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Experience of Professor LIU Zhibin in Treating Senile Benign Paroxysmal Positional Vertigo with Scalp Hairline Micro-Needling Therapy

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Abstract: ***Professor Liu Zhibin employs scalp hairline microneedle therapy to treat benign paroxysmal positional vertigo (BPPV) in the elderly, based on the pathomechanism understanding that "deficiency of the lower jiao is the root cause, ascending wind disturbance is the manifest symptom, and turbid pathogens harming the clear essence is the transformation." This therapy targets bilateral scalp points at the hairline and lower jiao points, exerting effects of nourishing water to support wood, subduing yang to extinguish wind, and unblocking yang to disperse nodules. By stimulating specific cranial regions, it modulates neural reflexes and vestibular function, enhances inner ear circulation, and promotes otolith dispersion—particularly suitable for elderly patients unsuitable for manual repositioning techniques. Clinical observations confirm this method's safety, minimal discomfort, and significant efficacy, demonstrating the integration of traditional Chinese medicine principles with modern physiological mechanisms. A case report is appended for verification.***

Keywords: Scalp hairline micro-needling therapy, Benign paroxysmal positional vertigo, Famous physician's experience, LIU Zhibin.

1. Introduction

Benign paroxysmal positional vertigo (BPPV), also known as otolithiasis, is a common peripheral vestibular disorder. Its hallmark feature is transient, recurrent episodes of vertigo triggered by specific head positions relative to gravity, accompanied by characteristic nystagmus. Patients often experience autonomic symptoms such as nausea and vomiting, with vertigo episodes typically lasting less than one minute. BPPV typically follows a self-limiting course, though recurrence is clinically common [1]. It accounts for 20–30% of peripheral vestibular disorders and exhibits a significant positive correlation with age. The current preferred treatment is canalith repositioning, which offers rapid efficacy and straightforward execution. However, during repositioning, otolith stimulation of the semicircular canals may impair vestibular function. Consequently, many patients — particularly the elderly—experience residual dizziness (RD) and recurrence after treatment [2]. Additionally, some elderly patients with mobility issues cannot fully cooperate with manual repositioning techniques, or have contraindications such as cervical disc herniation causing restricted neck movement, making manual repositioning unsuitable [3].

Liu Zhibin, a nationally renowned traditional Chinese medicine practitioner, professor, chief physician, doctoral supervisor, and recipient of the State Council Special Government Allowance. With over four decades of experience in acupuncture and tuina clinical practice, teaching, and research, he excels at integrating traditional Chinese medical methods with modern scientific theories. This has led to the development of a distinctive academic system and the creation of innovative therapies such as the "Micro-Needle Therapy for the Scalp Hairline Area." In clinical practice, Professor Liu proposed the core pathogenesis for elderly patients with benign paroxysmal positional vertigo (BPPV): "Deficiency of the lower energizer as the root cause, disturbance by deficient wind as the manifest symptom, and turbid pathogens harming the clear essence as the transformation." Applying scalp hairline micro-needle therapy, he achieved remarkable clinical efficacy. This paper shares Professor Liu Zhibin's experience in treating elderly patients with benign paroxysmal positional vertigo using scalp hairline microneedle therapy, offering insights for colleagues in the field.

2. Modern Medical Understanding of Benign Paroxysmal Positional Vertigo

The pathogenesis of BPPV remains incompletely understood. The prevailing hypotheses are the "otolith-on-the-crista" theory and the "otolith-in-the-canal" theory, both grounded in the stimulation theory [4]. This theory posits that calcium carbonate particles (otoliths) originating from the utricle, saccule, or maculae detach and either attach to the crista of the ampulla or become free in the endolymph within the semicircular canals. When the head position changes relative to gravity, these displaced otoliths sensitize the crista to gravity or indirectly traction the endolymph, causing abnormal displacement of the crista. This triggers abnormal vestibular input signals to the brain, which receives conflicting imbalance information with visual and proprioceptive input, resulting in corresponding vertigo and nystagmus. Some studies suggest BPPV may not be related to otoliths shed within the semicircular canals, but rather stem from neuropathology within the otolith organs (such as the utricle and saccule) themselves, resulting in a lack of normal inhibitory function over otoliths [5]. Evidence supporting this view includes the absence of detected otolith particles within the semicircular canals in some BPPV patients [6]. Additionally, the theory of impaired inner ear circulation is another widely accepted hypothesis. It effectively explains the clinical epidemiological feature of BPPV incidence significantly increasing with age. As individuals age, vascular degenerative changes intensify. When combined with factors like posterior circulation ischemia or hypertension, this can more readily trigger microcirculatory disturbances in the inner

