

# Exploring the Perturbation of Uterine Storage-Discharge Function by Mirena Based on the “Thoroughfare and Conception Vessel Impairment” Theory

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**Abstract:** *The levonorgestrel-releasing intrauterine system (Mirena) is widely used in gynecological practice. However, its adverse effects, such as irregular uterine bleeding and reduced menstrual flow, can be profoundly explained through the Traditional Chinese Medicine (TCM) theory of “Thoroughfare and Conception Vessel Impairment.” Based on the TCM theoretical system, this article proposes that Mirena, categorized as an “injury by metal blade,” directly affects the uterus, damaging the collaterals of the Thoroughfare and Conception Vessels, leading to “internal retention of static blood.” Its local warm and dry nature can also consume and damage Yin blood, and over time affect the Kidneys, forming the core pathogenesis of “Kidney Deficiency and Blood Stasis, Disorder of the Thoroughfare and Conception Vessels.” This ultimately disrupts the uterine storage-discharge function; inadequate storage manifests as scanty menstruation or amenorrhea, while excessive discharge manifests as profuse or prolonged uterine bleeding. Targeting this pathogenesis, TCM adopts the basic principle of “tonifying the Kidney, activating blood, and regulating the Thoroughfare and Conception Vessels.” Through staged pattern differentiation and dynamic intervention strategies, TCM can effectively regulate the storage-discharge function and reduce adverse effects, demonstrating the unique advantage of synergistic “toxicity reduction and efficacy enhancement” in integrated Chinese and Western medicine. This study provides a theoretical basis and practical pathway for TCM’s participation in the clinical management of Mirena therapy.*

**Keywords:** Thoroughfare and Conception Vessel Impairment, Mirena, Uterine Storage and Discharge, Kidney Deficiency and Blood Stasis.

## 1. Introduction

The levonorgestrel-releasing intrauterine system (LNG-IUS), marketed under the brand name “Mirena,” has become an important method in modern gynecology for treating adenomyosis, menorrhagia, and preventing recurrence after endometrial polyp resection [1, 2]. It works by locally and continuously releasing levonorgestrel within the uterine cavity, potently inhibiting endometrial proliferation, causing endometrial gland atrophy, stromal decidualization, and mucosal thinning, thereby achieving therapeutic goals. However, this potent local effect also brings adverse reactions such as irregular vaginal bleeding, spotting, and significantly reduced menstrual flow or even amenorrhea over time. These symptoms not only affect patients’ quality of life but also reduce their treatment compliance [3].

Modern medicine primarily manages Mirena’s side effects with watchful waiting or symptomatic treatment, lacking interventional strategies that fundamentally adjust its mode of action. This highlights the necessity of seeking complementary explanations and solutions from the theoretical system of Traditional Chinese Medicine (TCM). TCM regards the uterus as the “Uterus” (Bao Gong), categorized as an “Extraordinary Fu-organ.” Its core function lies in the periodic “storage and discharge” – during the post-menstrual and inter-menstrual phases, it “stores” essential Qi to nourish and grow the endometrium, while during the pre-menstrual and menstrual phases, it “discharges” menstrual blood to eliminate the old and usher in the new [4]. This dynamic balance is key to maintaining a normal menstrual cycle.

In TCM etiology, Mirena, as a device implanted into the uterus, belongs to “injury by metal blade,” which can directly damage the vessels and consume Qi and blood. Its pathological product, “static blood,” internally obstructs, subsequently disturbing the physiological functions of the Thoroughfare (Chong) and Conception (Ren) Vessels [5]. The “Thoroughfare Vessel is the Sea of Blood,” and the “Conception Vessel governs the fetus.” The harmony of the Thoroughfare and Conception Vessels is the fundamental guarantee for the normal storage and discharge function of the uterus. Therefore, approaching from the theory of “Thoroughfare and Conception Vessel Impairment” to explore Mirena’s perturbation of the uterine storage-discharge function can not only provide a profound TCM pathological mechanism explanation for these clinical adverse reactions but also lay a theoretical foundation for early TCM intervention.

