Clinical Observational Study on Green Channel Plus Gua Sha Treatment for Primary Parkinson' s Disease: Postprint

Authors: Wang Qiuqin, Zhang Yutong, Xu Yuchen, Bai Yamei, Chen Hua, Jiang Rongrong, Yan Shuxia, Wang Qing, Xu Guihua, Xie Ying, Qiao Chun, Yang Juan, Xu Guihua

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Abstract

Background Gua Sha is one of the most widely used non-pharmacological therapies in Traditional Chinese Medicine, characterized by its safety, efficacy, and ease of promotion, offering unique advantages in the treatment of neurological diseases. Parkinson' s disease (PD), as one of the most common neurodegenerative diseases, has become a global medical challenge due to significant side effects of pharmacological treatment and reduced efficacy with long-term use. Objective To observe the clinical efficacy of Gua Sha in the treatment of Parkinson' s disease. Methods Using purposive sampling, 32 patients with early- to mid-stage primary PD who visited the outpatient clinics of Nanjing Hospital of Traditional Chinese Medicine and Jiangsu Provincial People' s Hospital from March 2021 to September 2021 were selected and divided into an observation group (16 cases) and a control group (16 cases). The observation group received Gua Sha combined with oral Western medication, while the control group received oral Western medication alone. After 3 months of treatment and at 1-month follow-up, the Unified Parkinson' s Disease Rating Scale Part III (MDS-UPDRS III) scores, Non-Motor Symptoms Scale (NMSS) scores, and overall efficacy were observed; at 3 months of treatment, serum interleukin IL-1β and NF- B levels were measured to compare efficacy differences between the two groups. Results After 3 months of treatment, both groups showed lower MDS-UPDRS III scores and NMSS scores compared with baseline (both $P<0.0001$), with the observation group scoring lower than the control group (both $P<0.01$). Serum IL-1β and NF- B levels in both groups were lower than before treatment (both $P<0.05$), with the observation group showing lower levels than the control group (both $P<0.05$). The total effective rate was 87.50% in the observation group (among 14 effective cases, 12 were markedly effective or clinically controlled, accounting for 85.71%) and 62.50% in the control group (among 10 effective cases, none were

markedly effective or clinically controlled), with a statistically significant difference in efficacy between the two groups (P<0.001). At 1-month follow-up, MDS-UPDRS III scores and NMSS scores in both groups remained lower than baseline (both P<0.0001), with the observation group lower than the control group (both P<0.05). The total effective rate was 87.50% in both groups; in the observation group, 12 of 14 effective cases were markedly effective or clinically controlled (85.71%), while the control group had no markedly effective or clinically controlled cases, with a statistically significant difference in efficacy between the two groups (P<0.01). Compared with the 3-month treatment point, at 1-month follow-up, the control group showed decreased MDS-UPDRS III scores (P<0.05) while the observation group showed no statistically significant change (P>0.05); the observation group exhibited increased NMSS scores (P<0.05) while the control group showed no statistically significant change (P>0.05). Conclusion Gua Sha therapy is safe and feasible for early- to mid-stage primary PD, capable of improving partial motor dysfunction and alleviating non-motor symptoms in PD patients, and can significantly enhance clinical efficacy. Its long-term efficacy warrants further exploration through large-sample, multicenter studies.

Full Text

Clinical Observation on Gua Sha for Primary Parkinson' s Disease

Authors: Wang Qiu-qin[1], Zhang Yu-tong[1], Xu Yu-chen[1], Bai Ya-mei[1], Chen Hua[1], Jiang Rong-rong[1], Yan Shu-xia[1], Wang Qing[1], Xu Gui-hua[1]*, Xie Ying[2], Qiao Chun[2], Yang Juan[1]

Affiliations: 1. School of Nursing, Nanjing University of Chinese Medicine, Nanjing 210023, Jiangsu Province, China 2. Nanjing Hospital of Chinese Medicine, Nanjing 210001, Jiangsu Province, China 3. Jiangsu Province Hospital, Nanjing 210029, Jiangsu Province, China

Corresponding Author: Professor Xu Gui-hua, Email: guihua.xu@njucm.edu.cn

Abstract

Background: Gua Sha is one of the most widely used traditional Chinese medicine (TCM) non-pharmacological therapies, characterized by its safety, efficacy, and ease of implementation, offering unique advantages in treating neurological disorders. Parkinson' s disease (PD), as one of the most common neurodegenerative diseases, has become a global medical challenge due to significant side effects of pharmacological treatments and diminishing efficacy with long-term use.

