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Original research

APPLICATION OF VIETNAMESE SPINAL MANIPULATION IN THE TREATMENT OF SCIATICA DUE TO SPINAL DEGENERATION

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ABSTRACT

Objective: *To evaluate the effectiveness of Vietnamese spinal manipulation in treating sciatica caused by spinal degeneration and to identify any associated adverse effects.*

Methods: *A controlled clinical intervention study was conducted on 70 patients aged 35 and above, divided into two groups: the study group received Vietnamese spinal manipulation combined with acupuncture and traditional medicine; the control group received massage and press acupoints combined with acupuncture and traditional medicine. The treatment lasted for 2 weeks with 10 sessions (5 sessions per week). Treatment efficacy was assessed using the Visual Analog Scale (VAS), Schober's test, Lasegue's test, and the Oswestry Disability Index (ODI). Adverse effects were monitored throughout the treatment period.*

Results: *The study group showed significant improvement in pain reduction, spinal mobility, and daily functional ability compared to the control group ($p < 0.05$). No serious adverse effects were reported during the treatment.*

Conclusion: *Vietnamese spinal manipulation combined with acupuncture and traditional medicine is a safe and effective method for treating sciatica due to spinal degeneration, significantly improving patient symptoms and quality of life.*

Keywords: *Vietnamese spinal manipulation, sciatica, spinal degeneration, acupuncture, traditional medicine.*

I. INTRODUCTION

Degenerative spine disease is a common condition, particularly among the elderly and those with sedentary lifestyles. Degenerative spine disease often leads to symptoms such as back pain, reduced mobility, and sciatica. Sciatica, or pain along the sciatic nerve, is usually caused by compression or irritation of the nerve where it exits the spine. This can occur due to disc degeneration, disc herniation, or spinal stenosis [1].

Traditional treatments for sciatica include the use of pain relief medications, physical therapy, and, in severe cases, surgery. However, these methods are not always effective and may come with unwanted side effects [2].

Vietnamese spinal manipulation is a non-invasive medical technique aimed at correcting misaligned spinal structures, thereby reducing pressure on the nerves and improving motor function. This method has been researched and applied in Vietnam, with several initial reports indicating its effectiveness in treating sciatica symptoms caused by degenerative spine disease [3].

To promote the widespread application of Vietnamese spinal manipulation in treating sciatica caused by degenerative spine disease, we conducted this study to evaluate the effectiveness and safety of Vietnamese spinal manipulation in treating sciatica due to spinal degeneration.

II. MATERIALS AND METHODS

2.1. Subjects

The subjects of this study are 70 patients, aged 35 and older, admitted for inpatient treatment at the Traditional Medicine Department of Hue

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Central Hospital with a diagnosis of sciatica due to degenerative spine disease, between February 2024 and August 2024.

Inclusion criteria: Age ≥ 35, diagnosed with sciatica due to lumbar spine degeneration [4] (clinical symptoms of spinal syndrome and radiculopathy, imaging evidence of lumbar spine degeneration on X-ray), VAS score between 3 and 7, voluntary participation in the study, and adherence to treatment principles.

Exclusion criteria: Patients with severe acute or chronic conditions contraindicating inpatient treatment at the Traditional Medicine Department; patients with sciatica indicated for surgery; patients not adhering to the treatment protocol; pregnant women.

2.2. Methods

The study applies a clinical intervention method with a control group. Eligible patients are randomly divided into two groups, each consisting of 35 patients: the research group receiving Vietnamese spinal manipulation combined with acupuncture and traditional herbal medicine, and the control group receiving massage combined with acupuncture and traditional herbal medicine over a two-week period with 10 treatment sessions (5 sessions/week).

2.3. Evaluation tools and criteria

Acupuncture kit: single-use needles, sterile forceps, cotton swabs, 70° alcohol, and a kidney dish; measuring tape for lumbar spine flexibility; VAS scale ruler; Oswestry Disability Index (ODI) questionnaire.