## 2. Thoroughfare and Conception Vessels, the Uterus, and Storage-Discharge

### 2.1 Physiological Functions and Theoretical Connotation of the Thoroughfare and Conception Vessels

The Thoroughfare (Chong) and Conception (Ren) Vessels, as important components of the Eight Extraordinary Vessels, play a central role in female reproductive physiology. The Thoroughfare Vessel is known as the “Sea of Blood,” functioning to extensively gather blood from the Zang-fu organs and channels, serving as the material basis for the generation and discharge of menstrual blood. The Conception

Vessel is the “Sea of the Yin Channels,” governing gestation; its fullness of Yin fluids (Tian Gui and essence-blood) enables it to undertake the role of nurturing the fetus. The Thoroughfare Vessel governs “dispersal,” infusing Qi and blood into the uterus. The Conception Vessel governs “consolidation,” providing the uterus with the capacity for storage and gestation. Together, one dispersing and one consolidating, they maintain the cyclical filling and discharging of Qi and blood in the uterus during the menstrual cycle, i.e., “When the Conception Vessel is free and the Thoroughfare Vessel is abundant, menstruation occurs at its proper time.”

The Thoroughfare and Conception Vessels have extensive connections with the Zang-fu organs and channels. The Thoroughfare Vessel is subordinate to Yangming and also intersects with the Liver Channel, thus it can receive the essence from food and water and regulate the flow of Qi and blood. The Conception Vessel connects with the Kidney and is closely related to the maturation of Tian Gui. Some modern scholars propose a “New Theory of the Chong and Ren Vessels,” suggesting that the functions of the Thoroughfare and Conception Vessels, to some extent, encompass the regulatory function of the Hypothalamic - Pituitary - Ovarian - Uterine Axis (HPOA) on the menstrual cycle, as well as the regulation of the local uterine microenvironment [6]. This theory provides a bridge for understanding the dialogue between the theory of the Thoroughfare and Conception Vessels and modern reproductive endocrinology.

## 2.2 The Uterus as an Extraordinary Fu-organ and its Storage-Discharge Function

The Uterus (Bao Gong), i.e., the woman’s uterus, is the unique internal reproductive organ in females. Its physiological characteristics are classified in the “Classic of Categories” as an “Extraordinary Fu-organ” because its form is hollow like a Fu-organ, but its function of storing essence and blood (menstrual blood, the fetus) resembles a Zang-organ. Thus, it possesses the unique physiological characteristic of “both storing and discharging, storing and discharging periodically.”

The storage-discharge function of the uterus exhibits clear cyclical changes. From the post-menstrual phase to the ovulation phase, the uterus performs its “storage” function, receiving Qi, blood, and body fluids, causing the endometrium to gradually thicken, preparing for the generation of menstrual blood and the gestation of the fetus. This process is internally powered by the “Kidney governing storage.” By the pre-menstrual and menstrual phases, if conception has not occurred, then, driven by Yang Qi and when Qi and blood are sufficiently full, the uterus switches from “storage” to “discharge,” expelling the accumulated menstrual blood, eliminating the old and bringing forth the new. This process necessitates the “Liver governing free coursing” and “patency of the Uterine Vessels.”

The storage-discharge function of the uterus is precisely regulated by the Kidney-Tian Gui-Thoroughfare/Conception Vessels-Uterus axis. Kidney essence and Qi are the primordial motive force, Tian Gui is the core messenger, the Thoroughfare and Conception Vessels are the conduction

pathways, and the uterus is the effector organ. The coordinated function of this axis is the fundamental guarantee for orderly uterine storage-discharge and normal menstruation.