Objective: To observe the clinical efficacy of Gua Sha in treating Parkinson' s disease.

Methods: Using purposive sampling, 32 patients with early- to mid-stage primary PD were selected from outpatient clinics at Nanjing Hospital of Chi-

nese Medicine and Jiangsu Province Hospital between March 2021 and September 2021, and divided into an observation group (n=16) and a control group (n=16). The observation group received Gua Sha combined with Western medication, while the control group received Western medication alone. After three months of treatment and one month of follow-up, assessments included the Movement Disorder Society-Unified Parkinson' s Disease Rating Scale Part III (MDS-UPDRS III) scores, Non-Motor Symptoms Scale (NMSS) scores, and overall efficacy. Serum interleukin-1β (IL-1β) and nuclear factor-kappa B (NF- B) levels were measured after three months of treatment to compare efficacy between groups.

Results: After three months of treatment, both groups showed significantly lower MDS-UPDRS III and NMSS scores compared to baseline (all P<0.0001), with the observation group scoring lower than the control group (all P<0.01). Serum IL-1β and NF- B levels in both groups were significantly reduced from baseline (all P<0.05), with the observation group showing lower levels than the control group (all P<0.05). The total effective rate was 87.50% in the observation group (among 14 effective cases, 12 showed marked or clinical control, accounting for 85.71%) and 62.50% in the control group (among 10 effective cases, none achieved marked or clinical control), with a statistically significant difference between groups (P<0.001). At one-month follow-up, both groups maintained lower MDS-UPDRS III and NMSS scores compared to baseline (all P<0.0001), with the observation group remaining lower than the control group (all P<0.05). Both groups showed a total effective rate of 87.50%; in the observation group, 12 of 14 effective cases (85.71%) achieved marked or clinical control, while the control group had none, showing a statistically significant difference (P<0.01). Compared with the three-month assessment, the control group showed decreased MDS-UPDRS III scores at follow-up (P<0.05), while the observation group showed no significant change (P>0.05). The observation group' s NMSS scores increased at follow-up (P<0.05), while the control group showed no significant change (P>0.05).

Conclusion: Gua Sha is safe and feasible for treating early- to mid-stage primary PD, capable of improving certain motor dysfunctions, alleviating non-motor symptoms, and significantly enhancing clinical efficacy. Its long-term effects warrant further exploration through large-sample, multicenter studies.

Keywords: Gua Sha; Parkinson' s disease; Clinical observation

Introduction

Parkinson' s disease (PD) is the second most common neurodegenerative disorder after Alzheimer' s disease, with increasing incidence and mortality rates correlating with age [1-2]. Patients primarily present with abnormal motor symptoms including resting tremor, bradykinesia, muscle rigidity, and postural instability, as well as non-motor symptoms such as sleep disturbances, mood dis-

orders, constipation, and pain, leading to progressive disability and decreased quality of life [3-4]. This imposes a heavy burden on individuals, families, and society. The exact etiology and pathogenesis of PD remain incompletely understood, and current treatment focuses primarily on symptomatic management. Western medication, as the first-line and main therapeutic approach, exhibits significant side effects and reduced efficacy with prolonged use [5]; deep brain stimulation involves complex target selection with limited short-term effects and variable long-term outcomes [6]; and exercise therapies such as aerobic and resistance training, used as adjunctive treatments, are influenced by multiple factors including disease stage and patient compliance, with efficacy requiring further observation [7]. These challenges have made PD a global medical problem, highlighting the importance of identifying new therapeutic approaches to improve patient quality of life.

In Traditional Chinese Medicine (TCM), PD falls under the category of "tremor syndrome" (颤证), with the fundamental pathogenesis involving liver-kidney deficiency, marrow depletion, and the interplay of wind, phlegm, heat, and blood stasis leading to loss of harmony in the sinews and vessels. Treatment should focus on tonifying kidney essence, soothing liver and sinews, and extinguishing wind to stop tremor [8]. In recent years, TCM has played an important role in PD treatment. Gua Sha, guided by TCM meridian and acupoint theory, involves scraping the body surface with specialized tools to unblock meridians, promote qi and blood circulation, and treat disease through the principle of "treating through unblocking." As one of the most widely used TCM non-pharmacological therapies, it offers unique advantages in treating musculoskeletal and neurological disorders [9]. Based on our long-term clinical practice and research, we employed Gua Sha therapy for patients with early- to mid-stage primary PD, observing improvements in clinical symptoms and changes in serum inflammatory factors with satisfactory results, which we now report.