ear. This, in turn, leads to otolith fragment detachment and subsequently induces BPPV [7].

3. Traditional Medicine's Understanding of Benign Paroxysmal Positional Vertigo

Within the theoretical framework of Traditional Chinese Medicine (TCM), BPPV falls under the categories of "vertigo" and "dizziness." Its pathogenesis is complex, closely linked to dysfunction in multiple zang-fu organs. Modern TCM scholars have increasingly studied vertigo, gaining more comprehensive and profound insights into its mechanisms. Many medical authorities advocate that vertigo primarily pertains to the liver's jurisdiction, while also being associated with dysfunction in the spleen, kidneys, and other organs [8]. The Huangdi Neijing's assertion that "all wind-induced tremors and dizziness belong to the liver" established the theoretical foundation for treating vertigo from a liver-centered perspective. Pathomechanisms such as liver qi stagnation transforming into fire, liver yin deficiency, or liver yang hyperactivity can all manifest as vertigo. The Ling Shu states: "Insufficient upward qi causes the brain to feel incomplete... and the eyes to become dizzy." It further notes: "When the marrow sea is deficient, the brain spins, the ears ring, the shins ache, and dizziness occurs." Impaired spleen function, failure of clear yang to ascend, or kidney essence deficiency may also cause vertigo. Pathogenic factors in vertigo can be categorized into five types: wind, fire, phlegm, stasis, and deficiency [9]. Wind pathogens invade the clear orifices, obstructing qi and blood circulation in the head; fire pathogens disturb the clear orifices; phlegm-dampness obscures clear yang; blood stasis obstructs cerebral vessels, hindering qi and blood flow; while deficiency syndromes like liver-kidney deficiency and qi-blood insufficiency underlie all manifestations. The Shanghan Lun identifies vertigo as a primary symptom of Shaoyang disease, emphasizing its connection to the liver. This theory was inherited and developed by subsequent generations of physicians, becoming a crucial theoretical foundation for treating vertigo in traditional Chinese medicine.

Professor Liu further elaborates that in elderly patients with vertigo, due to deficiency of essence and qi, the disease manifests in the brain and eyes. The brain is the sea of marrow, where essence and qi are generated; the eyes are the orifices of the liver, and the pupils are governed by kidney water. Both organs thrive on tranquility and abhor disturbance. Tranquility maintains clarity internally, while disturbance causes agitation and disarray. This condition arises from deficiency in the liver and kidneys, where deficient wind disturbs the clear orifices. Specifically, when water fails to nourish wood, liver yang lacks sustenance, leading to hyperactivity of liver yang and internal stirring of liver wind. This ascends to disturb the clear orifices, manifesting as vertigo. Professor Liu emphasized that establishing the core concept of "treating deficiency as the root" is essential in diagnosing and treating geriatric diseases. The deficiency of essence and qi (the root deficiency) caused by advanced age and physical decline provides the internal foundation for the generation of pathological products such as phlegm-turbidity and blood stasis (the branch excess). This determines the pivotal role of "deficiency" among the pathogenic factors in geriatric diseases. The Suwen: Treatise on the True Essence of the Ancient Era states: "For women... at six or seven cycles, the three yang meridians decline in the upper body... at seven cycles, the Ren meridian becomes deficient... the heavenly essence dries up, the earth's passage becomes blocked, thus the body deteriorates and bears no offspring." "For men... at seven or eight cycles, liver qi declines... at eight cycles, the heavenly essence dries up... then teeth and hair fall out." With advancing age, the viscera gradually transition from fullness to insufficiency, and various physiological functions progressively decline, forming a state of "viscera shifting from prosperity to decline, with form and qi gradually becoming deficient." The Medical Case Records: Guide to Clinical Practice states in 'Vertigo': "The liver is the organ of wind-wood, embodying yin in substance and yang in function. Its nature is vigorous, governing movement and ascension, entirely dependent on kidney water for nourishment... If kidney yin is deficient below, liver yang will rise unchecked, stirring internal wind. "The Source of Miscellaneous Diseases: Stroke states," Deficient wind arises from insufficient yin blood, where the liver lacks nourishment and internal wind stirs covertly, manifesting as dizziness, limb numbness, and unceasing tremors." Medical Insights on Vertigo: "Vertigo manifests as darkened vision; dizziness as spinning sensation... Causes include damp phlegm obstruction, kidney yin deficiency, or decline of life gate fire—these constitute the deficiency and excess patterns of this syndrome." Medical Compendium on Vertigo states: "Kidney yin deficiency causes deficient fire to surge upward, resulting in head dizziness and tinnitus." Medical Orthodoxy, Volume 4, Vertigo: "Vertigo is universally attributed to excess above and deficiency below." Jingyue's Complete Works, Vertigo: "No deficiency fails to cause vertigo... Vertigo cases are predominantly deficient in eight or nine out of ten." Thus, deficiency predominates in vertigo.