## 2.3 Thoroughfare and Conception Vessel Impairment and Uterine Dysfunction

Impairment of the Thoroughfare and Conception Vessels is a core pathogenesis leading to female reproductive system diseases, particularly menstrual disorders. Located in the Lower Jiao, the functions of the Thoroughfare and Conception Vessels are susceptible to damage by various factors. Direct impairment can stem from “injury by metal blade” (e.g., intrauterine surgery, IUD placement) or toxic infections. Indirect impairment can occur when Zang-fu organ dysfunction (e.g., Liver Qi stagnation, Spleen deficiency failing to contain, Kidney essence deficiency) affects them [7, 8].

Once the Thoroughfare and Conception Vessels are impaired, their functions of the “Sea of Blood” storing and overflowing and the “Conception Vessel” consolidating and containing become dysregulated. Specific manifestations include: Disharmony of Qi and Blood, adversely affecting the Thoroughfare and Conception Vessels, leading to disruption of Qi and blood circulation, resulting either in internal obstruction by static blood or blood failing to stay in the vessels; Malnourishment of the Uterus, where deficiency and impairment of the Thoroughfare and Conception Vessels prevent the distribution of essence to nourish the uterus, leading to its functional decline; Dysregulation of Storage and Discharge, where the aforementioned pathological changes ultimately disturb the rhythmic pattern of uterine storage and discharge. If storage is not firm, it manifests as flooding and spotting (Beng Lou). If discharge is not free, it manifests as amenorrhea, dysmenorrhea, and prolonged menstrual bleeding. As stated in the “Complete Compendium of Remedies for Women”: “Among the thirty-six diseases of women, all are caused by taxation damage of the Thoroughfare and Conception Vessels.”

## 3. Mechanism of Action of Mirena and Definition of its TCM Attributes

### 3.1 Modern Medical Mechanism of Action of Mirena

From the perspective of modern medicine, Mirena is a T-shaped intrauterine system whose vertical stem contains a hormone reservoir that continuously and steadily releases microdoses of levonorgestrel (a potent progestin) daily into the uterine cavity. This exposes the endometrium directly to a high-concentration progestin environment, causing endometrial gland atrophy, a highly decidualized stromal reaction, and a reduction in the number and area of endometrial vessels, thereby significantly inhibiting endometrial proliferation and thinning it, leading to reduced menstrual flow [9]. From a pathophysiological perspective, this represents a state of “forced quiescence” or “artificial pseudopregnancy” for the endometrium.

It is particularly important to note that, due to its local hormone release characteristics, Mirena at therapeutic doses

generally does not inhibit ovarian ovulation. Most users maintain normal ovulatory cycles and serum estrogen levels, proving that its primary target is localized to the uterus, rather than being achieved by strongly suppressing the higher centers (hypothalamus-pituitary) of the Kidney-Tian Gui-Thoroughfare/Conception Vessels-Uterus axis. This characteristic is key to understanding its TCM pathogenesis, especially the depth of the disease location.

### 3.2 Definition of Mirena's TCM Pathogenic Nature

Based on the above modern mechanisms, we can define Mirena's attributes from the perspective of TCM etiology and pathogenesis at multiple levels.

**Core Etiology:** The act of inserting Mirena into the uterine cavity is clearly categorized in TCM theory as “injury by metal blade” [7, 8]. This is an external, tangible pathogenic factor directly invading and residing in the Uterus, an Extraordinary Fu-organ. Its direct consequence is damaging the vessels of the Uterus, i.e., damaging the collateral connections of the Thoroughfare and Conception Vessels within the Uterus. This constitutes the initiating factor of the disease, as stated in the “Yellow Emperor’s Inner Canon”: “If the Uterine collaterals are injured, blood spills out” [10]. This “injury” refers not only to the physical trauma of insertion but also to the continuous damage caused by its long-term occupation of the Uterus and obstruction of Qi dynamics.

**Core Pathological Product:** The endogenous formation of “static blood” obstructing the Uterine Vessels. “Injury by metal blade” inevitably leads to vessel injury and blood extravasation; blood leaving the vessels becomes static blood. Therefore, the residence of Mirena in the Uterus directly leads to the formation of “static blood.” This static blood is both a pathological product and a new factor. It obstructs the Uterine Vessels, hindering the normal flow of Qi and blood, preventing new blood from returning to the vessels, thus causing irregular bleeding. Simultaneously, blood stasis obstructing the Uterus also interferes with its normal “storage-discharge” rhythm.

