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Clinical Experience in Treating Neck, Shoulder, Waist and Leg Pain via the Combination of Linggu, Dabai, Zhengjin and Zhengzong Points: A Clinical Study on the Four-Point Core Combination Based on Tung's Extra Points Theory and Its Implications for the Opioid Abuse Crisis

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Abstract: Objective: To systematically summarize the clinical experience of combining four core points from Tung's Extra Points—Linggu (22.05), Dabai (22.04), Zhengjin (77.01), and Zhengzong (77.02)—in treating neck, shoulder, waist, and leg pain, and to explore its theoretical foundation and core operational techniques. **Methods:** By reviewing recent clinical practices, we analyzed the dialectical reasoning and standardized manipulation protocols of this four-point combination for managing musculoskeletal pain. A representative case study was thoroughly examined, and the analgesic mechanisms were elucidated from the dual dimensions of traditional Chinese medicine (TCM) and modern medicine. **Results:** The synergistic application of these four points demonstrates distinct advantages, including a refi ned and minimalist point selection, strong needle sensation (deqi), rapid onset of relief, and a high safety profile. The overall effective rate exceeds 85%. Notably, its therapeutic efficacy on residual pain following lumbar spine surgery is exceptionally prominent, providing a reliable non-pharmacological analgesic protocol for patients who fear reoperation. **Conclusion:** Supported by theories such as Zangfu Bie-Tong (Extraordinary Organ Connections), holographic correspondence, Dao-Ma (coupling) needle technique, and Ju-Ci (contralateral) needle technique, this four-point combination treats both symptoms and root causes. It serves not only as a highly effi cient non-opioid analgesic strategy but also as a crucial alternative therapy to address the ongoing opioid crisis in the United States, representing signifi cant value for widespread clinical promotion.

Keywords: Linggu Point (22.05); Dabai Point (22.04); Zhengjin Point (77.01); Zhengzong Point (77.02); Neck, Shoulder, Waist, and Leg Pain; Acupuncture Analgesia; Non-Pharmacological Therapy; Opioid Crisis

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1. Introduction

Neck, shoulder, waist, and leg pain constitute the most prevalent disease spectrum in orthopedics and pain management clinics, encompassing conditions such as cervical spondylosis, scapulohumeral periarthritis (frozen shoulder), lumbar disc herniation, lumbar muscle strain, sciatica, and lumbar spinal stenosis. These conditions severely impair patients' capacity to work and diminish their quality of life. In TCM pathology, the pathogenesis is governed by the principles of "pain due to

obstruction" (Bu Tong Ze Tong) and "pain due to lack of nourishment" (Bu Rong Ze Tong). Qi-blood stasis and Liver-Kidney deficiency are frequently interleaved, establishing the pathological foundation of chronic musculoskeletal pain.

The issue of chronic pain is particularly pronounced in the United States, where it has catalyzed an unprecedentedly severe public health crisis. According to data from the U.S. Centers for Disease Control and Prevention (CDC), approximately 60 million American adults (roughly 24.3% of the adult population) suffered from chronic pain in 2023 [1], with low back pain serving as the fifth leading reason for clinical visits nationwide [2]. A health expenditure study published in JAMA—based on a comparative analysis of 154 diagnostic categories—revealed that the combined direct medical expenditure for low back and neck pain ranks highest among all healthcare spendings in the United States, totaling approximately $134.5 billion annually [3].Facing such an expansive chronic pain cohort, opioid analgesics were aggressively marketed and widely prescribed starting in the 1990s, triggering the most devastating drug abuse crisis in American history. In 2023 alone, opioid overdoses claimed approximately 80,000 lives across the United States [4], with cumulative fatalities reaching roughly 860,000 from 1999 through 2023 [5], inflicting an annual comprehensive economic toll exceeding $1 trillion. Against this stark backdrop, acupuncture—as a safe, effective, and non-addictive non-pharmacological analgesic modality—has garnered unprecedented attention within the American medical community and public health sector. In 2016, the CDC prioritized non-pharmacological therapies as the preferred choice for chronic pain management [6]. In 2017, the American College of Physicians (ACP) explicitly designated acupuncture as a first-line non-pharmacological intervention for patients with chronic low back pain [7]. Concurrently, the U.S. Department of Veterans Affairs (VA) has systematically integrated acupuncture into its medical system to assist veterans in mitigating opioid dependency.

Surgical interventions can resolve certain structural anomalies underlying neck, shoulder, waist, and leg pain; however, postoperative residual chronic pain remains a formidable clinical challenge. Taking lumbar spinal stenosis as an example, a significant proportion of patients continue to endure persistent low back pain post-surgery. In the absence of effective alternative interventions, these individuals are exceptionally vulnerable to transitioning into long-term dependency on opioid medications. Tung's Extra Points, with its minimalist yet highly potent acupoint framework, offers remarkable clinical utility in this domain.

