring the sliding between fascia, relieving the patients pain symptoms and improving their dysfunction [5]. The Italian fascial technique has the advantages of safety, non-invasiveness, low cost and high accuracy [6]. Although both of the above technologies can achieve good results, for some patients with severe conditions, either technology is likely to encounter treatment bottlenecks, affecting long-term effects, and the disease may be prone to recurrence. Combining the two excellent treatment methods is expected to achieve effect and can play a complementary role to further enhance the treatment effect. This study took 40 cases of non-specific low back pain interns and advanced trainees from the Guangdong Provincial Work Injury Rehabilitation Hospital from May 2022 to November 2022 as the research subjects to explore the efficacy of Fascial knife technique combined with Italian fascial manipulation, as follows.

2. GENERAL INFORMATION AND METHODS

2.1. General Information

A total of 40 interns and students with non-specific low back pain in Guangdong Industrial Injury Rehabilitation Hospital from May 2022 to November 2022 were studied. They were divided into control group and observation group by random number table method, with 20 cases in each group. Observation group: 11 males and 9 females; The age range was 20 to 40 years old, with an average age of (25.45±3.12) years. The course of disease was 3 ~6 months, the average course of disease was (3.34±1.23) months. Control group: 12 males and 8 females; The age range was 20 to 40 years old, with an average age of (24.65±3.18) years. The course of disease was 3 ~6 months, the average course of disease was (3.42±1.41) months. After comprehensive comparison of the above two groups of general data, the balance was good ($P > 0.05$). The study was reviewed by our Ethics committee.

2.2. Inclusion and Exclusion Criteria

Diagnostic criteria: in line with the relevant diagnostic criteria in the & quot; Chinese Expert Consensus on the Diagnosis and Treatment of Acute/Chronic Non-Specific Low Back Pain & quot; [7], accompanied by obvious low back pain, with or without radiating pain in the lower limbs; obvious tender points on physical examination, and pressing It causes pain or radiation symptoms and decreased sensory function; on X-ray, signs such as gradual micro-rotation of the lumbar vertebrae, narrowing of the facet joint space, separation or asymmetry can be seen; through physical examination, specific low back pain caused by the operating system is excluded.

Inclusion criteria: (1) Age between 20 and 40 years old; (2) Disease duration of more than 2 weeks; (3) Adherence to complete treatment as planned; (4) Visual analog scale (VAS) score of 2 to 7 points at enrollment; (5) Clear consciousness and basic expression ability, high degree of cooperation; (6) All subjects voluntarily signed informed consent.

Exclusion criteria: (1) Those with lumbar and intralumbar tumors, lumbar deformity and spinal stenosis; (2) Those with vision, hearing and language dysfunction; (3) Those with a history of alcohol, drug abuse, etc.; (4) Those who do not cooperate with this study; (5) Those with severe skin damage or skin disease at the treatment site.

2.3. Treatment Methods

Control group: Therapists need to hold FM fascial manipulation qualifications and treat patients in strict accordance with the & quot; FM Fascial Manipulation Clinical Guidelines & quot; Select the CC point of the fascia coordination center for low back pain, that is, bilateral forward sequence-

lumbar spine (AN-LU), backward sequence-pelvis (RE-PV), backward sequence-lumbar (RE-LU), backward sequence Inward sequence - waist (RE-ME-LU) treatment, 3 minutes for each point, once a week, 24 minutes each time, continuous treatment for four weeks.

Observation group: In addition to the treatment method of the control group, fascial knife therapy was added. Lubricant was applied to the treatment area to reduce friction and achieve a lubrication effect. A stainless steel fascia knife (Ruixingke Stainless Steel Products Co., Ltd., model FMT) was used along the The soft tissue areas on both sides of the spine are at a 90° angle to cooperate with the active flexion of the spine. The treatment time is 10 minutes. Gradually increase the intensity so as not to cause pain to the patient. Treatment is given twice a week for four consecutive weeks.

2.4. Observation Indicators

(1) The therapeutic effect was evaluated according to the Criteria for the Diagnosis and Efficacy of Diseases of Traditional Chinese Medicine [8], in which cure means that the symptoms of low back pain disappear and the waist can move normally; Obvious effect means that the patient's pain symptoms are significantly reduced, and occasionally occurs; Improvement refers to the reduction of pain symptoms; Ineffective means no improvement in pain symptoms. The total effective rate was curing rate + significant efficiency + improvement rate.

(2) Pain: The Simplified McGill pain questionnaire [9] (SF-MPQ) was used to evaluate before and after treatment. The scale is divided into three parts: (1) The pain rating index PRI (pain rating index, PRI) includes 11 sensory words and 4 emotional words, using a 4-level scoring method, where 0 to 3 points indicate pain from none too severe. Calculate the PRI sensory score and emotion score and total score; (2) Visual Analog Scale (VAS): Use a ruler to draw a 10cm long straight line, with a scale of 0 representing no pain and a scale of 10 representing severe pain. The patient draws a line to indicate the degree of pain; (3) Current pain Intensity PPI (Present Pain Intensity, PPI): A 6-point scoring method is used, in which 0 to 5 points indicate the degree of pain from no pain, mild discomfort, discomfort, discomfort, terrible pain to extremely painful.