Professor Liu posits the pathogenesis of benign paroxysmal positional vertigo in the elderly as: "Deficiency of the lower energizer as the root, ascending deficient wind as the manifestation, turbid pathogens harming the clear as the transformation." This theory builds upon the concept of "deficiency of the lower energizer and internal movement of deficient wind," synthesized through years of clinical experience and integration with Western pathological mechanisms. Therapeutic principles emphasize "tonifying the liver and kidneys, nourishing yin to subdue yang, and transforming yin to disperse nodules." The primary treatment method employs scalp micro-needling therapy at the hairline: selecting bilateral scalp points at the hairline and lower jiao points. Scalp micro-needling therapy involves acupuncture at the hairline region (the junction of the face, head, and neck) to treat systemic diseases. It features concise point selection, minimal pain, and long-term retention of needles [10].

4. Acupoint Selection Principles for Scalp Hairline Microneedling Therapy

4.1 Liver and Kidney Deficiency with Internal Wind Stirring, Select Points in the Lower Jiao

The lower organs are the liver and kidneys, sharing the same origin. The Clinical Guide to Medical Cases states: "When liver wind stirs internally, it surges upward to the crown, manifesting as vertigo." The Differentiation of Syndromes:

Vertigo Section notes: “When kidney water is deficient and depleted, dragon-thunder fire ascends to the brain, thus causing dizziness.” The root of vertigo lies in the liver and kidneys. When the lower reservoir's water dries up, water and fire ascend, and wind follows. Medical Compendium states: “To treat vertigo, nourish kidney water.” Classification of Syndromes and Treatment Principles: Liver Fire and Liver Qi notes: “Insufficient liver yin allows yang to disturb and wind to whirl; nourish yin to harmonize the liver, and when nourishment is replenished, wind ceases.” Acupuncture at lower-jiao points stimulates kidney essence to ascend to the brain, correcting balance disorders caused by “insufficient marrow sea.” The Suwen: Great Treatise on Yin-Yang Correspondences states: “The kidneys generate bone marrow.” When the marrow sea is replenished, vertigo ceases. It also regulates liver and gallbladder qi, promoting liver blood to nourish the head and eyes, alleviating visual spinning and internal wind caused by liver yin deficiency. The Clinical Guide to Medical Cases states, “Liver yin deficiency allows wind-yang to ascend unchecked.” The Lower Jiao point is adjacent to the Ganyan point. The Classic of Acupuncture and Moxibustion, Volume 3, states, “Ganyan... treats dizziness with impaired vision,” while the Essential Prescriptions Worth a Thousand Gold states, “Ganyan treats wind-induced dizziness with blurred vision.” Needling Xiajiao stimulates the scalp area corresponding to auditory function localization in the cerebral cortex, thereby activating the auditory center and improving ear circulation [11]. This enhances inner ear blood flow, promotes dissolution or reattachment of otolith granules, and alleviates or cures benign paroxysmal positional vertigo. Implementing prolonged needle retention after insertion, while instructing patients to maintain voluntary activity during retention, facilitates sustained transmission of neural impulses to the cerebral cortex. Under the influence of scalp acupuncture stimulation, the cerebral cortex exhibits heightened sensitivity to various afferent impulses, subsequently issuing corresponding motor commands. This scalp acupuncture treatment facilitates sustained recovery and consolidation of neural function. Compared to the sole use of strong twisting techniques, it aligns more closely with the physiological mechanisms of the neural reflex arc [12].