Spinal manipulation procedure [5]:

The Vietnamese spinal manipulation technique was applied to patients in the intervention group following a standardized therapeutic protocol designed specifically for the treatment of sciatica caused by lumbar spondylosis. The procedure was carried out in eight sequential steps:

Step 1: Initial Assessment and Patient Preparation: Each patient underwent a general physical and clinical assessment. The practitioner provided detailed explanations regarding the treatment process and offered psychological support to ensure patient cooperation and comfort throughout the therapy.

Step 2: Identification of Key Treatment Points: A thorough musculoskeletal examination was conducted to identify therapeutic zones and focal points.

- Muscle contraction testing was employed to localize treatment points based on the presence of functional limitations, including restricted straight leg raise, impaired forward bending ("hand-to-floor" sign), difficulty squatting, reduced spinal flexibility, and limited ability to walk a distance of 30 meters.

- Additional painful points were detected using dynamic movement analysis and antagonistic resistance testing.

Step 3: Pain Point Release: Manual spinal manipulation techniques were used to release the identified pain points.

4-7. Targeted Functional Releases: Sequential manipulation was performed to address the following restricted functional signs:

Step 4: Release of points related to limited straight leg raise;

Step 5: Release of points related to impaired forward bending ("hand-to-floor");

Step 6: Release of points associated with squatting difficulty;

Step 7: Release of points associated with the limitation in walking a distance of 30 meters.

Step 8: Re-evaluation and Continued Care: After the intervention, the patient was re-evaluated to assess therapeutic response. Additional guidance and encouragement were provided to promote adherence to the treatment plan and to prepare for subsequent sessions.

The Oswestry Disability Index (ODI), a tool used to assess the level of functional limitation in patients with low back pain, has been translated and culturally adapted into Vietnamese. The Vietnamese version of the ODI is available and has been utilized in both clinical research and routine practice in Vietnam (Appendix 1) [6].

Evaluation criteria: Assess pain reduction using the VAS scale; Measure lumbar spine flexibility before and after treatment; Perform Lasègue test before and after treatment; Evaluate daily living functions before and after treatment using the ODI scale; Assess clinical side effects.

2.4. Data processing method

Collected data will be processed using SPSS version 20.0, with statistical tests such as T-tests for comparing pre - and post-treatment results,

along with ANOVA analysis to compare treatment outcomes between the two groups.

2.5. Ethical considerations

The research aims solely to improve the quality of sciatica treatment for patients. Patients voluntarily participate in the study. Those who decline or withdraw from the study will still receive full medical examinations and advice on alternative treatments. The study has been approved by the Scientific and Technical Council of Hue Central Hospital.

III. RESULTS

3.1. Pain reduction efficacy according to the VAS Scale

The pain level according to the VAS scale significantly decreased after 7 days and 14 days, with statistical significance at $p < 0.01$. The study group showed better improvement than the control group after 7 days of treatment, with $p = 0.013$ (Figure 1).

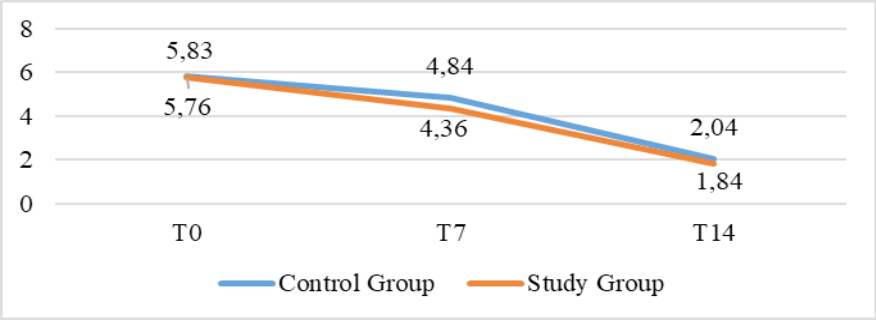

Figure 1: Change in pain level according to the VAS Scale

3.2. Efficacy in improving lumbar spine flexibility after treatment

After treatment, lumbar spine flexibility increased in both groups compared to before treatment ($p < 0.01$). The flexibility improvement in the study group was significantly higher than in the control group, with $p = 0.001$ at 7 days after treatment and $p = 0.002$ at 14 days after treatment (Table 1).

