

Research on the Progression of Pathogenesis in “Gout” with Turbidity, Stasis and Obstruction - Spleen Deficiency and Collateral Damage

Xu Hao, Li Qun*

Shaanxi University of Chinese Medicine, Xianyang 712046, Shaanxi, China

*Correspondence Author

Abstract: *As a refractory metabolic disorder, gout poses challenges in long-term management for modern medicine due to adverse reactions and high recurrence rates, highlighting the unique advantages of holistic regulation in traditional Chinese medicine. Contemporary TCM perspectives on gout have deepened: Zhu Liangchun established “turbid-stasis obstruction” as the pathological core; Lu Zhizheng emphasised the spleen-stomach axis’s pivotal role in “Maintaining the Centre, Transporting to the Periphery” as the pivotal role of the spleen and stomach. Jiang Quan proposed “spleen-kidney deficiency” as the root cause of the disease, while Qin Guozheng focused on the microscopic pathological location of luo disease. Each scholar’s theory possesses distinctive characteristics, yet the logical relationships and evolutionary trajectory among them remain to be clarified. This paper, through systematic review of these discourses, identifies a progressive deepening in their conceptual framework: from the symptomatic focus on “turbidity and stasis” to the fundamental emphasis on “spleen and kidney deficiency,” and finally to the micro-pathological site of “collaterals.” Building upon this foundation, the study further explores a sequential therapeutic approach: “strengthening the spleen and tonifying the kidneys to consolidate the root, draining turbidity and resolving stasis to clear the source, and unblocking collaterals and dispersing nodules to reach the location.” This aims to construct a TCM diagnostic framework for gout integrating “manifestation-root-location,” providing a theoretical basis for clinical practice.*

Keywords: Gout, Pathogenesis theory, Turbidity-stasis obstruction, Traditional Chinese medicine treatment.

1. Introduction

Gout is a common disorder arising from purine metabolism dysfunction, with its pathological core being elevated uric acid concentrations in the body [1]. The pathological mechanism of acute attacks involves urate crystals triggering neutrophil aggregation and the formation of neutrophil extracellular traps (NETs), thereby amplifying the inflammatory response. In the late inflammatory phase, NETs further aggregate to form aggregates (aggNETs), which promote inflammation resolution by degrading inflammatory mediators, yet also lay the groundwork for chronic tophus formation [2]. Acute clinical management requires a staged approach: during the acute phase, rapid anti-inflammatory and analgesic relief is primarily achieved through non-steroidal anti-inflammatory drugs (NSAIDs) and colchicine; in the maintenance phase, long-term uric acid control is managed with medications such as allopurinol and febuxostat. However, Western medical regimens frequently entail adverse reactions such as gastrointestinal damage and hepatic-renal toxicity, with a high recurrence rate upon discontinuation, presenting limitations in long-term management [3-6]. These therapeutic challenges highlight the unique value of Traditional Chinese Medicine (TCM) in holistic gout management. Contemporary TCM has progressively deepened its understanding of gout pathogenesis. Zhu Liangchun’s “turbid-stasis obstruction” theory precisely encapsulates the core pathogenesis of intertwined dampness, turbidity, and blood stasis [7]; Lu Zhizheng’s emphasis on the “spleen-stomach pivotal role” [8] and Jiang Quan’s identification of “spleen-kidney deficiency” [9], which elucidates the root cause of metabolic disorders from the perspective of fundamental deficiency; Qin Guozheng’s focus on “collateral vessel” pathology provides a location-based rationale for understanding gout’s chronic progression [10]. Collectively, these scholarly perspectives

construct a comprehensive theoretical framework spanning from “manifest excess” to “fundamental deficiency” and ultimately to the “site of pathology”. In light of this, this paper aims to systematically trace the progression of the pathogenesis from “turbid-stasis obstruction” to “spleen deficiency with collateral damage”. It establishes, for the first time, a comprehensive theoretical framework spanning from “pathological products” to “source of generation” and finally to “site of disease”. Building upon this foundation, it explores a sequential therapeutic strategy of “strengthening the spleen and tonifying the kidneys, draining turbidity and resolving stasis, unblocking collaterals and dispersing nodules”, with the objective of providing integrated theoretical guidance for clinical practice.