Methods

1.1 Study Participants

This prospective, non-randomized controlled trial used purposive sampling to select 16 patients with early- to mid-stage primary PD from outpatient clinics at Nanjing Hospital of Chinese Medicine and Jiangsu Province Hospital between March and September 2021 as the observation group. A control group of 16 PD patients was selected based on matching principles for gender, age, disease duration, and Hoehn-Yahr stage. The observation group received Gua Sha combined with Western medication, while the control group received Western medication alone. Treatment consisted of four-week cycles, with both groups observed for three cycles and followed up for one month. This study was approved by the Ethics Committee of Nanjing Hospital of Chinese Medicine (Approval No.: KY2021082), and all patients provided informed consent, either personally or through family members.

1.1.1 Inclusion and Exclusion Criteria

Inclusion criteria: (1) Diagnosis of primary PD according to the UK Parkinson' s Disease Society Brain Bank criteria [10] and the Chinese Diagnostic Criteria for Parkinson' s Disease (2016 Edition) [11]; (2) Hoehn-Yahr stage [12] $ $2.5; (3) Age 50-85 years; (4) Disease duration $ $1 year; (5) Stable PD medication dosage for $ $30 days; (6) Voluntary participation and informed consent; (7) Good compliance and willingness to follow up.

Exclusion criteria: (1) Contraindications for Gua Sha including bleeding disorders, infectious skin diseases, extreme hunger or fullness, excessive emaciation, or severe fatigue; (2) History of deep brain stimulation surgery; (3) Severe cerebral, cardiac, hepatic, renal, pulmonary, or hematological diseases, malignant tumors, or psychiatric disorders; (4) Participation in other clinical trials within 30 days prior to enrollment.

1.1.2 TCM Syndrome Differentiation Criteria for PD

The 1992 Criteria for Diagnosis and Efficacy Evaluation of Senile Tremor Syndrome in Traditional Chinese Medicine, issued by the Gerontology Association of the China Association of Traditional Chinese Medicine [13], classifies PD into five syndrome types: phlegm-heat wind-stirring, blood stasis wind-stirring, qi-blood deficiency, liver-kidney deficiency, and yin-yang deficiency. In this study, two TCM physicians from the PD specialty clinic performed syndrome differentiation according to these criteria, including four syndrome types: phlegm-heat wind-stirring, blood stasis wind-stirring, liver-kidney deficiency, and yin-yang deficiency. Meridian and acupoint selection for Gua Sha was based on the differentiation results.

1.1.3 Sample Size Estimation

Based on pilot study results from 2019, with MDS-UPDRS III scores as the primary outcome measure, the mean difference between groups was δ=5.9 (observation group: $12.40\$\pm6.328; control group : 6.50\pm\$2.121$) with a standard deviation of σ=4.719. Using a 1:1 allocation ratio, significance level α=0.05, and power 1-β=0.9, sample size was calculated using the two independent samples t-test formula N = [formula], yielding 14 cases per group. Considering a 10% attrition rate, the final sample size was determined to be 16 cases per group, for a total of 32 cases.

1.2.1 Western Medication Treatment

The control group received Western medication based on individual condition, with each patient taking $ $3 types of drugs, including: Madopar (levodopa/benserazide, 250mg/tablet, maximum daily dose 750mg), pramipexole dihydrochloride tablets (Sifrol, 0.25mg/tablet, maximum daily dose 1.5mg), selegiline hydrochloride tablets (Eldepryl, 5mg/tablet, maximum daily dose

10mg), rasagiline mesylate tablets (Azilect, 1mg/tablet, maximum daily dose 1mg), and amantadine hydrochloride tablets (0.1g/tablet, maximum daily dose 400mg). Treatment cycles were four weeks, with observation continuing for four cycles.