Table 1: Improvement in lumbar spine flexibility after treatment

Schober (cm)	Study Group (Mean ± SD)	Control Group (Mean ± SD)	p-value
D0	2.81 ± 0.24	2.78 ± 0.26	0.631
D7	3.45 ± 0.30	3.22 ± 0.26	0.001
D14	4.08 ± 0.17	3.94 ± 0.17	0.002

3.3. Improvement in Lasegue's test after treatment

Both groups showed a clear improvement in the average angle measurement of Lasegue's test at D7 and D14 ($p < 0.01$). The study group had better improvement after 7 days of treatment, with 61.57 ± 8.89 degrees compared to 57.14 ± 7.20 degrees in the control group ($p = 0.025$) (Figure 2).

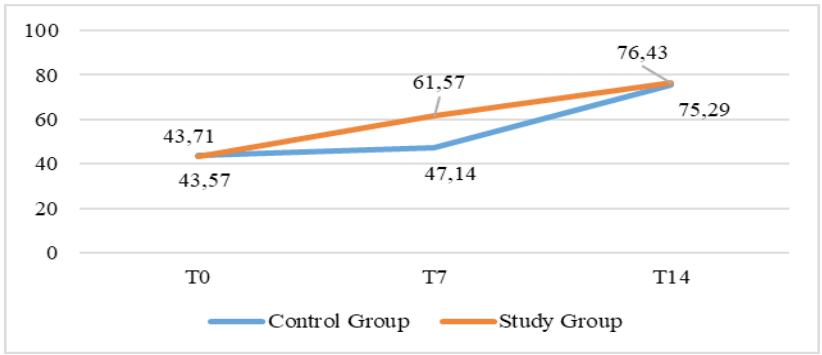

Figure 2: Improvement in Lasegue's test

3.4. Improvement in daily activity function after treatment

Both groups of patients showed improvement in daily activity function according to the ODI score after 7 days and 14 days of treatment. At D7, the study group (10.46 ± 3.14 points) performed better than the control group (12.57 ± 2.42 points), with p = 0.002 (Table 2).

Table 2: Improvement in daily activity function

ODI (score)	Study Group (Mean ± SD)	Control Group (Mean ± SD)	p-value
D0	14.83 ± 4.01	14.86 ± 3.99	0.976
D7	10.46 ± 3.14	12.57 ± 2.42	0.002
D14	6.54 ± 4.17	6.94 ± 3.96	0.682

3.5. Evaluation of adverse effects of spine manipulation method

In all 350 Vietnamese spinal manipulations performed on 35 patients, no unwanted symptoms were recorded.

IV. DISCUSSION

The results of this study provide robust evidence that Vietnamese spinal manipulation (VSM), when integrated with acupuncture and traditional herbal medicine, significantly improves clinical outcomes for patients with sciatica due to lumbar spine degeneration. The statistically significant improvements in pain reduction, spinal mobility, nerve root decompression, and functional ability observed in the VSM group highlight the therapeutic potential of this technique.

One of the most important findings is the rapid decrease in pain intensity as measured by the Visual Analog Scale (VAS). By day 7 of treatment, patients in the VSM group experienced a greater reduction in pain compared to the control group. This result is consistent with other Vietnamese studies, such as those by Nguyen Hoai Thu and Bui Tien Hung [7], where acupuncture-based methods showed effective but slower outcomes in reducing sciatic pain. In contrast, the use of spinal manipulation appears to accelerate pain relief, likely due to its direct mechanical action on spinal joints and surrounding tissues.

