

Analysis of Pathogenic Factors and Traditional Chinese Medicine Treatment of Anorectal Abscess

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Abstract: *This study aims to comprehensively analyze the pathogenic factors of anorectal abscess from both traditional Chinese medicine (TCM) and Western medicine perspectives, and systematically summarize TCM treatment methods and their characteristics for various types of anorectal abscess. Regarding pathogenic factors, TCM, based on meridian theory and qi-blood theory, attributes the condition to meridian blockage, qi-blood stagnation, damp-heat pouring downward, and internal accumulation of fire-toxin. Western medicine focuses on anatomical, microbiological, immunological, and systemic factors such as anal gland infection susceptibility, pathogenic bacterial invasion, and compromised immunity. In terms of treatment, TCM employs various methods including oral administration of herbal medicine, external applications, and acupuncture. For different types of anorectal abscess, such as surgical resection combined with herbal dressing changes for low abscesses and thread-drawing therapy combined with TCM treatment for high abscesses, TCM demonstrates unique advantages. This study holds significant clinical value for improving treatment outcomes and enhancing patients' quality of life.*

Keywords: Anorectal abscess, Pathogenic factors, Traditional Chinese medicine treatment, TCM theory, Clinical cases.

1. Introduction

1.1 Overview of Anorectal Abscess

Anorectal abscess, known as perianal or perirectal abscess in Western medicine, is a common acute suppurative infectious disease in proctology. Epidemiological studies indicate that anorectal abscess accounts for approximately 25% of anorectal diseases, with high incidence rates and rapid progression often requiring emergency surgical intervention. Patients typically present with perianal redness, swelling, heat, and pain, accompanied by systemic symptoms such as fever and chills. Severe cases may progress to necrotizing fasciitis or septic shock. Without timely treatment, anorectal abscess frequently develops into anal fistula, exacerbating the patient's condition and financial burden. Due to its acute onset and rapid progression, patients often experience significant pain and prolonged wound care, substantially impacting their quality of life [1]. Therefore, in-depth exploration of the pathogenic factors and effective treatments for anorectal abscess holds considerable clinical significance.

In recent years, with accelerated lifestyles and dietary habit changes, the incidence of anorectal abscess has shown an upward trend, particularly among young adults, with male patients significantly outnumbering females. This gender disparity may be related to higher androgen levels leading to increased sebaceous gland secretion [2]. Notably, despite significant advances in diagnostic and therapeutic technologies in Western medicine, the pathogenesis of anorectal abscess remains incompletely understood, posing challenges for prevention and early intervention. Against this background, systematic analysis of anorectal abscess through TCM theory not only helps reveal its pathogenic essence but also provides new insights for optimizing clinical treatment protocols [1].

1.2 Research Objectives and Significance

This study aims to comprehensively analyze the pathogenic factors of anorectal abscess from both TCM and Western medicine perspectives, systematically summarize its pathological mechanisms, and highlight the advantages and characteristics of TCM treatment, thereby providing scientific evidence for clinical practice. Specifically, through literature review, we integrate classical TCM records with modern medical research to explore relevant pathogenic factors, including anatomical abnormalities, microbial infections, immune dysfunction, as well as TCM concepts such as damp-heat pouring downward and internal accumulation of fire-toxin [3]. Regarding treatment methods, we focus on analyzing the efficacy of various TCM approaches including oral herbal medicine, external applications, and acupuncture, evaluating their unique advantages in symptom relief, wound healing, and anal function preservation [4].

From a clinical perspective, clarifying the pathogenic factors of anorectal abscess is crucial for developing personalized prevention and treatment strategies. For instance, for high-risk populations such as diabetic patients, combining blood glucose control with TCM treatment can effectively reduce the incidence and recurrence rates of anorectal abscess [3]. Moreover, TCM treatment emphasizes holistic concepts and syndrome differentiation, allowing flexible adjustment of treatment protocols based on individual patient conditions to maximize pain relief and improve prognosis [2]. Therefore, this study not only enriches the theoretical framework of anorectal abscess but also establishes a solid foundation for optimizing clinical diagnosis and treatment processes and improving therapeutic outcomes.

2. Literature Review

2.1 Historical Understanding of Anorectal Abscess in TCM

The TCM understanding of anorectal abscess has a long history, with initial mentions found in the Yellow Emperor's

Canon of Internal Medicine, where it was categorized under “carbuncles and abscesses,” with preliminary descriptions of its symptoms and characteristics. As TCM theory developed, later physicians progressively deepened their exploration of the etiology, pathogenesis, and treatment concepts of anorectal abscess. For example, the Synopsis of the Golden Chamber systematically elaborated on the principles of syndrome differentiation and treatment for abscess conditions, laying the theoretical foundation for anorectal abscess treatment [5]. By the Ming and Qing dynasties, specialized surgical texts such as the Complete Book of External Medicine further refined the staged treatment methods for anorectal abscess, proposing the therapeutic principle of “resolving at onset, draining when suppurated, and supplementing deficiency after toxin elimination.” This concept remains highly relevant to clinical practice today. Modern TCM, integrating contemporary medical research findings, continues to optimize diagnosis and treatment protocols for anorectal abscess, reflecting the organic integration of traditional and modern medicine.