1.2.2 Gua Sha Treatment

The observation group received Gua Sha combined with Western medication (same medication regimen as the control group). The Gua Sha protocol was as follows:

1.2.2.1 Gua Sha Tools: Copper Gua Sha board and Gua Sha oil (Quanxi Lvzhou skin care oil, 80ml/bottle).

1.2.2.2 Scraping Areas: (1) Entire head, focusing on Baihui (GV20), Sishencong (EX-HN1), Fengchi (GB20), Fengfu (GV16), and the chorea-tremor control zone; (2) Neck: Du meridian from Fengfu to Dazhui (GV14), bilateral Jiaji points, and lateral Fengchi to shoulder peak, focusing on Dazhui and Jianjing (GB21); (3) Back: Du meridian (from Dazhui to Yaoshu, GV2), Bladder meridian (from Dazhu, BL11, to Xiaoliao, BL34, and from Fufen, BL41, to Zhibian, BL54), focusing on Shenshu (BL23), Ganshu (BL18), and Jiaji points; (4) Syndrome-based scraping: For phlegm-heat wind-stirring, add Spleen, Stomach, and Liver meridians on the lower leg, focusing on Taichong (LR3), Neiting (ST44), and Fenglong (ST40); for blood stasis wind-stirring, add Spleen and Liver meridians on the lower leg, with point scraping at Taichong and Xuehai (SP10); for liver-kidney deficiency, add Liver and Kidney meridians on the lower leg, with point scraping at Taichong, Sanyinjiao (SP6), and Taixi (KI3); for yin-yang deficiency, add Kidney, Liver, and Spleen meridians on the lower leg, with point scraping at Taixi, Taichong, Taibai (SP3), Sanyinjiao, and Mingmen (GV4).

1.2.2.3 Operating Methods: (1) Position and preparation: Sitting position for head, neck, and lower leg scraping; prone position for back scraping. Gua Sha oil was applied to all areas except the head. Patients were instructed to empty their bladder beforehand. (2) Scraping angle: 45° between the board and skin. (3) Manipulation techniques: Based on uniform, gentle, and penetrating principles. Head and Du meridian on the back used balanced tonifying-draining method (moderate pressure and speed). Phlegm-heat wind-stirring and blood stasis wind-stirring syndromes used draining method (heavy pressure, fast speed). Liver-kidney deficiency and yin-yang deficiency syndromes used tonifying method (light pressure, slow speed). Patients with low pain tolerance received tonifying method. (4) Direction: Head scraping from front to back; neck, back, and lower leg scraping from top to bottom, first middle then sides, first yang meridians then yin meridians, scraping lower leg to toe tips. (5) Length: Each movement approximately 5cm. (6) Degree: Head scraping until patients felt slight warmth in the scalp; tonifying method until skin flushing; draining method until thorough scraping (appearance of sha spots that no

longer produced new sha). (7) Duration and course: Once weekly, 1-1.5 hours per session, four weeks per course, observed for three courses, followed by one month of Western medication alone and one-month follow-up.

1.2.2.4 Precautions: (1) Maintain ambient temperature at 28°C, protect privacy, and provide food and water to prevent hunger or thirst during treatment. (2) Closely observe patient responses during scraping, communicate effectively, and adjust angle, pressure, and speed according to tolerance to prevent adverse reactions. (3) After scraping, patients drank warm brown sugar water and rested for 20 minutes before leaving. (4) Avoid wind exposure after scraping; no hair washing, bathing, or cold food consumption for three hours.

1.3 Outcome Measures

1.3.1 MDS-UPDRS III Score [14]: Used to assess motor function in PD patients, comprising 33 items with five-level scoring (0=normal, 1=slight, 2=mild, 3=moderate, 4=severe), total score 132. Higher scores indicate more severe motor dysfunction. Assessments were conducted at baseline, after three months of treatment, and at one-month follow-up, always during the "on" period after medication.

1.3.2 Non-Motor Symptoms Scale (NMSS) Score [15]: Used to assess severity and frequency of non-motor symptoms in PD patients. The scale includes 9 dimensions and 30 items, with each item scored as severity (0-3) multiplied by frequency (1-4), summed for total score. Scoring criteria: 0=no non-motor symptoms; 1-20=mild; 21-40=moderate; 41-70=severe; >70=very severe.

1.3.3 Serum IL-1β and NF- B Levels: At baseline and after three months of treatment (immediately after the 12th Gua Sha session in the observation group), 1ml of fasting venous blood was collected, left at room temperature for 30 minutes, centrifuged for 10 minutes at 3000r/min, and serum IL-1β, IL-6, TNF-α, and NF- B levels were measured by enzyme-linked immunosorbent assay using kits from Shanghai Thermo Fisher Biotechnology Co., Ltd.