(3) Functional disability: assessed using the Oswestry Disability Index (ODI), which includes 10 items including pain intensity, self-care, lifting, walking, sitting, standing, interference with sleep, sexual life, social life, and travel, each item is scored from 0 to 5, with a total score of 50. The higher the score, the more severe the patientfunctional impairment is.

2.5. Statistical Methods

All data were included in the SPSS20.0 software system for comparison and calculation of test values. The counting data was represented by percentage, x^2 test was used, and the measurement data consistent with normal distribution was represented by T-test. When $P < 0.05$, the comparison difference was statistically significant.

3. RESULTS

3.1. Comparison of the Therapeutic Effect Results of the Two Groups of Patients After 4 Weeks of Treatment

The treatment effective rate of 95.00% in the observation group was significantly higher than that of 90.00% in the control group, but there was no significant difference in comparison between groups ($P > 0.05$), as shown in Table 1.

Table 1. Comparison of treatment effect results between two groups of patients after 4 weeks of treatment (%)

Group	Cure	Cure	improved	ineffective	efficient
control group **(**n=20**)**	6 (30.00)	6 (30.00)	6 (30.00)	2 (10.00)	15 (90.00)
observation group **(**n=20**)**	7 (35.00)	7 (35.00)	5 (35.00)	1 (5.00)	19 (95.00)
X2	--				1.76
P	--				>0.05

3.2. Comparison of McGill Scale Score Results Between the Two Groups of Patients

McGill scale scores of the two groups were significantly different before and after treatment, showing a downward trend, and the decline of the scores of the observation group was greater than that of the control group (P < 0.05), as shown in Table 2.

Table 2. Comparison of McGill scale score results between two groups of patients (points)

Group	PRI feeling		PRI sentiment score		PRI total score		VAS		PPI	
	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Control group (n=20)	11.72±3.12	6.53±1.39	5.74±1.56	3.57±1.10	13.23±3.24	7.12±2.13	5.78±2.11	2.10±1.56	3.24±0.78	1.94±0.55
Observation group (n=20)	11.79±3.16	5.12±1.33	5.76±1.60	3.06±0.78	13.21±3.15	6.23±1.78	5.81±2.13	1.78±0.65	3.32±0.71	1.58±0.47
t	0.16	4.90	0.14	3.68	0.02	4.69	0.05	3.4	0.12	3.39
p	>0.05	<0.05	>0.05	<0.05	>0.05	<0.05	>0.05	<0.05	>0.05	<0.05

3.3. Comparison of Functional Disability Scores Between the Two Groups of Patients

The dysfunction scores of the two groups were significantly different before and after treatment, showing a downward trend, and the scores of the observation group were lower than those of the control group (P < 0.05), as shown in Table 3.

Table 3. Comparison of dysfunction score results between two groups of patients (points)

Group	Before treatment	After treatment
control group (n=20)	21.09±4.12	10.67±3.23
observation group (n=20)	21.11±4.10	8.23±2.43
t	0.01	4.90
P	>0.05	<0.05

4. DISCUSSIONS

Fascia is distributed throughout the body and is a complete and tightly connected collagen fiber connective tissue. Fascia is rich in proprioceptive corpuscles. When fascia is stimulated by shear force or trauma, nociceptors will be activated, thereby causing pain. Therefore, Distinguish the characteristics of fascia, accurately locate the location, level and extent of fascial injury, whether it causes distal compensation and which fascial chain it belongs to, trace the root cause, and adopt targeted intervention plans to relieve pain symptoms. Effective control, thereby improving motor function and improving quality of life.

As one of the techniques for the treatment of myofascial pain, fascia knife technology is widely used in clinical rehabilitation. It is an effective method for the treatment of athletes' soft tissue injury. It can not only deal with superficial fascia problems, but also apply pressure to the deep tissue, reduce inflammation, break down the tissue that restricts activity, and activate the dysfunctional fascia tissue to produce regenerative response. It belongs to the field of microinjury medical reconstruction technology. Through stainless steel tools, it plays a role in nerves, muscles, fascia and lymph. Its techniques include scraping, conventional techniques, segmentation, pressure, friction techniques, etc. By stimulating sensitive neurons in soft tissues such as skin, myofascia and joint capsule, it reduces neuronal activity, promotes the recovery of nerve motor function, and regulates nerves to control pain. Thus, the analgesic effect is achieved [10]. This kind of treatment is safe, effective, convenient and almost non-invasive, coupled with simple operation, and has been widely used in medical institutions, sports teams and the general population, setting off the upsurge of fascia knife treatment.