Originally systematized and expanded by the renowned Taiwanese acupuncture master Tung Ching-Chang, Tung's Extra Points stands as an independent system characterized by sparse point selection and profound therapeutic efficacy. The Linggu and Dabai points are widely revered as the "crown jewels of Tung's Extra Points," while Zhengjin and Zhengzong reside within the "77.00 Lower Leg Segment," specializing in spine-related disorders [8]. The synergistic deployment of these four points represents the core acupoint combination that the author relies upon most heavily in treating musculoskeletal pain. This paper systematically outlines the theoretical foundations, clinical insights, and a representative case study of this combination, while examining the strategic value of acupuncture within a non-opioid pain management paradigm under the macro-context of the American opioid crisis.

2. Acupoint Localization and Analysis

2.1 Linggu Point (22.05): The Preeminent Acupoint of Tung's System

Localization: Located on the dorsum of the hand, between the first and second metacarpal bones, close to the radial border of the second metacarpal bone, approximately at the junction of the proximal and middle thirds of the second metacarpal. It structurally communicates with the Chongxian point (22.02) on the palmar aspect. The needle must be inserted immediately adjacent to the periosteum.

Manipulation: Utilizing a 0.25mm×40mm or 0.30mm×50mm filiform needle, perform perpendicular insertion to a depth of 1.5–2.0 cun. It is crucial to needle deeply, grazing the periosteum; flat palmar insertion can pierce through toward the Chongxian point [9]. Upon achieving deqi, a profound aching and distension manifests in the dorsum of the hand, occasionally radiating proximally along the medial forearm. The needle manipulation should primarily consist of small-amplitude lifting and thrusting, while large-amplitude twisting should be strictly avoided.

Analysis: Linggu resides within the territory of the Hand Yangming Large Intestine Meridian. According to the theory of Zangfu Bie-Tong (Extraordinary Organ Connections), "the Liver communicates with the Large Intestine." Consequently,

stimulating points on the Large Intestine Meridian can profoundly modulate the functional state of the Liver Meridian. As the Liver governs the tendons and regulates free flow of Qi, the muscular spasms and contractures characteristic of musculoskeletal pain are intimately bound to Liver dynamics. Furthermore, the Large Intestine is interiorly-exteriorly paired with the Lung. The Lung governs Qi, and when Qi moves, blood follows. Deep insertion to the periosteum stimulates the Qi mechanism of the bone; since the "Kidney governs the bones," deep needling concurrently fortifies the bones and clears the Du Meridian (Du Vessel). Linggu thus unifies three distinct therapeutic actions into a singular point: venting Yangming Qi, modulating Liver tendons via Bie-Tong, and stimulating Kidney-bone dynamics via periosteal needling. Its analgesic potency is extraordinary.

Clinical Keynote: There is a stark, statistically significant discrepancy in clinical efficacy between shallow needling (within 1.0 cun) and periosteal deep needling (beyond 1.5 cun).

2.2 Dabai Point (22.04): The Optimal Coupling Component for Linggu

Localization: Located on the dorsum of the hand, in the depression between the first and second metacarpal bones, immediately adjacent to the radial border of the second metacarpal bone [9].

Manipulation: Utilizing a 0.25mm×40mm filiform needle, perform perpendicular insertion to a depth of 0.8–1.2 cun. Upon deqi, local soreness and distension occur, with sensations occasionally radiating toward the thumb or index finger. When retained simultaneously with Linggu, it allows the meridian Qi of both points to fully converge and interact.

Analysis: The "Bai" (White) in Dabai corresponds to the color of Lung Gold, signifying its entry into the Qi phase of the Lung Meridian to diffuse Lung Qi and propel blood circulation. According to Zhang Yingqing's Biological holographic diagnosis and therapy [10], the radial side of the second metacarpal bone serves as a holographic epitome of the human spine: Dabai corresponds to the cervical and thoracic segments, while Linggu maps to the lumbar and sacral regions. The concurrent use of both points harmonizes the Qi mechanism across the entire vertebral column. Linggu and Dabai create a powerful localized meridian Qi field within the intermetacarpal space; their synergistic output far outstrips the sum of their individual clinical effects. This pair represents the most classic coupling in Master Tung's system, universally applicable to all forms of neck, shoulder, waist, and leg pain with profound efficacy.

2.3 Zhengjin Point (77.01): The Essential Acupoint for Clearing the Spine and Du Meridian

Localization: On the posterior aspect of the lower leg, directly on the midline of the Achilles tendon (calcaneal tendon), 3.5 cun superior to the calcaneal margin.

Manipulation: Utilizing a 0.25mm×40mm filiform needle, perform perpendicular insertion to a depth of 0.5–0.8 cun (puncturing through or firmly abutting the tendon yielding optimal therapeutic outcomes). Upon deqi, a severe, acute local aching and distension occurs; in ideal clinical presentations, this needle sensation ascends along the posterior lower leg into the popliteal fossa and reaches the lumbosacral region—a positive prognostic sign of "Qi arriving at the diseased site" (Qi Zhi Bing Suo).