2.2 Advances in Western Medicine Research on Perianal Abscess

Western medicine has made significant progress in perianal abscess research, particularly in pathogenesis, diagnostic techniques, and treatment methods. Perianal abscess is defined as an acute suppurative infectious disease of perianal soft tissues, with its pathogenesis primarily related to anal gland infection. Jimenez’s anal gland infection theory posits that pathogenic bacteria first invade the anal sinuses, causing infection that subsequently spreads along the anal canal to perianal tissues and spaces, forming abscesses [2]. Diagnostic techniques have advanced significantly with imaging modalities such as ultrasound, CT, and MRI, greatly improving abscess localization and condition assessment accuracy. Regarding treatment, surgical intervention remains the primary approach, including incision and drainage, thread-drawing therapy, etc., supplemented by postoperative comprehensive measures such as antibiotics, sitz baths, and wound care. Epidemiological studies indicate an increasing incidence of perianal abscess, closely associated with systemic factors such as obesity, smoking, and diabetes. These findings provide important evidence for disease prevention and management [1].

3. Analysis of TCM Pathogenic Factors of Anorectal Abscess

3.1 Meridian Theory and Anorectal Abscess

3.1.1 Meridian Blockage Leading to Anorectal Abscess

As important channels for qi and blood circulation, meridians play an irreplaceable role in maintaining physiological balance. TCM holds that meridian patency is fundamental for normal qi-blood circulation, while meridian blockage leads to qi-blood stagnation and subsequent diseases. The perianal region is a convergence point for multiple meridians, particularly the Bladder Meridian of Foot-Taiyang and the Governor Vessel. When external pathogens invade or internal imbalances cause meridian obstruction in these areas, qi-blood circulation becomes restricted, depriving local

tissues of nourishment and leading to mass formation that gradually develops into anorectal abscess. Additionally, perianal meridian blockage may be exacerbated by prolonged sitting or standing, further impairing qi-blood circulation and worsening the condition [5].

3.1.2 Specific Meridians Associated with Anorectal Abscess

The Bladder Meridian of Foot-Taiyang and the Governor Vessel play crucial roles in the pathogenesis of anorectal abscess. The Bladder Meridian courses through the back and lower limbs, with branches penetrating the gluteal region and approaching the perianal area. Abnormalities in this meridian can directly cause qi-blood circulation disorders in the perianal region. If the Bladder Meridian is affected by cold-damp pathogens, it easily leads to meridian stagnation, ultimately resulting in anorectal abscess [5]. The Governor Vessel, as the “sea of yang meridians,” governs the body’s yang qi and courses through the sacrococcygeal region adjacent to the perianal area. Damage to the Governor Vessel leads to yang qi deficiency, impairing qi-blood circulation and causing perianal qi-blood stagnation that may trigger anorectal abscess. In clinical practice, regulating these meridians is commonly used for preventing and treating anorectal abscess, demonstrating the importance of meridian theory in TCM.

3.2 Qi-Blood Theory and Anorectal Abscess

3.2.1 Qi-Blood Stagnation Forming Abscess

Qi-blood stagnation is a key pathological process in the development of anorectal abscess. TCM holds that smooth qi-blood circulation is fundamental for maintaining health, while qi-blood stagnation typically results from external pathogen invasion, emotional disturbances, or dietary irregularities. In anorectal abscess pathogenesis, pathogens such as damp-heat or fire-toxin invading perianal tissues often obstruct qi-blood circulation, leading to local stagnation that forms masses and gradually evolves into abscesses [6]. Modern research indicates that under qi-blood stagnation, local microcirculatory disorders exacerbate inflammatory responses and promote pus formation, worsening the condition [7]. Therefore, promoting qi-blood circulation and resolving stagnation through oral or external herbal applications has become an important strategy for treating anorectal abscess.

3.2.2 Qi-Blood Deficiency and Refractory Anorectal Abscess

Qi-blood deficiency not only influences the initial formation of anorectal abscess but also significantly delays healing. TCM considers qi-blood as essential substances for resisting pathogens and repairing damage. If patients have constitutional weakness or chronic illness depleting qi-blood, healthy qi becomes insufficient to expel pathogens. In such cases, even after surgical incision and drainage, wound healing remains slow due to inadequate qi-blood nourishment, potentially leading to recurrent infections [7]. Moreover, qi-blood deficiency compromises immune function, making anorectal abscess more prone to chronicity or recurrence. Therefore, qi-blood tonification is widely applied in later-stage anorectal abscess treatment to enhance constitution,

promote wound repair, and improve prognosis [6].