**Nature of the Pathogenicity:** Mirena possesses the dual attributes of an external “Excess Pathogen” and one that consumes “Upright Qi.” On one hand, Mirena itself as a “foreign object,” together with the resulting “static blood,” constitutes an Excess Pathogen residing in the Uterus. This Excess Pathogen continuously obstructs Qi dynamics, hindering the flow of Qi and blood and the patency of the Uterine collaterals, which is the direct cause of “discharge not being free”. On the other hand, Mirena forces the endometrium to “store without growth,” chronically inhibiting its normal proliferative function. From a TCM view, this consumes and damages Yin blood and impairs Kidney essence. If the Uterus does not receive ample nourishment from Qi and blood, its “storage” function loses its foundation, ultimately leading to a lack of source for menstrual blood, manifesting as scanty menstruation or even amenorrhea.

## 4. Analysis of the Core Pathogenesis of Mirena's Perturbation of the Uterine Storage-Discharge Function

### 4.1 Perturbation of “Storage”: Impeded Return and Storage of Essence and Blood

The “storage” function of the Uterus is reflected in the accumulation of Yin blood during the post-menstrual phase, nourishing and growing the endometrium, preparing the material basis for the “discharge” of menstruation. Mirena’s perturbation of this process is fundamental.

Mirena, as a “metal blade foreign object” residing in the Uterus, together with the resulting “static blood,” constitutes a tangible Excess Pathogen. This pathogen directly occupies the Uterus, this “chamber of essence,” physically obstructing the normal convergence and distribution of Qi and blood, i.e., “tangible pathogen occupying the position, essence and blood find it difficult to return.” It is like seeds struggling to take root in soil covered by hard rocks. Simultaneously, the local warm and dry nature of levonorgestrel continuously scorches the Yin fluids of the Uterus, leading to consumption and damage of Yin blood. The Uterus, lacking nourishment, has a deficient source for endometrial growth, like soil becoming barren without irrigation. This process directly depletes the material basis of “storage.”

More importantly, the long-term perturbation of Mirena first consumes the Yin blood of the Uterus; prolonged illness inevitably affects the Kidney essence (“prolonged illness reaches the Kidney”). If Kidney essence is deficient, it cannot transform Tian Gui or nourish the Thoroughfare and Conception Vessels. The Uterus loses its most fundamental motive force and material source, and its “storage” function completely fails. Clinically, this manifests as refractory thin endometrium, scanty menstrual flow, or even amenorrhea – this is “inadequate storage.”

### 4.2 Perturbation of “Discharge”: Abnormal Excretion of Menstrual Blood

The “discharge” function of the Uterus is reflected in the pre-menstrual and menstrual phases, where Yang Qi stirs, Qi and blood are free-flowing, allowing the smooth expulsion of menstrual blood. Mirena primarily affects this process through obstruction and damage.

“Static blood” as the core pathological product obstructs the Uterine Vessels, causing the flow of Qi and blood to be unsmooth. When menstruation is due and the Uterus should switch from “storage” to “discharge,” the obstruction by static blood hinders the excretion of menstrual blood, and free descent is impaired. This is “blood stasis obstructing the Uterine Vessels, discharge not being free.” Clinically, this manifests as menstrual abdominal pain (dysmenorrhea), difficult expulsion of menstrual blood, and dark purple menstrual blood with clots.

On the other hand, the “metal blade” directly damages the vessels of the Thoroughfare and Conception Vessels, leading to failure of the Thoroughfare and Conception Vessels in their consolidating and containing functions. If the Conception Vessel fails to consolidate, the opening and closing of the Uterus becomes dysfunctional; if the Thoroughfare Vessel has chaotic Qi, the Sea of Blood stores and overflows irregularly. This causes menstrual blood to not follow its normal pathway,

flowing out at irregular times. This is “impairment of the Thoroughfare and Conception Vessels, blood failing to return to the channels.” Clinically, this manifests as irregular vaginal bleeding after insertion, prolonged spotting, and extended menstrual periods – this is “excessive discharge.”