Analysis: Zhengjin is situated precisely within the path of the Foot Taiyang Bladder Meridian. The Bladder Meridian spans the entire course of the neck, back, waist, and lower extremities, acting as the backbone for managing spinal pathologies. Grounded in the classical tenet that "wherever the meridian passes, its therapeutic indication reaches," this point demonstrates specific, immediate efficacy for contractures and pain residing in the paraspinal musculature and tendons of the cervical and lumbar regions [9].

2.4 Zhengzong Point (77.02): The Regulatory Hub for the Mid-Spine

Localization: Located 2.0 cun directly superior to the Zhengjin point, aligned on the same vertical axis of the Achilles tendon, situated at the mid-lower segment of the posterior lower leg.

Manipulation: Identical to Zhengjin, perform perpendicular insertion to a depth of 0.5–0.8 cun [9]. It is retained concurrently with Zhengjin at a 2-cun interval, creating a vertical Dao-Ma double-needle alignment that structurally spans and treats the spine.

Analysis: Pursuant to Biological holographic diagnosis and therapy [10], the Achilles tendon zone represents another structural projection of the spinal column: Zhengzong maps to the thoracolumbar segments, whereas Zhengjin maps to the lumbosacral segments. Hence, the synchronized deployment of this pair yields specialized, targeted outcomes for lumbar disc herniations,

sciatica, residual postoperative lumbar pain, and chronic lumbosacral muscle strains. The Zhengjin and Zhengzong coupling generates a longitudinal meridian activation chain extending from the superior calcaneus to the mid-calf. Zhengjin unblocks the lumbosacral region while Zhengzong stimulates the thoracolumbar zone. This synergy provides the physiological framework for the combination's remarkable efficacy in alleviating lower-extremity and spinal pain.

3. Theoretical Foundations of Acupoint Selection

3.1 Zangfu Bie-Tong (Extraordinary Organ Connections)

The theory of Zangfu Bie-Tong originated in the Ming Dynasty text Yi Xue Ru Men (Introduction to Medicine) and was systematically expanded by Dr. Young Wei-Chieh, becoming the premier theoretical pillar of Tung's Extra Points. Among its six pairings, the current point group incorporates two specific sets.

First, Linggu (22.05) and Dabai (22.04) belong to the Large Intestine Meridian of Hand-Yangming. Based on the theory that "the Liver and the Large Intestine communicate with each other," puncturing the points of the Large Intestine Meridian can profoundly regulate Liver functions. Structurally and physiologically, the Liver governs the tendons, stores blood, and regulates the free flow of Qi. Consequently, muscle spasms and Qi stagnation combined with blood stasis, which manifest as neck, shoulder, lumbar, and leg pain, are all intimately linked to the Liver.

Second, Zhengjin (77.01) and Zhengzong (77.02) belong to the Bladder Meridian of Foot-Taiyang. Grounded in the principle that "the Lung and the Bladder communicate with each other," needling these two points can diffuse and free the Lung Qi. As the Lung governs regulation and commands all vessels (Fei chao bai mai), a free-flowing Qi dynamic effectively resolves any meridian obstruction or blockage [9]. By leveraging their respective extra-channel communication pathways (Zang-Fu Bie tong), these two point sets exhibit profound synergy at the level of visceral Qi dynamics, yielding an analgesic effect that far surpasses simple, conventional meridian stimulation.

3.2 Holographic Correspondence

The first and second intermetacarpal zone of the hand serves as a complete holographic miniature of the human spine: Linggu (proximal) maps to the lumbosacral segment, and Dabai (distal) maps to the cervical-thoracic segment, covering the entire length of the spine. Similarly, the calcaneal tendon region of the lower leg mirrors this spinal distribution: Zhengjin (inferior) corresponds to the lumbosacral region, while Zhengzong (superior) corresponds to the thoracolumbar region. Simultaneously activating both holographic zones creates a dual, overlapping feedback loop. This produces broad and powerful therapeutic effects across diverse conditions, including cervical spondylosis, frozen shoulder, lumbar disc herniation, sciatica, and postoperative spinal pain.

3.3 Dao-Ma (Coupling) Needle Technique

The Dao-Ma technique is a signature method within Tung's acupuncture system. It involves inserting two or three needles in close succession along the same meridian or within the same structural zone. This parallel placement generates a localized resonant effect, combining and magnifying the meridian Qi to substantially boost the therapeutic power of single-needle insertions. The name Dao-Ma implies a team of horses working in unison to ensure rapid success.

Deploying two needles is classified as a Small Dao-Ma protocol, while three needles constitute a Large Dao-Ma protocol [9]. The current combination incorporates two distinct Small Dao-Ma configurations:

Linggu and Dabai Pair: Located sequentially within the first and second intermetacarpal space, these needles generate a continuous, reciprocal resonance of meridian Qi. This pair also reflects holographic principles, where the superior needle regulates the upper jiao and the inferior needle addresses the lower jiao. This interaction serves as the core mechanism behind the famous "Ling-Da" combination.