2. Theoretical Development and School - Specific Theories on the Pathogenesis of Gout

2.1 Theoretical Origins: Classical Discourses by Ancient Medical Masters

The Huangdi Neijing (Yellow Emperor’s Inner Canon) from the pre-Qin period first addressed the pathogenesis of bi syndrome. For instance, the Suwen: Treatise on Bi Syndrome states: “When wind, cold, and dampness converge, they combine to form bi.” Subsequently, medical scholars from the Later Han to the Sui-Tang dynasties introduced disease names such as “gout,” “joint pain,” “white tiger,” and “foot qi,” marking the formation of gout theory. During the Song and Yuan dynasties, Zhu Danxi posited that gout arises when blood becomes heated, subsequently encountering wind-cold-damp pathogens that induce blood stasis and stagnation [11]. In his Treatise on Gout within Supplementary Discourses on the Principles of Medicine, he elaborated: “In

gout, the blood is typically already agitated by heat. Subsequently, exposure to cold water, standing on damp ground, seeking coolness with fans, or sleeping in draughts may occur. The external cold envelops the body; the heated blood encounters cold, causing turbidity to coagulate and obstruct, thus inducing pain. The pain intensifies at night, as it pervades the yin” [12]. This indicates that the pathogenesis of gout involves blood heat encountering wind, dampness, and cold, leading to phlegm-turbidity obstruction. Thus, the pathogenesis of gout is inseparable from wind pathogens.

2.2 Inheritance and Innovation: Modern Developments in Gout Pathogenesis

2.2.1 Theory of “Turbid-Stasis Obstruction”:

Representative Figure and Institution: Master of Traditional Chinese Medicine Zhu Liangchun (Liangchun Institute of Traditional Chinese Medicine Clinical Research, Nantong City, Jiangsu Province):

Core Perspective: Professor Zhu Liangchun innovatively proposed the “Turbid-Stasis Obstruction” theory, positing that phlegm-dampness obstructs blood vessels, congealing with blood to form turbid-stasis [7]. Its revolutionary aspect lies in no longer viewing gout as a mere exogenous bi syndrome, but redefining it as a disease arising from the accumulation of intrinsic pathological products (turbidity and stasis). Consequently, he advocated employing the therapeutic approach of “dispersing turbidity and stasis” to treat gout. The “Gout Formula” established for this purpose has undergone extensive validation in contemporary clinical practice, demonstrating its reliable efficacy in managing gout. For instance, a randomised controlled trial involving 100 gout patients demonstrated that adding the Gout Formula to conventional Western medication significantly improved both uric acid control rates and reduced clinical recurrence within one year compared to Western medication alone ($P < 0.05$) [13]. A further controlled study involving 40 patients in the intercritical phase demonstrated that, although the initial (8-week) reduction in uric acid levels was not significantly different between the combination therapy and the febuxostat-only group, the combination therapy showed more pronounced improvements in alleviating clinical symptoms such as joint pain and swelling, with good safety profiles. Synthesising these studies, the therapeutic advantage of the gout formula may primarily lie in its rapid and effective alleviation of clinical symptoms, alongside its capacity to synergise with Western medications in long-term management to stabilise disease and reduce recurrence. Its synergistic uric acid-lowering effect, however, may require sustained treatment to fully manifest. However, Professor Zhu Liangchun’s “turbid stagnation” theory primarily focuses on targeting “pathological products,” raising a fundamental question: what is the source of these “turbid stagnations”? Academic inquiry gradually shifted focus from pathological products themselves to the spleen and stomach — the pivotal hubs for the transformation of water and grain essences and the source of qi and blood generation. Within this domain, Lu Zhizheng and his disciple Jiang Quan collaboratively developed a spleen-centred therapeutic framework for gout, spanning macro to micro levels.