#### **4.3 Summary of Core Pathogenesis: Kidney Deficiency and Blood Stasis, Disorder of the Thoroughfare and Conception Vessels**

In summary, the core pathogenesis of Mirena’s perturbation of the uterine storage-discharge function is a dynamic process transitioning from excess to deficiency, characterized by a mixture of deficiency and excess, which can be Recapitulated “Kidney Deficiency and Blood Stasis, Disorder of the Thoroughfare and Conception Vessels.”

**Blood Stasis as the Manifestation, Disease Originates from Excess:** At the initial stage, the standard aspects are “injury by metal blade” and “internal obstruction by static blood,” which are excess patterns. This mainly manifests as “discharge not being free” (dysmenorrhea, clots) due to obstruction of the Uterine Vessels and “excessive discharge” (irregular bleeding) due to impairment of the Thoroughfare and Conception Vessels.

**Kidney Deficiency as the Root, Disease Establishes in Deficiency:** As the condition persists, the excess pathogen consumes Yin blood, and prolonged illness affects the Kidney, transforming into a root of Kidney essence deficiency, a deficiency pattern. This mainly manifests as “inadequate storage” (scanty menstruation, amenorrhea) due to the Uterus lacking nourishment.

**Impairment of the Thoroughfare and Conception Vessels as the Pathological Pivot:** Throughout the pathological process, the Thoroughfare and Conception Vessels are always the core link in the transmission of pathogens and functional dysregulation. The “metal blade” directly damages their collaterals, static blood obstructs their pathways, and Kidney deficiency leads to their lack of fullness. Ultimately, the impairment of the Thoroughfare and Conception Vessels causes a complete disruption of their regulatory function over uterine storage and discharge, giving rise to all symptoms of storage-discharge disorder.

### **5. Theoretical Basis and Practical Strategies of TCM Intervention**

#### **5.1 Treatment Principles**

Targeting the root deficiency and manifest excess, multi-layered pathogenesis caused by Mirena, TCM has established the following core treatment principles: Tonifying the Kidney and Replenishing Essence to Secure the Root is the fundamental method to address “inadequate storage.” By enriching Kidney essence and warming Kidney Yang, the Yin and Yang within the Kidney are balanced, and Kidney Qi becomes abundant, thereby re-stimulating Tian Gui and nourishing the Thoroughfare and Conception Vessels, providing a continuous material basis and motive force for the “storage” function of the Uterus. This is the “open the source” method. Activating Blood and Resolving Stasis to Treat the

Manifestation is the key to resolving “discharge not being free” and clearing pathological products. By activating blood, resolving stasis, and unblocking the Uterine Vessels, the static blood caused by the “metal blade” is removed, relieving its obstruction of the Uterine collaterals, allowing Qi and blood to flow smoothly, and enabling menstrual blood to be discharged freely. This is the “unblock the collaterals” method. Regulating the Thoroughfare and Conception Vessels to Restore the Pivot is the core link in restoring the regulation of uterine storage and discharge. Through specific herbs and combinations, the impaired Thoroughfare and Conception Vessels are directly fortified and repaired, restoring the “Sea of Blood” storage-overflow function and the “Conception Vessel” consolidating capacity, thereby organized the rhythm of uterine storage and discharge. This is the “restore balance” method. These three principles complement each other, jointly achieving the effect of “simultaneously tonifying and unblocking, harmonizing storage and discharge.”

#### **5.2 Pattern Differentiation and Treatment & Staged Cycle Regulation Strategy**

Under the guidance of the core principles, clinical practice requires flexible application of a strategy combining staged treatment and pattern differentiation based on the patient’s specific phase and core pattern.