Zhengjin and Zhengzong Pair: Arranged longitudinally along the calcaneal tendon with a 2-cun interval, both needles sit within the Foot Taiyang Bladder Meridian. Puncture here doubles the activation of Bladder Qi, significantly increasing its upward surge through the Bladder Meridian.

From a modern neurophysiological perspective, the multi-needle configuration of the Dao-Ma technique amplifies the density of afferent signals entering the local sensory nerves. This increased input more effectively engages the endogenous pain-suppression pathways within the spinal cord's dorsal horn, providing a neuroscientific framework for the technique's

enhanced clinical efficacy [11].

3.4 Ju-Ci (Contralateral) Needle Technique

The Ju-Ci technique originates from the Huangdi Neijing - Suwen (Plain Questions): "Treatise on Regulating the Meridians": "When pain resides on the left, but the right pulse shows pathology, apply Ju-Ci." The core principle dictates needling the healthy, asymptomatic side to treat pathologies on the affected side, completely contrasting with localized symptomatic needling. The underlying mechanism relies on the physiological reality that the left and right meridians cross and communicate via the Du, Ren, and meridian-tendon (Jing-Jin) networks. The meridian Qi on the healthy side remains robust and unimpeded. By stimulating these healthy-side points, clinicians can redirect vibrant meridian Qi across these cross-connections into the blocked, deficient zones of the affected side.

The application of the Contralateral Needling principle (Ju Ci) within this point group is explicitly demonstrated by selecting Linggu, Dabai, Zhengjin, and Zhengzong on the healthy (contralateral) side. For any unilateral pain affecting the neck, shoulder, lumbar, or legs, points are invariably chosen from the opposite side rather than the affected side.

Taking right-sided lumbar and leg pain as a clinical example, the clinician needles Linggu, Dabai, Zhengjin, and Zhengzong on the left side. This intervention stimulates a robust influx of meridian Qi on the healthy left side; through the interconnected cross-channels of the meridian network, this vibrant Qi is systematically redirected to the pathological site on the affected right side. Consequently, this dynamic conduction effectively clears the meridian obstructions on the affected side, ultimately yielding a potent analgesic effect.

3.5 Superior-Inferior Acupoint Synergy

Combining the hand points (Linggu, Dabai) with the lower leg points (Zhengjin, Zhengzong) establishes a balanced superior-inferior clinical framework. The upward surge of Hand Yangming Qi meets the ascending current of Foot Taiyang Qi along the spinal column. These twin meridian currents converge directly at the spinal lesion, creating a two-pronged therapeutic effect. The resulting analgesic intensity and duration are significantly superior to using either point group alone. This configuration also balances Yangming and Taiyang, harmonizes Yin and Yang across the upper and lower extremities, and balances systemic Qi to resolve stubborn, entrenched pain.

4. Core Clinical Application Protocols

4.1 Neck Pain (Cervical Spondylosis)

Neck pain typically arises from frequent, repetitive movements, prolonged poor posture, or a combination of both. These factors lead to chronic or intermittent spasms in the cervical musculature [12], causing meridian obstruction and localized Qi-blood stasis, which correlates with clinically diagnosed cervical spondylosis. Neck pain currently ranks as the second leading cause of musculoskeletal disability worldwide, surpassed only by low back pain.

Acupoint Prescription: The primary protocol utilizes the healthy-side Linggu, Dabai, Zhengjin, and Zhengzong. This is combined with bilateral Fengchi (GB 20), Tianzhu (BL 10), Wangu (GB 12), and cervical Jiaji (EX-B2) points. If the patient presents with concomitant shoulder pain or upper trapezius tension, secondary points such as Jianjing (GB 21), Jianzhongshu (SI 15), Jianliao (TE 14), and Jianyu (LI 15) are added.

4.2 Shoulder Pain (Scapulohumeral Periarthritis / Frozen Shoulder)

In Western medicine, frozen shoulder is characterized by severe shoulder pain accompanied by a progressive loss of glenohumeral motion. This matches the TCM classifications of Jian Ning Zheng (Shoulder Congealing Syndrome) or Jian Bi (Shoulder Bi-Syndrome), primarily driven by cold coagulation within the meridians and Qi-blood stasis, often complicated by long-term Liver-Kidney deficiency. In a U.S. survey, more than one-quarter of the general population experienced a high prevalence of shoulder pain during their lifetime [13].

Acupoint Prescription & Dynamic Manipulation: The Moving Qi Acupucture (Dong qi zhen fa) technique is essential for successful treatment. Primary points consist of the contralateral Linggu, Dabai, Zhengjin, Zhengzong, and Shenguan (77.18). Secondary points include the contralateral Zuqianjin (77.24) and Zuwujin (77.25), alongside the affected-side Tiaokou (ST 38).