The Italian Fascia manipulation was founded by an Italian physical therapist. It is based on the anatomy and physiology of the fascia system, which is spread throughout the body and connected with other tissues. It distinguishes different fascia surfaces of the human body, including the sagittal plane, the coronal plane, and the frontal plane. It has 3 faces and 14 fascial chains [11]. This treatment method treats the disease from a holistic view. Through movement assessment and palpation assessment combined with consultation, continuous friction treatment is performed on the target fascial points, causing local heat to be generated. When the temperature is greater than about 45°, the extracellular matrix will the hyaluronic acid structure will be destroyed and the hydration capacity will be enhanced, thereby changing the acid concentration of the extramatrix environment, increasing the relative sliding between tissues, and promoting the recovery of tissue function in this part. Research [12] shows that for patients with chronic non-specific low back pain, Italian fascial manipulation is more effective in short- and medium-term pain relief and improves the quality of life more significantly than simple manipulation. Therefore, it can be seen that Italian fascial manipulation has broad application prospects in the field of fascia-related pain. However, the effect of a single treatment is limited, and for some patients with severe conditions, other therapies need to be combined to improve the long-term treatment effect.

In the study of Luo Jun [13], the experimental group that implemented fascia knife technique combined with Italian fascia manipulation found that the total effective rate of the patients was 90.00% after 4 weeks of treatment, which was significantly higher than the control group's 50.00%. The results of this study showed that after 4 weeks of treatment, the treatment efficiency of 95% in the observation group was significantly higher than that of 90% in the control group, which confirmed that the fascia knife technique combined with the Italian fascia manipulation was superior to the single Italian fascia manipulation treatment, but there was no significant difference between the groups, which may be related to the number of samples in this time. In addition, the McGill scale scores and dysfunction scores of the observation group were lower than those of the control group, suggesting that the treatment regimen could effectively improve the severity of pain and dysfunction.

Clinical studies have confirmed that fascia knife technique combined with Italian fascia manipulation has a more significant effect on pain than the Italian fascia manipulation alone. Fascia knife technique combined with Italian fascia manipulation can be applied and promoted in clinical practice for patients with non-specific low back pain.

REFERENCES

[1] CHUGHTAI M, NEWMAN JM, SULTAN AA, et al. Astym® therapy: a systematic review. Ann Transl Med. 2019, 7(4):70.

[2] Wu Jianxian, Wang Bin, Shi Shuxia. Research progress on biomechanical characteristics of low back pain [J]. Chinese Journal of Clinicians (Electronic Edition), 2014, 8(24): 4449-4453.

[3] Chen Yongjin, Ma Yan, Xiong Jian, et al. Observation on the efficacy of instrument-assisted release technology combined with core stabilization training in the treatment of non-specific low back pain [J]. Chinese Journal of Physical Medicine and Rehabilitation, 2021, 43(7): 619 -622.

[4] Wang Kuan, Wang Huihao, Liang Feifan, et al. Review of guidelines for conservative treatment of non-specific low back pain [J]. Chinese Journal of Rehabilitation Medicine, 2016, 31(11): 1280-1284.

[5] LEE JH, LEE DK, OH JS. The effect of Graston technique on the pain and range of motion in patients with chronic low back pain. J Phys Ther Sci. 2016, 28(6):1852-1855

[6] Ge Huan, Zhang Peng, Sun Wudong, et al. The mechanism of action of fascial manipulation and its application progress in the rehabilitation of non-specific low back pain [J]. Chinese Journal of Rehabilitation Medicine, 2021, 36(2): 237-240.

[7] Expert Group of the Spinal and Spinal Cord Professional Committee of the Chinese Association of Rehabilitation Medicine. Chinese expert consensus on diagnosis and treatment of acute/chronic non-specific low back pain [J]. Chinese Journal of Spine and Spinal Cord, 2016, 26(12): 1134-1138.

[8] State Administration of Traditional Chinese Medicine. Standards for Diagnosis and Efficacy of Traditional Chinese Medicine Diseases [M]. Beijing: China Medical Science and Technology Press, 2012: 213.

[9] Gu Yan, Tang Jinli, Yang Weiwei, et al. Study on the reliability and validity of the Chinese version of the simplified McGill Pain Questionnaire-2 for assessing neuropathic pain [J]. China Health Statistics, 2020, 37(5): 718-720.

[10] HARRIS LS, FREEMAN S, WANG YC, etal. Astym therapy improves FOTO® outcomes for patients with musculoskeletal disorders: an observational study. Ann Transl Med. 2019, 7(17): S251.

[11] Zhao Baoli, Zhao Zhi, Zhang Lizhuang, et al. Observation on the efficacy of fascia release combined with core muscle training in the treatment of non-specific low back pain [J]. Chinese Journal of Physical Medicine and Rehabilitation, 2020, 42(3): 239 -241.

[12] Mirco Branchini, Francesca Lopopolo, Ernesto Andreoli, etal. Fascial Manipulation for chronic aspecific low back pain: a single blinded randomized controlled trial [J]. F1000Research 2015, 3(4):1208.

[13] Luo Jun, Xiao Lijuan, Liu Siwen. Discussion on the biomechanical mechanism of FM fascia manipulation combined with fascia knife therapy for lower back pain in the elderly [J]. Beijing Biomedical Engineering, 2021, 40(5): 530-535.