4.2 Dizziness with Brain-Spinning Sensation, Wind-Yang Whirling and Boiling, Auxiliary Treatment at Head Acupoints

Vertigo manifests in the head and eyes, representing a disorder of the upper body. Modern bioholographic theory further reveals that as an organic whole, the human body possesses relatively independent regions—such as the scalp hairline area—that contain holistic life information, forming a “holographic embryo” structure. As a holographic unit representing the “inverted projection of the human body,” the scalp hairline area exhibits a correspondence between its head acupoints and the vestibular organs [12]. Jingyue Quanshu, Volume 17, Vertigo: “Methods for treating vertigo... involve needling scalp points to address symptoms.” Neuroanatomically, the micro-needle stimulation zone at the scalp hairline contains crucial nerve branches like the trigeminal nerve and greater occipital nerve. Their central branches primarily project to the trigeminal sensory nuclei, particularly the trigeminal spinal nucleus. Acupuncture stimulation exerts effects through the following mechanisms: 1. Neural Conduction Pathways: Acupuncture activates local nerve endings, generating neural impulses that influence the trigeminal spinal nucleus and the gelatinous substance of the upper cervical spinal cord dorsal horn. This activity propagates to the solitary nucleus, subsequently affecting other cranial nerve nuclei [13]. 2. Vestibular regulatory mechanism: The vestibular nerve receives stimuli from the cristae of the three semicircular canals (lateral, superior, and posterior) at the cristae of the semicircular canals. After converging into bundles at the vestibular ganglion, it enters the pons and medulla oblongata, with most fibers terminating in the vestibular nucleus. As a key neural nucleus for maintaining human balance and spatial orientation, functional regulation of the vestibular nuclei holds significant importance for treating benign paroxysmal positional vertigo [14]. 3. Neurological reflex pathways: Stimulation-generated nerve impulses can influence the vestibular nucleus group, achieving functional adjustment through vestibular reflex pathways [15]. Additionally, neural impulses from the trigeminal spinal nucleus and solitary tract nucleus can reflexively reach the brainstem reticular nucleus. This brainstem reticular structure maintains close connections with the vestibular nuclei and can alleviate patient discomfort such as vomiting [14]. 4. Blood supply regulation: Stimulation of this region enhances reflex functions between cranial nerve nuclei, accelerates brain cell electrical activity, and promotes central neurotransmitter release. These neural changes subsequently increase local blood flow in corresponding cortical regions, improve cerebral tissue perfusion, and ultimately exert positive effects on cerebral blood rheology through cellular metabolic regulation [16]. This series of neurophysiological mechanisms collectively forms the scientific basis for scalp hairline microneedle therapy in treating vertigo.

4.3 When Turbid Pathogens Harm the Clear, and Yin Stagnation Disturbs Internally, Acupoints Should be Selected on the Head