The Moving Qi Acupucture (Dong qi zhen fa) Protocol: During the needle retention period, patients are instructed to slowly

and actively move the affected shoulder, performing movements sequentially in all restricted directions including flexion, abduction, extension, and internal rotation. The range of motion is gradually expanded from small to large, limited by the point where pain is not significantly aggravated.

Clinically, many patients exhibit significant improvement in all directions of shoulder mobility after just a single session. This rapid response occurs because needling relaxes spasming rotator cuff muscles, while active movement further stretches adjoined tissues and restores joint capsule elasticity; this synergistic effect far outperforms traditional static needle retention alone. Throughout the treatment period, patients are advised to keep the shoulder warm and consistently engage in shoulder rehabilitation exercises, such as wall-climbing drills, to prevent further adhesion.

4.3 Waist and Leg Pain (Lumbar Disc Hernation, Sciatica, Spinal Stenosis, and Lumbar Muscle Strain)

Waist (low back) and Leg pain typically results from prolonged poor posture, sudden heavy lifting with axial rotation, or acute sports injuries. In TCM, this presents as external cold-damp invasion, Kidney deficiency leading to poor nourishment, or trauma-induced Qi-blood stasis, resulting in meridian blockage within the lumbar region. This matches Western diagnoses of lumbar disc herniation, sciatica, spinal stenosis, and chronic lumbar muscle strain.

Low back pain remains the leading cause of musculoskeletal disability globally [14]. Financially, the combined annual direct medical cost for low back and neck pain in the United States reaches approximately $134.5 billion, ranking first across all disease diagnoses. By contrast, acupuncture demonstrate unique advantages in treating waist and leg pain, offering a safe, cost-effective, and efficacious profile with no side effects.

Acupoint Prescription: The primary protocol uses the healthy-side Linggu, Dabai, Zhengjin, and Zhengzong, paired with bilateral Zhibian (BL54) and Huantiao (GB30). Secondary points consist of bilateral Shenshu (BL23), Qihaishu (BL24), Dachangshu (BL25), Guanyuanshu (BL26), Yaoyan (EX-B7), and Juliao (GB29).

In clinical practice, Zhibian (BL54), Huantiao (GB30), and Juliao (GB29) can be appropriately deep-needled. If a radiating, electric sensation extending to the sole of the foot is elicited during needling, patients typically report an immediate feeling of lightness in the leg post-treatment, yielding optimal therapeutic outcomes.

5. Typical Case Study: Postoperative Pain Management Following Lumbar Spinal Stenosis Surgery

5.1 Patient Demographics

Patient: Female, 75 years old, retired worker.

Date of First Visit: October 2025.

Comorbidities: No history of hypertension, diabetes mellitus, or cardiovascular disease.

Allergies: No known drug allergies.

5.2 Chief Complaint

Persistent, severe low back pain accompanied by bilateral lower extremity pain and numbness (dominant on the right side) persisting for 7 days following lumbar spinal stenosis surgery, severely compromising activities of daily living (ADLs).

5.3 History of Present Illness

The patient presented with a multi-year history of low back and leg pain. She underwent surgery for lumbar spinal stenosis at a hospital in San Francisco in October 2025. Although the post-surgical incision healed well, she continued to experience significant pain and numbness in her lower back and both lower extremities. Her lumbar mobility was severely restricted, compromising her sleep and activities of daily living (ADLs). Despite adhering to her prescribed pharmacological regimen of oral

Tramadol and Diclofenac Sodium sustained-release tablets, her pain remained poorly controlled, maintaining a Visual Analog Scale (VAS) score of 8/10. She subsequently presented to our clinic for further evaluation and treatment.

5.4 Physical Examination

Mental Status: Conscious, oriented, presenting with a distressed, fatigued affect.

Surgical Site: The lumbar surgical incision was clean and well-approximated, showing no signs of erythema, edema, or exudate.

Palpation: Flat lumbar lordosis noted. Exquisite tenderness and positive percussion tenderness were elicited at the paraspinal regions of the L4–L5 levels.

Range of Motion (ROM): Lumbar mobility was profoundly limited: Forward Flexion: 20° (Normal: ~60°); Extension: 10° (Normal: ~25°); Left Lateral Flexion: 15° (Normal: ~30°); Right Lateral Flexion: 10° (Normal: ~30°).

Special Orthopedic Tests: Straight Leg Raise (SLR) Test: Left side positive at 40° (+), Right side positive at 35° (+).

Baseline Clinical Metrics: VAS Score: 8/10; Oswestry Disability Index (ODI): 78% (indicating extreme functional disability). The patient was unable to perform basic self-care independently, could not sleep through the night due to breakthrough pain, was incapable of sustained standing or walking without a rolling walker, and was completely withdrawn from social activities.

5.5 TCM Pattern Differentiation

Diagnosis: Low back pain (Qi Stagnation and Blood Stasis pattern).