**Staged Treatment:** Mainly divided into two stages: Early Stage post-insertion (1-3 months) focuses on “resolving stasis to stop bleeding, calming the collaterals and stabilizing the Uterus,” primarily addressing the acute bleeding and static blood caused by “injury by metal blade.” Modified An Chong Tang can be used. Mid-Late Stage post-insertion (after 3 months) focuses on “tonifying the Kidney, activating blood, and harmonizing storage and discharge,” targeting persistent bleeding, scanty menstruation, or amenorrhea, where Kidney deficiency and blood stasis coexist. Modified Gui Shen Wan combined with Gui Zhi Fu Ling Wan, or Zuo Gui Wan combined with Tao Hong Si Wu Tang can be used.

**Pattern Differentiation and Treatment:** Primarily targets three patterns: Kidney Deficiency and Blood Stasis Pattern (Core Pattern) manifests as scanty menstruation, dark color, or prolonged spotting, soreness and weakness of the lower back and knees, dark tongue, deep, thin, and choppy pulse. Treatment: Tonify Kidney and replenish essence, activate blood and regulate menstruation. Formula: Modified Gui Shen Wan combined with Gui Zhi Fu Ling Wan. Spleen and Kidney Deficiency, Thoroughfare and Conception Vessels Not Firm Pattern manifests as prolonged menstrual period, continuous spotting, scanty flow, pale color, fatigue and lack of strength, pale, swollen tongue, deep and weak pulse. Treatment: Strengthen Spleen and tonify Kidney, consolidate the Thoroughfare and stop bleeding. Formula: Modified Gu Chong Tang. Yin Deficiency with Blood Heat, Collateral Damage and Blood Extravasation Pattern manifests as irregular bleeding, scanty amount, red color, thick consistency, dry mouth and throat, five-center heat, red tongue with scant coating, thin and rapid pulse. Treatment: Enrich Yin and clear heat, cool blood and consolidate the Thoroughfare. Formula: Modified Bao Yin Jian combined with Er Zhi Wan.

### 5.3 Synergistic Effects of Integrated Chinese and Western Medicine and Clinical Evidence

TCM intervention for Mirena-related adverse reactions reflects the complementary advantages of integrated Chinese and Western medicine. The synergistic models include:

**Toxicity Reduction:** Through holistic regulation, TCM effectively reduces the “toxic” reactions such as bleeding and menstrual pattern disturbances caused by Mirena, significantly improving patient tolerance and treatment compliance [11].

**Efficacy Enhancement:** For primary diseases like adenomyosis, Kidney-tonifying and blood-activating Chinese herbs themselves have effects such as improving pelvic microcirculation and inhibiting ectopic endometrial growth. These synergize with the therapeutic effect of Mirena, enhancing its efficacy in relieving dysmenorrhea and reducing uterine volume [11]. **Individualized Precise Regulation:** Western medicine provides standardized device treatment, while TCM provides individualized precise intervention based on the patient’s constitution and pattern, achieving co-management of the “disease” and the “person” [12, 13].

Clinical research provides evidence supporting TCM intervention. One clinical observation found that for patients experiencing irregular bleeding after Mirena insertion, using Chinese herbal formulas aimed at strengthening the Spleen, benefiting the Kidney, resolving stasis, and stopping bleeding significantly shortened hemostasis time and reduced bleeding volume, with efficacy superior to simple Western medicine symptomatic treatment [14]. Another study on Mirena treatment for adenomyosis showed that patients who concurrently used a Kidney-tonifying and blood-activating formula had better outcomes in terms of dysmenorrhea relief, menstrual improvement, and uterine volume reduction compared to the control group using Mirena alone [15].

## 6. Discussion and Outlook

### 6.1 Deepening Theoretical Value: Paradigm Shift from “Side Effect” to “Pathogenesis”

Currently, Western medicine often defines menstrual pattern changes caused by Mirena as “side effects” or “adverse events,” and its management strategies are mostly passive observation or hemostatic symptomatic treatment [16]. This study successfully incorporates this phenomenon into the theoretical framework of TCM etiology and pathogenesis, accomplishing an important paradigm shift.