1.3.4 Efficacy Evaluation: Based on the 2002 Guiding Principles for Clinical Research of New Chinese Medicines [16] and the Criteria for Diagnosis and Efficacy Evaluation of Senile Tremor Syndrome in Traditional Chinese Medicine [13], with MDS-UPDRS III scores as the efficacy indicator: [(pretreatment score - posttreatment score)/pretreatment score] × 100%. $ $70%=clinical control (motor symptoms essentially disappeared); 50-69%=marked effect (motor symptoms significantly improved, not affecting daily life); 25-49%=effective (motor symptoms slightly improved); <25%=ineffective (no significant improvement).

1.4 Quality Control

(1) Acupoint location followed standards from Name and Location of Acupoints [17]. (2) Two nurses with TCM nursing education backgrounds and extensive Gua Sha teaching and research experience underwent stan-

dardized PD Gua Sha protocol training and were responsible for all scraping after passing qualification assessments. (3) All Gua Sha procedures were performed in the TCM nursing outpatient operating room between 8:00-11:30 AM and 2:00-4:30 PM, avoiding fasting or meal times. (4) The operating room supervisor monitored throughout and periodically checked procedural compliance.

1.5 Statistical Methods

SPSS 23.0 software was used for statistical analysis. Count data were described as n and compared between groups using ^{2} test or Fisher' s exact test. Normally distributed continuous data were expressed as mean±standard deviation ($\bar{x}\pm s$), compared between groups using independent samples t-test and within groups using paired t-test. Non-normally distributed data were expressed as M(Q1,Q3), compared between groups using Mann-Whitney U test and within groups using Wilcoxon signed-rank test. $P<0.05$ was considered statistically significant.

Results

2.1 Comparison of Baseline Data

Baseline characteristics including age, gender, education level, H-Y stage, medication regimen, TCM syndrome type, and hospital showed no statistically significant differences between the observation and control groups (all $P>0.05$), indicating comparability .

2.2 Comparison of MDS-UPDRS III Scores

After three months of treatment, both groups showed significantly lower MDS-UPDRS III scores compared to baseline (observation group: $t=7.022$, $P<0.0001$; control group: $t=6.823$, $P<0.0001$), with the observation group scoring lower than the control group ($t=-3.123$, $P=0.004$). At one-month follow-up, both groups maintained scores lower than baseline (observation group: $t=6.675$, $P<0.0001$; control group: $t=7.042$, $P<0.0001$), with the observation group remaining lower than the control group ($t=-2.117$, $P=0.043$). Compared with the three-month assessment, the control group showed decreased scores at follow-up ($Z=-2.969$, $P=0.003$), while the observation group showed no significant change ($t=-1.815$, $P=0.089$) .

2.3 Comparison of NMSS Scores

After three months of treatment, both groups showed significantly reduced NMSS scores compared to baseline (observation group: $t=6.426$, $P<0.0001$; control group: $t=6.601$, $P<0.0001$), with the observation group scoring lower than the control group ($t=-4.398$, $P<0.0001$). At one-month follow-up, both groups maintained scores lower than baseline (observation group: $t=5.780$, $P<0.0001$; control group: $t=4.923$, $P<0.0001$), with the observation group remaining lower

than the control group (t=-4.439, P<0.0001). Compared with the three-month assessment, the observation group' s NMSS scores increased at follow-up (Z=-2.635, P=0.008), while the control group showed no significant change (Z=-1.537, P=0.124) .

2.4 Comparison of Serum IL-1β Levels

Baseline serum IL-1β levels showed no significant difference between groups (P>0.05). After three months of treatment, both groups showed significantly reduced IL-1β levels (both P<0.05), with the observation group showing lower levels than the control group (P<0.05) .

2.5 Comparison of Serum NF- B Levels

Baseline serum NF- B levels showed no significant difference between groups (P>0.05). After three months of treatment, both groups showed significantly reduced NF- B levels (both P<0.05), with the observation group showing lower levels than the control group (P<0.05) .

2.6 Comparison of Efficacy Between Groups

Total effective rate was calculated as (effective + markedly effective + clinical control cases)/total cases in each group. After three months of treatment, the observation group showed a total effective rate of 87.50% versus 62.50% in the control group; at one-month follow-up, both groups showed 87.50% total effective rates, with no statistically significant differences in total effective rates between groups (P=0.220 and P=1.000, respectively). Further Wilcoxon rank-sum analysis revealed that after three months, 12 of 14 effective cases in the observation group (85.71%) achieved marked or clinical control, compared to none in the control group, showing a statistically significant difference (Z=-3.651, P<0.001) . At one-month follow-up, 12 of 14 effective cases in the observation group (85.71%) achieved marked or clinical control, compared to none in the control group, also showing a statistically significant difference (Z=-3.468, P=0.001) .