2.2.2 Theoretical Development of Spleen-Centred Treatment for Gout

(1) Theoretical Foundation: Lu Zhizheng’s “Regulating the Middle Jiao, Protecting the Four Peripheries” (Guang’anmen Hospital, China Academy of Chinese Medical Sciences)

Master Lu Zhizheng established the academic principle of “upholding the central region to transport to the periphery.” Here, the “central region” primarily denotes the spleen and stomach, while the “periphery” represents a concept relative to the centre. This signifies grounding treatment in the spleen and stomach to transport the essence of food and drink to the limbs, meridians, tendons, and vessels. This theory addresses the philosophical question of the “root cause of turbidity and stasis” by identifying the spleen and stomach as central. Dysfunction in the “central” organs (spleen and stomach) disrupts their transformative and transportative functions. Consequently, nutrients from food and drink fail to be properly assimilated, instead coagulating into “damp turbidity” and internally stagnating as “stagnant toxins”. These pathological products cannot be normally distributed or excreted, instead circulating to the peripheral joints to manifest as gout. Thus, the theoretical framework of “upholding the central organs to regulate the periphery” establishes the foundational principle and fundamental direction for treating gout (and various other diseases) through spleen-centred approaches.

(2) Specialised Deepening: Jiang Quan’s “From Spleen to Kidney, Spleen-Kidney Co-Treatment”

Professor Jiang Quan, academic successor to Lu Zhizheng, has further focused the theoretical concept of “regulating the middle jiao” on the disease of gout under his mentor’s guidance. Professor Jiang Quan posits that impaired qi transformation in the spleen and kidney, leading to dysfunction in ascending the clear and transforming the turbid, constitutes the fundamental cause of excessive uric acid and the internal retention of damp-turbid pathogenic factors. Grounded in the principle that “yang generates qi, yin forms substance,” she establishes “assisting (spleen and kidney) qi transformation” as the primary objective and “expelling (damp-turbid) pathogenic factors” as the secondary focus in the fundamental treatment principles for clinical gout patients [14]. This theoretical framework precisely articulates the intrinsic rationale for explicitly classifying “spleen-kidney deficiency” as the fundamental pathogenesis in the “Combined Diagnosis and Treatment Guidelines for Gout and Hyperuricaemia,” formulated with Professor Jiang Quan and core experts. It provides theoretical grounding for spleen-kidney-centred treatment and warming yang to transform turbidity [1]. The promulgation of these guidelines signifies that the “treatment of gout from the perspective of the spleen” has evolved from Academician Lu Zhizheng’s macro-framework and personal experience into an industry consensus and clinical guidance principle with explicit diagnostic criteria.

2.2.3 The Theory of “Chronic Disease Entering the Collaterals” and Gout

The theories of Zhu Liangchun, Lu Zhizheng, and Jiang Quan

collectively establish the pathogenesis of gout as “underlying deficiency with superficial excess”. Zhu Liangchun and Lu Zhizheng focus on pathological products of “turbidity and stasis”, while Jiang Quan emphasises the root cause of “spleen-kidney deficiency”. Renowned surgical expert Professor Qin Guozheng explicitly identified “chronic disease invading the collaterals” and “collateral stasis” as key pathological mechanisms. He noted similarities between collateral disease and gout in pathogenesis and clinical presentation, both involving collateral stasis and obstruction leading to the clinical symptom of “pain” [10]. Therapeutic intervention should prioritise “unblocking the collaterals”. For chronic cases with severe stasis, incorporate insect-derived medicines such as centipede, leech, and earthworm. Consequently, the core strategy for resolving tophi in chronic gout lies in “unblocking the collaterals”.