The pathogenic model we constructed defines Mirena as “injury by metal blade,” and its pathological process is summarized as “initial stage: damaging collaterals forming stasis; middle stage: consuming Yin and damaging blood; prolonged illness affecting the Kidney; Finally leading to disorder of the Thoroughfare and Conception Vessels, storage-discharge disturbance.” This “Kidney Deficiency and Blood Stasis” model not only explains the internal unity of various clinical symptoms (e.g., coexistence of bleeding and amenorrhea) but also links the local uterine pathology (endometrial suppression) with the overall functional state

(Kidney deficiency), reflecting the advantages of TCM’s “holistic concept” and “treating the root of the disease” thinking.

Simultaneously, this study enriches the connotation of the “Thoroughfare and Conception Vessel Impairment” theory. Traditionally, “Thoroughfare and Conception Vessel Impairment” was often associated with factors like sexual activity, childbirth, emotions, or natural aging. This study explicitly identifies modern medical devices (intrauterine systems) as a new, direct factor, expanding the etiological scope of “Thoroughfare and Conception Vessel Impairment” and demonstrating the robust vitality and explanatory power of ancient theories when facing modern medical technology.

### 6.2 Highlighting Clinical Significance: Strategy Upgrade from “Antagonistic Therapy” to “Synergistic Regulation”

The theoretical construction of this study directly leads to clinically superior practical strategies. Based on the understanding of pathogenesis, TCM intervention is no longer a passive remedy after symptoms appear but can be proactively and preventively regulated throughout the entire course of Mirena use. For example, administering stasis-resolving and collateral-calming formulas in the early stage post-insertion, and focusing on Kidney-tonifying and essence-replenishing in the mid-late stage, may prevent or mitigate the occurrence and development of adverse reactions.

More importantly, the local suppression by Western medicine and the holistic regulation by TCM are not opposing relationships. This study advocates a “synergistic treatment” model: Mirena acts as the resolver of the “manifestation,” efficiently suppressing ectopic endometrium and reducing menstrual flow; TCM acts as the regulator of the “root,” dedicated to restoring the functional balance of the Kidney-Tian Gui-Thoroughfare/Conception Vessels-Uterus axis. The two complement each other, ultimately achieving “simultaneous treatment of root and manifestation,” ensuring both the therapeutic effect of Mirena and preserving the physiological function of the Uterus and the patient’s overall health status.

We must objectively recognize the limitations of this study: Firstly, this article currently focuses mainly on theoretical discussion and literature analysis. The constructed pathogenic model, although logically self-consistent, requires validation of its scientificity and universality through more rigorously designed, large-sample, multi-center clinical studies. Secondly, the micro-mechanisms need clarification. The association between “Kidney Deficiency and Blood Stasis” and “Disorder of the Thoroughfare and Conception Vessels” as macro-functional states and specific micro-indicators in modern medicine, such as endometrial receptivity, local immune microenvironment, angiogenesis, and neuroendocrine regulation, still lacks in-depth experimental research evidence. Additionally, there is the issue of pattern standardization. The population of Mirena users is large, with varying constitutions and complex pattern evolution laws. Currently, diagnostic and efficacy evaluation criteria for core patterns like “Kidney Deficiency and Blood Stasis” are not yet unified, posing challenges for the standardization of

clinical research and comparability of results.