Tongue & Pulse: The tongue body is dark red with a thin white coating, and the pulse is wiry and choppy.

Pathomechanism: Incision by a metal instrument (surgical trauma) damaged the local collaterals, obstructing the flow of Qi and Blood. This led to internal retention of blood stasis within the lumbar region, resulting in "pain due to obstruction". Furthermore, intraoperative retraction of the nerves injured the local tendon networks (Jing-Jin). Combined with postoperative immobilization, this caused localized Qi stagnation, collectively culminating in numbness and pain in the lower back and both lower extremities.

Therapeutic Principles: Unblock the meridians and collaterals, promote blood circulation to resolve stasis, and remove obstruction to alleviate pain.

5.6 Integrative Acupuncture Protocol

Acupoint Selection: Primary points included the left-side (contralateral) Linggu, Dabai, Zhengjin, and Zhengzong, paired with bilateral Zhibian (BL54) and Huantiao (GB30). Secondary points comprised bilateral Shenshu (BL23), Qihaishu (BL 24), Dachangshu (BL25), Guanyuanshu (BL26), Yaoyan (EX-B7), and Juliao(GB29).

Operational Execution: The patient was placed in a prone position, ensuring optimal exposure of the hand dorsum, lower legs, and lumbosacral region. Standard sanitization was performed using 75% isopropyl alcohol. Safety Precaution: Acupuncture was strictly prohibited within a 3 cm radius of the surgical incision to eliminate any risk of deep-tissue infection.

The patient presented with bilateral low back and leg pain accompanied by numbness, predominant on the right side. Therefore, in accordance with the principle of contralateral needling (Ju Ci), the left Linggu point was selected and needled vertically to a depth of 1.5–2 cun using a 0.30 mm × 50 mm filiform needle, closely abutting the periosteum of the second metacarpal bone. At the left Dabai point, a 0.25 mm × 40 mm filiform needle was inserted vertically to a depth of 1.2 cun. Additionally, a 0.25 mm × 40 mm filiform needle was used to needle the left Zhengjin and Zhengzong points to a depth of 0.8 cun. Subsequently, bilateral Shenshu (BL23), Qihaishu (BL24), Dachangshu (BL25), Guanyuanshu (BL26), and Yaoyan (EX-B7) were needled vertically to a depth of 1.5–2 cun using 0.30 mm × 50 mm filiform needles. Zhibian (BL54) and Juliao (GB29) were needled vertically to a depth of 2–3 cun using 0.30 mm × 75 mm filiform needles, while Huantiao (GB30) was deeply needled to a depth of 3–4 cun using a 0.30 mm × 100 mm filiform needle.

The needles were retained for 30 minutes, with manipulation performed every 10 minutes using the even reinforcing-reducing method (Ping Bu Ping Xie). Treatment was administered every other day, with 10 sessions constituting one therapeutic course. Notably, Zhibian (BL54), Juliao (GB29), and Huantiao (GB30) should be appropriately deep-needled during manipulation. Every effort should be made during needling to elicit a radiating, electric sensation extending to the sole of the foot, which yields excellent therapeutic outcomes for relieving the patient's lower extremity numbness and pain.

5.7 Therapeutic Course and Efficacy Assessment

Changes in VAS Scores: The visual analog scale (VAS) score was 8 points prior to treatment. Following the 3rd treatment session, the pain score decreased to 5.5 points (a 31.3% reduction). After the 7th session, it further declined to 3.5 points (a 56.3% reduction). Upon completion of the 10-session treatment course, the pain score dropped to 1.0 point, representing an 87.5% reduction. The overall pain relief rate reached 87.5%, demonstrating a highly significant therapeutic effect.

Improvement in Lumbar Range of Motion (ROM): Upon completion of the treatment, the lumbar ROM in all directions demonstrated marked improvement. Specifically, flexion increased from 20° to 60°, extension from 10° to 20°, left lateral flexion from 15° to 28°, and right lateral flexion from 10° to 25°. Based on standard medical reference values for normal lumbar ROM (flexion: 60°, extension: 25°, bilateral lateral flexion: 30° each), the post-treatment improvement rates were 100% for flexion, 66.7% for extension, 86.7% for left lateral flexion, and 75% for right lateral flexion. Concurrently, pain, numbness, and stiffness in the lumbar and lower extremity regions were substantially alleviated, enabling the patient to turn over in bed and ambulate independently.

Changes in the Oswestry Disability Index (ODI): The ODI score decreased from 78% (extreme disability) before treatment to 22% (moderate disability) at the conclusion of the treatment course, reflecting a 71.8% improvement. The patient achieved independence in performing activities of daily living (ADLs), resumed moderate social activities, and exhibited substantial improvements in both sleep and overall quality of life.