Discussion

In recent years, TCM non-pharmacological therapies have been widely used in PD treatment with promising results, providing new approaches for clinical management. As one of the most commonly used TCM non-pharmacological therapies, Gua Sha integrates the strengths of acupuncture, cupping, and massage. Studies [18-19] have reported that Gua Sha combined with Western medication, massage, or acupuncture can improve motor function and pain in PD patients, though research on Gua Sha as a single intervention is lacking. This study employed Gua Sha combined with Western medication for early- to mid-stage primary PD, exploring the effects of Gua Sha on motor dysfunction, non-motor symptoms, and serum inflammatory markers to verify its safety and efficacy.

TCM considers PD as a condition of root deficiency with branch excess, characterized by liver-kidney deficiency and marrow depletion as the root, and wind, phlegm, heat, and blood stasis as the branch. Therefore, this study developed a Gua Sha protocol based on the pathogenesis, following the principles of tonifying kidney essence, soothing liver and sinews, and extinguishing wind to stop tremor. The head is considered "the meeting point of all yang meridians," and scraping the head can warm and unblock meridians, assist yang ascent, and stop tremor. Baihui (GV20), located at the vertex where the Du meridian meets the Bladder meridian, stimulates yang qi to ascend to the brain when scraped. Sishencong (EX-HN1), located on the vertex, is documented in the Taiping Sheng Hui Fang for treating "head wind, dizziness, and manic wind epilepsy," and scraping can fill essence and marrow to extinguish wind and stop tremor. Fengchi (GB20) belongs to the Gallbladder meridian, Fengfu (GV16) is the intersection of the Du meridian and Yangwei vessel, and the chorea-tremor control zone directly targets the disease location—all three can calm liver yang and extinguish wind to relieve spasm [20]. Dazhui (GV14), as the meeting point of all yang meridians, can invigorate whole-body yang qi and promote blood circulation when tonified through scraping, thereby improving limb motor function, or clear pathogenic heat from yang meridians when drained [21]. Jianjing (GB21), the intersection of the Shaoyang, Yangming, and Yangwei meridians, can regulate multiple meridians, promote qi and blood circulation, and expel wind to unblock collaterals, relieving shoulder pain. The Du meridian, as "the sea of yang meridians" and the only meridian directly connecting to the brain, has long been considered by physicians as "for brain diseases, first select the Du meridian." Therefore, scraping the Du meridian can regulate whole-body qi and blood and warm yang to stop tremor. The Foot-Taiyang Bladder meridian "governs the exterior of the body," and research [22] shows that stimulating the Bladder meridian with massage can enhance immune function. Back-shu points are where organ qi infuses into the back and waist, and studies [23-24] indicate that back-shu points correspond to the segmental distribution of spinal nerves. Stimulating back-shu points can activate nerve endings and reflexively stimulate sympathetic centers to regulate visceral function. Ganshu (BL18) and Shenshu (BL23) are distributed with sympathetic communicating branches, and stimulating them can regulate autonomic nerve and liver-kidney function. Jiaji points are the intersection of the Du meridian and Bladder meridian, and scraping can boost qi and ascend yang. Research [25] found that electroacupuncture at Jiaji points can enhance neurohumoral regulation and improve blood circulation. According to the Ling Shu (Miraculous Pivot), "when the five zang-organs have disease, select the twelve yuan-points." Yuan-points are where organ yuan-qi is transported, passes through, and retains. In this study, for patients with liver-kidney deficiency and yin-yang deficiency, the Kidney, Liver, and Spleen meridians on the lower leg and their yuan-points (Taixi, Taichong, Taibai) were scraped to activate organ yuan-qi and strengthen the root. As stated in the Fu Ren Da Quan Liang Fang, "treat wind by first treating blood; when blood flows, wind extinguishes itself." When organ qi and blood are harmonized, sinews can relax and tremor can stop.