## 7. Summary

Based on the above discussion and limitations, future research can be in the following aspects: Firstly, conduct high-quality clinical research, prioritizing randomized controlled trials (RCTs), to objectively evaluate the effectiveness and safety of TCM regimens like the “Tonifying Kidney and Activating Blood” method in improving Mirena-related uterine bleeding and enhancing patients’ quality of life, providing high-level evidence for clinical guideline development. Secondly, deepen mechanism exploration. Utilizing modern molecular biology, omics, and other technologies, from a “macro-micro” integrated perspective, deeply investigate how Kidney-tonifying and blood-activating Chinese herbs affect gene expression, protein function, metabolite changes, etc., in the endometrium of Mirena users, revealing the material basis and signaling pathways of TCM’s regulation of the uterine “storage-discharge” function. Furthermore, promote the standardization of diagnosis and treatment protocols. Through large-sample clinical epidemiological investigations combined with modern data mining methods, summarize and induce the distribution and evolution patterns of TCM patterns among Mirena users, establish standardized pattern differentiation criteria and efficacy evaluation systems. Finally, expand treatment areas. Explore the characteristics of the advantageous population and the optimal timing for intervention when TCM synergizes with Mirena in treating specific diseases (e.g., adenomyosis, endometrial atypical hyperplasia), form comprehensive diagnosis and treatment plans integrating “disease-pattern-stage,” and evaluate their long-term efficacy.

## References

- [1] Chinese Medical Association Obstetrics and Gynecology Branch. Expert consensus on the clinical application of levonorgestrel-releasing intrauterine system [J]. Chinese Journal of Obstetrics and Gynecology, 2022, 57(4): 241-247.
- [2] Anonymous. Hysteroscopic suture fixation of Mirena for the treatment of adenomyosis [J]. Clinical Medical Research and Practice.
- [3] Lang JH. Endometriosis [M]. Beijing: People's Medical Publishing House, 2015.
- [4] Zhang ZY, Chen CL. Gynecological Endocrine Therapeutics [M]. Beijing: People's Military Medical Publisher, 2016.
- [5] Chen MZ, Song QX. Clinical observation on traditional Chinese medicine preventing irregular vaginal bleeding after Mirena IUD placement [J]. Sichuan Journal of Traditional Chinese Medicine, 2021, 39(1): 158-160.
- [6] Wang Y, Zhang Y. Clinical study on Bushen Huoxue Formula combined with Mirena in treating adenomyosis [J]. Chinese Archives of Traditional Chinese Medicine, 2022, 40(3): 234-236.
- [7] Liang RN. New Theory of Chong and Ren: Liang Rui's 40 Years of Clinical Insights in TCM Gynecology [M]. Nanchang: Jiangxi Science and Technology Press, 2025.
- [8] Jia PY, Zhang Y, Tang R, et al. Application of levonorgestrel-releasing intrauterine system in assisted

reproductive technology [J]. Chinese Journal of Reproduction and Contraception, 2024.

- [9] Ling L, Zhao FR, Wang Y, et al. Hysteroscopic Mirena anchoring technique: solving the problem of “easy expulsion” [J]. Chinese Journal of Endoscopy, 2023, 29(5): 101-105.
- [10] Anonymous. Huangdi Neijing Lingshu [M]. Taiyuan: Shanxi Science and Technology Press, 2019: 87.
- [11] Huang Y, Wang CL. Comparative study on the preventive effects of Mirena and oral contraceptives after endometrial polyp surgery [J]. Chinese Journal of Woman and Child Health, 2022, 37(15): 2758-2761.
- [12] Xiao YB. Theory and practice of graded treatment for adenomyosis [J]. Journal of Zunyi Medical University, 2025, 48(03): 213-218.
- [13] Ma JW, Huang Y, Sun YY, et al. Comparison of the efficacy and safety of different drugs in treating endometriosis [J]. Evaluation and Analysis of Drug-Use in Hospitals of China, 2023, 23(4): 385-389.
- [14] Wang ZX, Dong XY. Research progress on the prevention and treatment of ovarian function decline with traditional Chinese medicine based on chrono medicine theory [J]. World Journal of Integrated Traditional and Western Medicine, 2022, 17(3): 612-616.
- [15] Wang HF, Yang ML. Levonorgestrel-releasing intrauterine system and endometrial breakthrough bleeding [J]. International Journal of Reproductive Health/Family Planning, 2007, 26(4): 310-313.
- [16] Pang LF. Study on the application effect of Mirena in the treatment of adenomyosis [J]. China Foreign Medical Treatment, 2023, 42(15): 85-88.