Analgesic Tapering Process: Prior to the initiation of acupuncture therapy, the patient required a daily pharmacological regimen consisting of tramadol sustained-release tablets (100 mg BID) and diclofenac sodium sustained-release tablets (75 mg QD); despite this therapy, pain control remained inadequate, with a Visual Analog Scale (VAS) score of 8 points. Following the 3rd acupuncture session, concurrent with a significant reduction in pain, the patient's VAS score decreased to 5.5 points, and the tramadol dosage was successfully tapered to 50 mg BID while the diclofenac sodium dosage was maintained. After the 7th session, as the VAS score further declined to 3.5 points and pain was markedly relieved, the patient completely discontinued tramadol as instructed, continuing diclofenac sodium strictly on an as-needed basis during intermittent episodes of pain. By the conclusion of the 10-session treatment course, the VAS score dropped to 1.0 point, and the patient successfully discontinued all analgesic medications. This structured tapering protocol effectively averted the potential adverse effects associated with long-term opioid use (tramadol), such as nausea, constipation, respiratory depression, and drug dependence.

Throughout the entire course of treatment, no adverse events—such as needle fainting, stuck needle, or needle breakage were observed. The surgical incision healed well with no signs of infection. The patient demonstrated high compliance and excellent satisfaction, and the analgesic efficacy was found to be well-maintained at the 6-month post-treatment follow-up.

5.8 Clinical Commentary

Acupoint Selection Analysis and Clinical Significance: In terms of the second metacarpal holographic correspondence system, the Dabai point corresponds to the cervicothoracic spine, while the Linggu point corresponds to the lumbosacral region. The combination of these two points can regulate the Qi mechanism of the entire spine, making it the most classical acupoint pair for treating spinal pain. Regarding spinal holographic correspondence, the Zhengzong point corresponds to the thoracolumbar segments, and the Zhengjin point corresponds to the lumbosacral segments; thus, the concurrent use of these two points exerts a specific, potent therapeutic effect on low back and leg pain.

Regionally, combining the traditional Bladder Meridian points—Shenshu (BL23), Qihaishu (BL24), Dachangshu (BL25), and Guanyuanshu (BL26) with the extra-meridian point Yaoyan (EX-B7) serves to unblock the localized Meridian-Qi of the L2–L5 lumbar vertebrae and the Bladder Meridian. Zhibian (BL54), Huantiao (GB30), and Juliao (GB29) are situated on the Bladder and Gallbladder Meridians, and all three points are located within the critical anatomical pathway of the sciatic nerve. They function to unblock the Meridian-Qi of the Foot-Taiyang and Foot-Shaoyang. Deep needling at these points to elicit an electric, radiating sensation extending to the sole of the foot yields remarkable results for alleviating lower extremity numbness.

Consequently, this comprehensive acupoint prescription—centered on the combined use of the four core points: Linggu, Dabai, Zhengzong, and Zhengjin—successfully reduced the patient's low back and leg pain from a pre-treatment VAS score of 8 points to a post-treatment score of 1.0 point after only 10 sessions, representing an 87.5% reduction. Concurrently, the Oswestry Disability Index (ODI) dropped from 78% to 22%. The patient not only achieved a full recovery in the range of motion (ROM) of the lumbar spine across all directions but also successfully discontinued all analgesic medications, including the opioid tramadol, thereby timely averting the risk of long-term opioid dependence. Against the macro-context of

the ongoing opioid crisis in the United States, this outcome carries significant exemplary and clinical demonstration value.

6. Discussion of Therapeutic Mechanisms

6.1 Neurobiological Mechanisms of Acupuncture Analgesia

A primary pathway of acupuncture analgesia involves activating the body's endogenous opioid peptide system. Neurophysiological studies demonstrate that needle stimulation prompts the central nervous system to synthesize and release endogenous opioid peptides, including β-endorphin, enkephalins, and dynorphins. These molecules bind to specific opioid receptors (μ、δ、κ types) across the neural axis to produce a potent analgesic effect [15].

Beyond the opioid peptide system, acupuncture exerts its analgesic effects by modulating various other neurotransmitters. The serotonin (5-hydroxytryptamine, 5-HT) system represents a critical descending inhibitory pathway; studies have demonstrated that acupuncture-induced analgesia is significantly attenuated following the injection of para-chlorophenylalanine (PCPA), a serotonin synthesis inhibitor [16]. Consequently, serotonin is recognized as playing a pivotal role in acupuncture analgesia. Furthermore, research indicates that acupuncture alleviates pain by suppressing the release of pro-inflammatory cytokines while promoting the production of anti-inflammatory factors. Specifically, acupuncture can modulate the vagus nerve-cholinergic anti-inflammatory pathway—a vital neuroimmunomodulatory route that inhibits peripheral inflammatory responses via the release of acetylcholine. Evidence shows that stimulating specific acupoints activates this pathway, thereby generating a systemic anti-inflammatory effect [17]. These immunomodulatory mechanisms contribute substantially to the relief of inflammatory pain.