Another study by Vu Duy Tuan (2023) [8] showed that Vietnamese spinal manipulation could help relieve cervical and shoulder pain, with a pain reduction level similar to our study, particularly in the short term. This suggests that Vietnamese spinal manipulation is effective not only for sciatica due to degenerative spine disease but can also be widely applied in treating other spine-related conditions.

Furthermore, the improvement in lumbar spine flexibility, as demonstrated by the Schober's test, confirms that VSM enhances the biomechanical function of the spine. These findings are aligned with the study by Tran Thi Huyen Trang and Tran Thai Ha [9], who also reported increased spinal mobility following combined spinal manipulation and electroacupuncture. By restoring normal spinal alignment and reducing muscular tension, VSM likely contributes to more effective neuromuscular coordination and postural control.

The enhancement in nerve root decompression, indicated by the significant improvement in Lasegue's test scores, is another notable outcome. This suggests that VSM effectively relieves pressure on the sciatic nerve root, a primary cause of radiating pain in sciatica patients. This therapeutic effect was also observed in the work of Nguyen Hong Thai and Tran Thi Hai Van [10], who applied auricular electroacupuncture. However, VSM may offer a more direct mechanical advantage by addressing structural imbalances in the lumbar spine.

In terms of functional recovery, the ODI scores in the VSM group improved significantly compared to the control group. This underscores the role of spinal manipulation not only in symptomatic relief but also in helping patients regain the ability to perform daily activities. Improved functional outcomes are essential for enhancing quality of life and reducing long-term disability.

Importantly, the absence of adverse effects throughout the 350 VSM sessions performed in this study reinforces the safety of the technique. This finding is consistent with international systematic reviews and clinical evidence. For example, a

comprehensive meta-analysis published in the BMJ in 2019 found that spinal manipulation therapy (SMT) offered similar effectiveness to guideline-recommended treatments for chronic low back pain, with notable short-term improvements in function [11]. Additionally, a 2023 systematic review by Sørensen et al. [12] concluded that while targeting specific vertebral levels during spinal manipulation did not yield significantly different outcomes compared to non-specific approaches, spinal manipulation therapy overall was confirmed to be safe and effective in improving pain and function in patients with nonspecific low back pain. These studies validate our results and emphasize the clinical relevance of spinal manipulation in both traditional and modern therapeutic frameworks.

From a mechanistic perspective, Vietnamese Spinal Manipulation (VSM) integrates principles of traditional Vietnamese medicine-such as restoring the balance of Qi and promoting blood circulation-with modern understandings of spinal biomechanics. Techniques including rotational thrusts, gliding, oscillation, rapid release, and spinal mobilization are skillfully combined with unisegmental and bisegmental adjustments to release joint fixations, reduce inflammation, and modulate pain perception through neurophysiological mechanisms. These therapeutic effects align with segmental spinal mobility theories and proprioceptive reflex pathways.

The integration of VSM with acupuncture and herbal medicine in this study reflects the strength of the traditional Vietnamese medical model, which emphasizes holistic, multimodal interventions. While acupuncture supports neuromodulation and endorphin release, herbal medicine reduces inflammation and supports tissue recovery. When combined with spinal manipulation, these therapies form a comprehensive approach to treating complex musculoskeletal disorders.

Despite these encouraging outcomes, this study has limitations. The sample size of 70 patients, while adequate for detecting statistical significance, limits the generalizability of findings. Larger multicenter trials are necessary to confirm the results and explore long-term outcomes. Moreover, the study duration of two weeks may not capture delayed or cumulative effects of treatment. Follow-up studies should assess recurrence rates, functional reintegration, and cost-effectiveness over extended periods.

Additionally, while subjective measures like the VAS and ODI are widely accepted, incorporating more objective biomarkers (e.g., electromyography, MRI findings) would enhance the scientific rigor of future research. A qualitative component capturing patient satisfaction and quality-of-life narratives could also enrich the understanding of therapeutic value.