3. Evolution of Therapeutic Principles and Systemic Development

3.1 Origins of Therapeutic Principles:

The evolution of treatment methods closely follows advances in pathogenetic research. As gout’s core pathogenesis was systematically categorised as ‘spleen-kidney deficiency as the root cause, damp-turbidity as the manifest symptom, with the disease localised in the collaterals’, treatment shifted from singular pathogen expulsion to a tripartite approach: fortifying the spleen and kidney, draining turbidity and resolving stasis, and unblocking collaterals while protecting damaged tissues. This model simultaneously addresses the disease’s root cause, manifest symptoms, and localised pathology, embodying modern Chinese medicine’s holistic approach to gout treatment.

3.2 Fortifying the Spleen and Kidneys, Assisting Yang and Transforming Qi:

This approach seeks to restore depleted yang energy and functional capacity by tonifying the spleen and kidneys, thereby preventing the generation of pathological products.

3.2.1 Treatment from the perspective of the spleen

Formulas for strengthening the spleen and dispelling dampness. Indicated for “spleen deficiency with excessive dampness”, presenting with symptoms such as fatigue and lassitude, poor appetite and indigestion, abdominal distension and loose stools, and a pale, swollen tongue. Formula Strategy: Primarily employs the Four Gentlemen Decoction (Sijunzi Tang), augmented with Astragalus (Huangqi) to tonify qi, and Atractylodes (Baizhu) paired with Chinese Yam (Shanyao) to fortify the spleen. This combination achieves warming without dryness. A small amount of Tangerine Peel (Chenpi) is added to regulate qi, ensuring retention while facilitating transport and expelling pathogenic factors.

3.2.2 Treatment from the perspective of the kidney

Strategies for tonifying the kidney and assisting yang qi transformation. Formulas: Six Flavours Rehmannia Pill and Golden Cabinet Kidney Qi Pill. Herbs: Ligustrum fruit, raw Rehmannia root, prepared Rehmannia root, Cornus fruit, and

Chinese yam to replenish kidney essence. Optionally add Cuscuta seed and Cinnamon bark to gently warm and generate yang qi.

3.3 Clearing Turbidity and Resolving Stasis, Differentiating Clear and Turbid to Promote Drainage:

Derived from Professor Zhu Liangchun’s “Turbidity-Stasis” theory, this aims to eliminate the core pathological products of gout — “turbidity” and “stasis” — and constitutes the fundamental therapeutic principle throughout the disease course. Clinical application should be adjusted according to disease stage (e.g., acute/chronic).

3.3.1 Acute Phase: Prioritise “Dispelling Turbidity and Resolving Stasis” as the primary approach, employing potent and focused intervention

(1) Pathomechanism: “Damp-heat turbidity toxins obstructing joints” manifests as redness, swelling, heat, and pain in the joints.

(2) Formulary Strategy: Employ the “Disperse Turbidity and Resolve Stasis” formula—Gout Formula—primarily. Key herbs include Smilax glabra, Smilax china, and Clematis chinensis. This triad clears turbid toxins, unblocks joints, and alleviates pain by restoring collaterals. The formula incorporates Artemisia argyi, Alisma orientale, Plantago seed, and Coix seed, all possessing diuretic properties to expel turbid toxins via urination. Peach kernel and Safflower, meanwhile, activate blood circulation and resolve stasis to eliminate stagnant toxins. Moreover, Master Zhu adeptly employed insect-derived medicines, hence incorporating earthworm and centipede to harness their penetrating and dispersing properties to unblock obstructions and resolve nodules [15].

3.3.2 Intermittent and Chronic Phases: Employing “dispelling turbidity and resolving stasis” as the principal action, attacking pathogens while simultaneously fortifying the foundation.

(1) Pathomechanism characteristics: Spleen and kidney deficiency with residual turbidity and stasis, manifesting as deficiency-pathogen entanglement. Symptoms primarily include latent joint pain and stiffness, potentially accompanied by tophi.