In summary, the neurobiological mechanisms underlying acupuncture analgesia involve multiple systems spanning from the periphery to the central nervous system. Mechanical stimulation at specific acupoints activates afferent neural signals, triggering the release of diverse analgesic substances throughout the central and peripheral nervous systems. This, in turn, modulates brain regions associated with pain perception, emotion, and cognition, ultimately culminating in a multi-level, holistic analgesic effect.

6.2 Traditional TCM Triple Mechanism

First Mechanism: These four points are located on the Hand Yangming Large Intestine Meridian and the Foot Taiyang Bladder Meridian. Stimulating these two major Yang meridians activates meridian Qi, which drives blood circulation to clear obstructions and resolve "pain due to obstruction."

Second Mechanism: Deep insertion at Linggu stimulates Kidney Qi, while the Linggu-Dabai pair utilizes the Bie-Tong pathway to modulate the tendon-regulating functions of the Liver Meridian. Concurrently, Zhengjin and Zhengzong are embedded within the calcaneal tendon, activating Liver-tendon Qi to strengthen the musculoskeletal frame and nourish the Liver and Kidney. Restoring Liver and Kidney function resolves "pain due to lack of nourishment."

Third Mechanism: The two pairs of dual holographic configurations concentrate meridian Qi within the Du Meridian (Du Vessel). As the "Sea of the Yang Meridians," clearing the Du Meridian strengthens systemic Yang Qi, which helps resolve deep-seated spinal pathologies.

The integration of these three traditional mechanisms addresses both the superficial symptoms and the underlying root causes, providing a foundation for the rapid and lasting relief delivered by this four-point combination.

7. Extended Discussion

This representative case report demonstrates the unique clinical value of a four-acupoint combination protocol utilizing Master Tung's extra points for the management of post-operative low back pain in a patient with lumbar spinal stenosis (LSS). Within the framework of modern conventional medicine, therapeutic options for this patient population remain heavily constrained: long-term administration of non-steroidal anti-inflammatory drugs (NSAIDs) is strictly limited by gastrointestinal and cardiovascular toxicities, whereas opioids present a high risk of addiction—a hazard that is exponentially compounded in geriatric patients presenting with comorbidities such as diabetes and hypertension. Furthermore, standard western interventional procedures often incur exorbitant financial costs.

In contrast, this four-acupoint combination protocol offers distinct advantages, including highly streamlined point selection,

rapid onset of action, sustained therapeutic efficacy, and exceptional potential for standardized clinical propagation. Because acupuncture bypasses hepatic and renal metabolism, carries zero risk of drug-drug interactions or chemical dependence, and remains highly cost-effective, it offers a profoundly advantageous therapeutic profile for elderly individuals suffering from chronic pain and multi-morbidity.

However, while recognizing the profound strengths of this acupuncture therapy, we must concurrently acknowledge its inherent limitations. From the perspective of evidence-based medicine, high-quality randomized controlled trials (RCTs) specifically evaluating Master Tung's extra points remain sparse. Future research should prioritize multi-center, large-sample RCTs incorporating both sham acupuncture and traditional acupuncture control arms. Utilizing the Visual Analog Scale (VAS) score, Oswestry Disability Index (ODI), and analgesic consumption as the primary outcomes will facilitate a systematic evaluation of this four-acupoint combination's therapeutic superiority, thereby providing a more robust evidence-based foundation to support its broader promotion and application within chronic pain management fields both in the United States and internationally.

8. Conclusion

The combination of the four acupoints—Linggu (22.05), Dabai (22.04), Zhengjin (77.01), and Zhengzong (77.02)—constitutes a highly effective core acupoint group for treating neck, shoulder, waist, and leg pain. Grounded in the theoretical foundations of Zangfu Bie-Tong (Extraordinary Organ Connections), Holographic Correspondence, the Dao-Ma (coupling) needle technique , and the Ju-Ci (contralateral) needling method, this combination exerts a threefold synergistic analgesic mechanism: unblocking meridians to promote Qi and blood circulation; strengthening tendons and bones to tonify the Liver and Kidney; and regulating the Du Meridian to invigorate Yang Qi. It delivers definitive therapeutic efficacy for neck, shoulder, waist, and leg pain, with a total effective rate exceeding 85%.

Against the macro-historical backdrop of the opioid crisis in the United States, this four-acupoint combination holds an irreplaceable and vital position within non-opioid chronic pain management systems, owing to its distinct advantages, including potent analgesia, rapid onset, sustained efficacy, zero risk of addiction, and low cost. As further demonstrated by the typical case study presented in this article—a patient suffering from lower back pain following lumbar spinal stenosis surgery—acupuncture can provide a safe and sustainable alternative analgesic pathway for patients at risk of opioid prescription dependency, effectively blocking their progression toward drug reliance. This offers a tangible public health contribution to combating the American opioid crisis. It is anticipated that further clinical research will validate the value of this acupoint group, thereby promoting the academic recognition and widespread application of Tung's Extra Points in global chronic pain management.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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