From a modern medical perspective, the primary pathogenesis of benign paroxysmal positional vertigo (BPPV) involves the mechanical “aggregation” of otolith crystals and cristae capitate stones stimulating receptors to induce vertigo. Research suggests that otolith formation and dissolution in the human body maintain a dynamic equilibrium, and disruption of this balance leads to disease onset [17]. Otoliths (calcium carbonate crystals), as tangible entities, fall under the category of phlegm-turbidity in Traditional Chinese Medicine. The principle “Yang generates Qi, Yin forms substance” represents a crucial process in overall body fluid metabolism. Abnormalities in this metabolism lead to the accumulation of otoliths, resulting in vertigo [18]. This pathological state aligns with the therapeutic principle of “dispersing what is congested” outlined in the Huangdi Neijing [19]. Deficiency of liver and kidney essence constitutes the fundamental cause of this disorder, simultaneously inducing an internal contradiction: insufficient “transformation into qi” function coupled with pathological excess in “formation into substance.” Specifically, when water fails to nourish wood, deficient wind stirs internally, disturbing the clear orifices—the source of “deficient wind disturbing upward,” manifesting as vertigo. Concurrently, the mutual dependence of yin and yang means that insufficient kidney essence leads

to deficiency of primordial yang, weakening the "yang transforming qi" function and disrupting the transport and transformation of qi, blood, and body fluids. Simultaneously, the "yin forming substance" function becomes relatively hyperactive, facilitating the formation of pathogenic factors like dampness-turbidity and blood stasis. This state of "yang failing to restrain yin" causes otoliths (pathological products of 'form') to accumulate and stagnate within the semicircular canals, forming the root of disease known as "knot." As a yin-turbid pathogen, it invades the clear yang orifices, further obstructing the meridians and obscuring the clear yang. The Nan Jing (Difficult Classic), Chapter 47, states: "The head is the convergence point of all yang energies," emphasizing the head's intimate connection with the body's yang qi. The Lei Jing (Classified Classic), Volume 3, Zang-Xiang Category, notes: "The head is the meeting place of all yang energies and the repository of clear yang. The clear yang qi of the six fu organs and the essence blood of the five zang organs all converge at the crown." Within the head, the "Sea of Yang Meridians" (Governor Vessel) and the qi of multiple yang meridians converge and circulate. All fourteen meridians traverse the head; thus, treating head acupoints harmonizes yin and yang [20]. The Medical Compendium, Volume 15, Chapter on Head Vertigo states: "Head vertigo... fundamentally stems from disharmony of meridian qi in the head. Treatment should primarily target head acupoints." Therefore, acupuncture at head points stimulates Yang energy, dispels stagnation, transforms phlegm, disperses nodules, invigorates blood, and unblocks collaterals. This "Yang-activating" power helps loosen and dissipate otoliths—nodal accumulations of Yin turbidity—restoring the function of "Yang transforming into Qi" and achieving the effect of "dispersing what is knotted."

5. Typical Cases

Patient, female, 62 years old, initial consultation on December 10, 2024. Chief complaint: Vertigo for one week, worsening with neck movement restriction for two days. Present Illness: One week ago, experienced vertigo without apparent cause, characterized as rotational, accompanied by nausea but without vomiting, tinnitus, deafness, diplopia, limb weakness, or slurred speech. Episodes were brief, triggered by positional changes (primarily upon rising or turning over), and resolved spontaneously within 10-30 seconds. Findings: Cranial MRI: No significant abnormalities noted. Two days prior, the patient developed neck stiffness and discomfort due to fear of positional changes, accompanied by limited neck mobility and numbness/pain in the left upper limb. Current Symptoms: Vertigo with nausea, nystagmus (+), neck pain, limited neck mobility, left upper limb numbness/pain. Appetite fair, poor sleep, no significant abnormalities in bowel/bladder function. Poor mental state, normal complexion, Tongue: Red with thin coating. Pulse: Deep, fine, and rapid. Medical History: - Severe osteoporosis for 5 years: History of lumbar compression fracture; long-term calcium and vitamin D supplementation. - Cervical disc herniation with radiculopathy for 7 years. Cervical MRI showed: Cervical spinal canal stenosis, multi-segmental osteophytes. Western Medical Diagnosis: Benign paroxysmal positional vertigo, cervical disc herniation with radiculopathy. Traditional Chinese Medicine Diagnosis: Vertigo (Liver-Kidney Deficiency), Neck Stiffness. Treatment Principle: Tonify Liver and Kidney, Nourish Yin and Calm Wind, Transform Yin and Dissolve Nodules. Acupoint Selection: Bilateral scalp points at hairline region and lower jiao points, totaling 6 points. Procedure: After routine disinfection of acupoint areas, select 1-inch filiform needles. Insert horizontally toward the scalp 0.5 inches. Obtaining deqi is indicated by any sensation of soreness, numbness, distension, heaviness, coolness, or warmth. If significant pain occurs upon insertion, slowly withdraw the needle slightly, slightly adjust the insertion direction, and reposition until discomfort resolves. Needles retained for 60 minutes. Every 10 minutes during retention, perform scraping techniques to enhance the sensation. Administered once daily. Complemented by Liu's One-Finger Zen Wrapping Massage for cervical spine treatment, once daily. After 3 sessions, the patient's vertigo symptoms improved, and cervical mobility increased. Following 1 week of treatment, only residual BPPV symptoms remained: nystagmus (–), no vertigo with positional changes. After 10 days of treatment, all residual symptoms resolved.