(2) Formulation Strategy: At this stage, eliminate turbidity using mildly-natured herbs such as coix seed (Yi Yi Ren), alisma rhizome (Ze Xie), and plantain seed (Che Qian Zi). Combine with chuanxiong rhizome (Chuan Xiong), angelica root (Dang Gui), and chicken-blood vine (Ji Xue Teng) to activate collaterals. Building upon this foundation, Cynanchum wilfordii may be employed to detoxify and invigorate blood circulation. This is complemented by Atractylodes macrocephala to fortify the spleen and dry dampness, alongside Astragalus membranaceus and Curcuma zedoaria to regulate and strengthen the spleen and kidney, thereby addressing the root cause. This approach aims to restore and stimulate bodily functions promptly, preventing the accumulation of phlegm-dampness and turbid stagnation, thus inhibiting and reducing uric acid production.

3.4 Insect-based Herbs for Purging and Unblocking Meridians:

Qin Guozheng noted similarities between (meridian disorders) and gout in pathogenesis and clinical presentation, advocating “unblocking meridians” as the therapeutic approach. Guizhou’s renowned traditional Chinese physician Long Yunguang, drawing upon Miao medicine theory and practice, further notes that in disease’s early stages, vine-like herbs—with their rigid, climbing, and intertwining properties—can effectively traverse meridians and unblock channels within the body. When pathogenic factors have deeply penetrated the interior, obstructing qi and blood circulation, and become stubbornly entrenched, most herbal medicines prove inadequate for dispersing and resolving. In such cases, insect-derived medicines should be employed for their potent penetrating and expelling properties [16]. The term “unblocking meridians” in this text specifically refers to the meridian-unblocking action centred on insect-derived medicines.

3.4.1 Application of Insect-Based Medicinal Substances

For pathogenic factors deeply entrenched within the interior, insect-based substances (earthworm, whole scorpion, earth centipede) serve as irreplaceable core agents. Suitable for patients in the intercritical and chronic phases of gout where tophi have already formed.

3.4.2 Contraindications and Clinical Considerations for Insect-Based Medicines

These substances excel at breaking up blood stasis and expelling stagnation. Thus, caution is warranted for menstruating women, pregnant individuals, and those with blood deficiency. Furthermore, insect-derived medicines are rich in histamine-like substances, necessitating vigilance against allergic reactions [17]. Consequently, Professor Zhu Liangchun initiates treatment with insect-based medicines at low doses, typically augmented with *Polygonum aviculare*. *Xuchangqing* possesses anti-allergic properties, mitigating any allergic reactions to a minimal degree. However, he concurrently notes that excessive dosages—specifically, decocted oral administration exceeding 30 g of whole scorpion, 15 g of centipede, 60 g of earthworm, or 15 g of leech—may induce toxicity.

4. Issues and Prospects

Although this paper systematically outlines the pathogenesis progression of “turbid-stasis obstruction with spleen deficiency and collaterals damage” and proposes corresponding sequential treatment strategies, this theoretical framework still faces several unresolved issues: Firstly, the universality of this integrated model, derived from renowned practitioners’ experience, requires validation through large-scale epidemiological surveys and clinical research. Secondly, the specific clinical application timing, formula modification protocols, and therapeutic advantages of the sequential strategy—“tonifying spleen and kidney, draining turbidity and resolving stasis, unblocking collaterals and dispersing nodules”—demand objective evaluation via rigorous randomised controlled trials. Finally, the mechanism

of action underpinning this strategy—specifically, how TCM achieves the effect of “treating both symptoms and root causes simultaneously”—requires deeper elucidation through modern technologies such as metabolomics and network pharmacology. Resolving these issues will not only validate and refine TCM theories on gout but also advance the development of a consensus-based TCM diagnostic and therapeutic protocol that preserves its distinctive strengths. This could contribute TCM wisdom to global gout management.