Finally, while this study focused on sciatica due to lumbar degeneration, the potential application of VSM to other spinal conditions-such as cervical or thoracic dysfunction, spinal stenosis, or mechanical low back pain-deserves further investigation. Comparative studies evaluating VSM against other global spinal manipulation techniques (e.g., chiropractic, osteopathy) would also be valuable for establishing international best practices.

In summary, the discussion confirms that VSM offers significant and safe improvements for sciatica patients, supported by both domestic and international evidence. The combination of manual therapy, acupuncture, and herbal medicine presents a synergistic, low-cost alternative to conventional care, with promising implications for public health and integrative clinical practice in Vietnam and beyond.

V. CONCLUSION

Vietnamese spinal manipulation combined with acupuncture and traditional medicine offers a rapid, safe, low-cost, non-invasive way to relieve sciatica pain from lumbar degeneration, improving mobility and daily function without recorded complications in 350 interventions; therefore, broader clinical adoption, standardized training, and larger, long-term multicenter studies are warranted to confirm and optimize its sustained benefits.

Conflict of interest

The authors declare no conflicts of interest-financial, professional, or personal-that could have influenced the conduct or results of this study.

REFERENCES

1. Ravindra VM, Senglaub SS, Rattani A, Dewan MC, Härtl R, Bisson E, et al. Degenerative Lumbar Spine Disease: Estimating Global Incidence and Worldwide Volume. Global Spine J. 2018; 8(8):784-794.

2. Nguyễn Thị Bay. Bệnh đau dây thần kinh tọa: Bệnh học và điều trị nội khoa. Nhà xuất bản Y học, 2007: 469-481.
3. Trương Việt Bình. Bài giảng tác động cột sống - Tập 1. Nhà xuất bản Y học, 2010: 130-156.
4. Bộ Y tế. Hướng dẫn chẩn đoán và điều trị một số bệnh cơ xương khớp. 2016: 140-145.
5. Nguyễn Tham Tán. Chữa bệnh đau dây thần kinh tọa. Nhà xuất bản Quân đội Nhân dân, Hà Nội, 1989: 46-92.
6. Lê Thị Cúc, và cộng sự. Độ tin cậy và giá trị của bản tiếng Việt của bảng câu hỏi Oswestry đánh giá mức độ tàn tật do đau lưng. Trình bày tại Hội nghị Quốc tế về Đau - IASP 2024.
7. Nguyễn Hoài Thư, Bùi Tiến Hùng. Đánh giá hiệu quả của phương pháp cấy chỉ trong điều trị đau thần kinh tọa. Tạp chí Y học Việt Nam. 2023; 523(1): 329-333.
8. Vũ Duy Tuấn, Nguyễn Tiến Chung. Đánh giá tác dụng của phương pháp tác động cột sống kết hợp điện châm trong điều trị hội chứng cánh tay cổ do thoái hóa cột sống cổ. Tạp chí Y học Việt Nam. 2023; 533(1B): 264-268.
9. Trần Thị Huyền Trang, Trần Thái Hà. Đánh giá tác dụng của phương pháp tác động cột sống kết hợp điện châm điều trị đau thắt lưng do thoái hóa cột sống. Tạp chí Y học Việt Nam. 2023; 530(2): 191-197.
10. Nguyễn Hồng Thái, Trần Thị Hải Vân. Hiệu quả điều trị đau của điện nhĩ châm trên người bệnh có hội chứng thắt lưng hông do thoái hóa cột sống. Tạp chí Y học Việt Nam. 2022; 521(2): 351-354.
11. Rubinstein SM, de Zoete A, van Middelkoop M, Assendelft WJJ, van Tulder MW. Benefits and harms of spinal manipulative therapy for the treatment of chronic low back pain: systematic review and meta-analysis of randomised controlled trials. BMJ. 2019;364:l689.
12. Sørensen PW, Nim CG, Poulsen E, Juhl CB. Spinal Manipulative Therapy for Nonspecific Low Back Pain: Does Targeting a Specific Vertebral Level Make a Difference? A Systematic Review with Meta-analysis. J Orthop Sports Phys Ther. 2023; 53(9):529-539.