Commentary: The 62-year-old patient was unable to undergo manual reduction, the primary treatment for BPPV. Based on the patient's tongue, pulse, and physical signs, the syndrome was diagnosed as "deficiency of the lower energizer as the root cause, ascending wind disturbance as the manifest symptom, and turbid pathogens impairing clear essence as the transformation." Scalp micro-needling therapy was administered at the hairline. During treatment, primary points were selected based on the principles of regional correspondence, ipsilateral correspondence, and organ-viscera dominance, integrating the principles of selecting points for the triple energizer, disease-specific point selection, and syndrome differentiation. For cerebral disorders, cranial points were selected to directly target the pathological focus. Given the shared origin of liver and kidney yin, deficiency in the lower energizer, failure of water to nourish wood, and consequent liver yang hyperactivity, points related to the liver and kidney in the lower energizer were chosen to nourish water and regulate wood. Ipsilateral points primarily address symptoms on the same side. Since the affected area is located on both sides of the head, points in the bilateral hairline regions are selected to stimulate the affected area's yang energy. This achieves the combined effects of tonifying the liver and kidneys, nourishing yin to subdue yang, transforming yin to disperse nodules. Furthermore, bilateral point selection aligns with the therapeutic principle from the Huangdi Neijing: "The left and right sides are the pathways of yin and yang."

Conclusion: Professor Liu believes that patients with benign paroxysmal positional vertigo in the elderly present unique characteristics. For those unresponsive to manual repositioning techniques, scalp micro-needling therapy offers distinct advantages. Vertigo fundamentally stems from wind and fire. The head serves as the convergence point of all yang energies, while the ears and eyes function as the orifices of clear space. When yang energy rises and wind stirs, wind and yang swirl and boil, ascending to the crown of the head, thus inducing vertigo. Where do wind and yang originate? Fundamentally, kidney essence deficiency fails to nourish the marrow sea, while liver blood deficiency allows wind-yang to stir. When yin fails to restrain yang, liver yang transforms into wind, ascending to disturb the clear orifices. Thus, nourishing

water to sustain wood, subduing yang to extinguish wind, and halting vertigo become imperative. Simultaneously integrating Western pathological mechanisms, we address displaced otoliths based on the Huangdi Neijing principle of "dispersing what is knotted." This involves promoting yang to disperse knots and warming to transform turbid pathogens. Therapeutically, we combine the etiology and pathogenesis of vertigo with scalp hairline micro-needling therapy, treating both upper and lower aspects. Upper points are selected on the head, while lower points target the lower jiao, addressing symptoms, root causes, and transformations simultaneously. Furthermore, as stated in Ling Shu: Pathogenic Factors, Zang-Fu Organs, and Disease Manifestations, "The twelve meridians and three hundred sixty-five collaterals all carry blood and qi upward to the face and flow through the orifices." The scalp hairline micro-needle therapy employs extended needle retention times, allowing deeper and more sustained stimulation of acupoints and meridians. This restores yin-yang balance, consolidates therapeutic effects, and reduces the recurrence of otolith detachment and vertigo. This approach significantly enhances the therapeutic efficacy for elderly patients with benign paroxysmal positional vertigo, warranting further clinical promotion and application.

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