Since the yuan-points of yin meridians are also the shu-points among the five shu-points, and the Ling Shu states "the shu-points are where qi infuses," the qi at shu-points is extremely strong, making scraping particularly effective for tonifying organs and extinguishing wind to stop spasm. Sanyinjiao (SP6), the intersection of the Kidney, Spleen, and Liver meridians, can nourish the liver, spleen, and kidneys. Neiting (ST44), as a ying-spring point, "treats body heat" and can clear fu-organ heat. Fenglong (ST40), the luo-connecting point of the Stomach meridian, can transform phlegm and dispel dampness. Xuehai (SP10) can transform stasis and unblock collaterals. Combined use of these three points can improve bradykinesia symptoms in PD patients.

Motor symptoms in PD patients include abnormal gait, decreased balance, and slow movements, significantly reducing daily living abilities and social participation. This study used Gua Sha combined with Western medication, focusing on scraping the head, neck, and Du/Bladder meridians on the back. After three months of treatment and at one-month follow-up, both groups showed significantly reduced MDS-UPDRS III scores, with the observation group scoring lower than the control group. Compared with the three-month assessment, the control group showed further score reduction at four months, while the observation group showed no significant change. These findings indicate that Gua Sha combined with Western medication can improve motor dysfunction in PD patients more effectively than Western medication alone, demonstrating an additive effect, though long-term efficacy requires further observation.

Non-motor symptoms in PD are numerous, involving cognition, mood, sleep, and sensory functions, appearing at various disease stages and severely impacting daily life and well-being. In this study, 24 of 32 enrolled patients (75%) presented with non-motor symptoms including sleep disturbances, constipation, depression, and fatigue (11 in the observation group, 13 in the control group). After three months, both groups showed significant non-motor symptom improvement, with superior results in the Gua Sha combination group. Compared with the three-month assessment, the observation group' s NMSS scores increased at follow-up but remained significantly lower than the control group, while the control group showed no significant change. This suggests that Western medication alone has modest effects on non-motor symptoms, while the long-term efficacy of Gua Sha combined with Western medication requires further observation. We hypothesize that the short intervention period may have resulted in weak self-regulation capacity in the observation group, or that Gua Sha therapy, like medications with half-lives, may have time-dependent efficacy. How to maintain the sustained "external treatment, internal effect" of Gua Sha warrants investigation in future large-sample, multicenter studies exploring dose-effect relationships and long-term efficacy.

Neuroinflammatory responses are crucial in PD pathogenesis, and inhibiting neuroinflammation represents an important therapeutic target. TCM considers Gua Sha to have functions of unblocking meridians, promoting blood circulation, opening interstitial spaces, and dispelling pathogenic toxins. Research [26]

found that Gua Sha significantly reduced serum IL-1β, IL-6, and TNF-α levels in lumbar disc herniation patients, proposing that the sha-raising process involves vasodilation progressing to capillary rupture and blood extravasation, forming local skin ecchymosis. The blood clot (sha) can spontaneously disperse and dissolve through autolysis, and also serve as a new antigen that enhances local metabolism and inhibits inflammatory responses. Yuen et al. [27] suggested that Gua Sha has more durable anti-inflammatory effects compared to other interventions. In this study, after three months, the observation group showed significantly reduced serum IL-1β and NF- B levels compared to baseline and lower than the control group. This demonstrates that Gua Sha combined with Western medication is superior to Western medication alone in suppressing inflammation, suggesting that anti-inflammatory effects may be one mechanism of Gua Sha' s therapeutic action in PD. However, since peripheral blood was collected in this study, whether Gua Sha can specifically inhibit neuroinflammation in PD requires experimental validation.

In summary, this study of Gua Sha combined with Western medication for early- to mid-stage primary PD showed that after three months, the observation group achieved a total effective rate of 87.50%, while the control group only reached 87.5% at one-month follow-up (four months total). Both at three months and one-month follow-up, the observation group had more cases achieving marked or clinical control than the control group. This demonstrates that Gua Sha combined with oral Western medication can enhance clinical efficacy, providing a basis for future large-sample, multicenter studies. Throughout the study, no adverse drug reactions occurred in either group. Gua Sha procedures were performed according to standardized protocols with careful attention to patient communication and monitoring. No adverse events such as fainting, abnormal vital signs, falls, or bed falls occurred. This study had a small sample size and, due to limitations in PD treatment, could not implement blinding or randomization. Therefore, the efficacy of Gua Sha alone for PD and the dose-effect relationship of Gua Sha therapy require further exploration.

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Note: Figure translations are in progress. See original paper for figures.