References

- [1] JIANG Q., HAN M., TANG X. L., et al. Guidelines for the diagnosis and treatment of gout and hyperuricemia based on the combination of disease and syndrome. *Journal of Traditional Chinese Medicine*, 2021, 62(14): 1276-1288.
- [2] SHENG S. H., LUO M. M., MENG T. T., et al. Pathological mechanism of acute onset and spontaneous resolution of gouty arthritis. *Chinese Journal of Immunology*, 2024, 40(11): 2458-2464.
- [3] MA C., MA Y. J., JIANG H. W. Research progress on related drugs for the treatment of hyperuricemia. *Chinese Medicine*, 2025, 20(8): 1259-1262.
- [4] FAN Z. L., CAI Y., WANG X., et al. A case report of drug hypersensitivity syndrome induced by allopurinol in an HLA-B*58:01 negative patient. *Medicine and Pharmacy of Yunnan*, 2024, 45(3): 116-117.
- [5] WANG Y. Comparative analysis of efficacy of febuxostat and allopurinol in the treatment of gout complicated with renal insufficiency. *Journal of Shanxi Health Vocational College*, 2024, 34(5): 58-60.
- [6] TANG Y., YU H. F., GUO Z. L. Clinical application and research progress of febuxostat. *Practical Pharmacy and Clinical Remedies*, 2024, 27(10): 790-795.
- [7] LI J. X., HUANG G. Y., CHEN X. M., et al. Discussion on Professor Zhu Liangchun’s academic thought on treating gout from “Turbidity and Stasis”. *Journal of Chengdu University of Traditional Chinese Medicine*, 2018, 41(4): 75-77, 86.
- [8] ZHANG N., HOU X. S., WANG R. B., et al. Research on the application of national TCM master Lu Zhizheng’s academic thought in the treatment of rheumatic bi diseases. *Hebei Journal of Traditional Chinese Medicine*, 2020, 35(2): 1-4.
- [9] XU R., JIANG Q., HAN M., et al. Discussion on Professor Jiang Quan’s experience in treating refractory gout based on the theory of “Yang Transforming Qi, Yin Forming Shape”. *China Medical Herald*, 2022, 19(24): 119-123.
- [10] WU L., LI H., LI C. X., et al. Experience in treating gout based on the “Collateral Disease Theory”. *Rheumatism and Arthritis*, 2021, 10(9): 54-57.
- [11] ZHANG B., XU Y., LIN Z. J., et al. Textual research on the origin and development of TCM understanding of gout. *World Chinese Medicine*, 2024, 19(13): 1875-1880, 1888.
- [12] FANG Y. F. Textual research on the name of gout. *Rheumatism and Arthritis*, 2021, 10(11): 53-55.
- [13] HUANG Z. B., PENG K. J., WU X. D. Clinical application research of Zhu Liangchun’s Gout

- Prescription. *Medicine and Health Care*, 2021, 19(14): 1-3.
- [14] XU R., JIANG Q., HAN M., et al. Discussion on Professor Jiang Quan's experience in treating refractory gout based on the theory of "Yang Transforming Qi, Yin Forming Shape". *China Medical Herald*, 2022, 19(24): 119-123.
- [15] MENG Q. M., ZHANG Z. Y., MIAO X. Y. Zhu Liangchun's experience in treating gouty arthritis by draining turbidity and resolving stasis. *Journal of Traditional Chinese Medicine*, 2017, 58(16): 1368-1370.
- [16] SONG Y. Y., YUAN X. M., YANG X. Y., et al. Professor He Yisheng Yuanguang's clinical experience in treating gout. *Rheumatism and Arthritis*, 2024, 13(5): 27-30.
- [17] CAO J. K., JI H. Discussion on the application of insect drugs in treating gout. *Clinical Journal of Traditional Chinese Medicine*, 2021, 33(10): 1911-1914.