3.3 Other TCM Factors

3.3.1 Damp-Heat Pouring Downward

Damp-heat pouring downward is an important pathological mechanism in anorectal abscess, particularly prominent in acute stages. Damp-heat pathogens typically result from dietary irregularities, excessive consumption of spicy and greasy foods, or invasion of external damp-heat pathogens. When damp-heat pours downward to the anorectal region and accumulates in perianal tissues, it obstructs qi-blood circulation, ultimately leading to flesh decay from excessive heat and abscess formation [8]. Clinical manifestations commonly include perianal redness, swelling, heat, and pain, accompanied by chills, fever, thirst, and irritability. Modern research confirms that damp-heat environments facilitate bacterial proliferation, exacerbating local infections and supporting the role of damp-heat pouring downward in anorectal abscess pathogenesis. Herbal formulas with heat-clearing, detoxifying, dampness-resolving, and swelling-reducing properties are commonly used clinically to eliminate damp-heat pathogens and alleviate symptoms.

3.3.2 Internal Accumulation of Fire-Toxin

Internal accumulation of fire-toxin is a significant etiological factor in anorectal abscess, particularly evident in fire-toxin accumulation type abscesses. Fire-toxin pathogens typically result from external heat pathogen invasion or internal heat transforming into fire, characterized by rapid progression and severe symptoms. When fire-toxin accumulates in perianal tissues, it burns collaterals, causing qi-blood stagnation, flesh decay from excessive heat, and rapid abscess formation [5]. Clinical manifestations commonly include severe perianal pain, marked redness and swelling, accompanied by high fever, thirst, and constipation. Research indicates that under fire-toxin accumulation, local inflammatory responses are intense, with rapid tissue necrosis that may lead to severe complications if not promptly addressed [8]. Therefore, combined internal and external treatment with heat-clearing, detoxifying, fire-purging, and swelling-reducing herbal medicine has become the primary approach for such abscesses, aiming to eliminate fire-toxin pathogens and control disease progression.

4. Analysis of Western Medicine Pathogenic Factors of Anorectal Abscess

4.1 Anatomical Factors

4.1.1 Anal Gland Structure and Infection

Anal glands, as important components of perianal tissues, play a key role in perianal abscess development due to their anatomical characteristics. Located in the submucosal layer of the anal canal with openings at the anal sinuses, anal glands exhibit branched distribution and communicate with perianal spaces [2]. This unique structure makes anal glands susceptible to bacterial invasion, particularly when anal sinuses become infected, allowing pathogens to spread along

anal gland ducts to surrounding tissues, causing acute suppurative inflammation. Studies indicate that approximately 90% of perianal abscesses originate from anal gland infections, a mechanism widely recognized as the primary pathological basis of perianal abscess [2].

4.1.2 Perianal Spaces and Abscess Spread

The complex anatomy and connectivity of perianal spaces significantly influence abscess formation and spread. Perianal spaces primarily include the ischioanal fossa, perirectal space, and deep postanal space, interconnected through adipose tissue and fascia to form a potential network [1]. When anal gland infections are not promptly controlled, pus can spread along these spaces, expanding abscess ranges and involving multiple areas. For instance, ischioanal fossa abscesses often result from downward spread of anal gland infections, while perirectal space abscesses may arise from infections breaking through the levator ani muscle [1]. Such spread not only complicates treatment but may also lead to severe complications like sepsis or necrotizing fasciitis. Therefore, understanding perianal space anatomy and its role in abscess spread is crucial for developing effective diagnosis and treatment strategies.

4.2 Microbiological Factors

4.2.1 Pathogen Types and Infection

Perianal abscess development is closely associated with various pathogenic bacteria, with *Escherichia coli* and *Staphylococcus aureus* being most common. Research indicates that *E. coli*, as a gram-negative bacillus widely present in the intestines, exhibits strong invasiveness and virulence, capable of entering perianal tissues through anal sinuses or skin breaches to cause acute suppurative infections [2]. *S. aureus*, a gram-positive coccus, typically invades through minor skin or mucosal injuries, particularly in immunocompromised individuals [2]. Other pathogens such as *Streptococcus* and *Klebsiella pneumoniae* may also contribute to perianal abscess formation, adding complexity to infection characteristics. Notably, pathogen spectra may vary across regions and populations, providing directions for further research on microbiological mechanisms of perianal abscess.

4.2.2 Microbial Infection Pathways

Microbial entry into perianal regions primarily occurs through anal sinus infections and skin breaches. Anal sinus infection is the most common pathway, as upward-facing funnel-shaped anal sinuses easily accumulate feces and secretions, creating favorable conditions for bacterial growth [1]. When anal sinuses become inflamed, pathogens can retrograde along anal gland ducts into perianal tissues, causing abscess formation. Another pathway is through skin breaches, such as perianal abrasions, fissures, or folliculitis, serving as bacterial entry portals [1]. Additionally, systemic diseases like diabetes that compromise skin barrier function increase microbial infection risks. These diverse infection pathways suggest that preventing perianal abscess requires both improving local hygiene and enhancing immune function.

5. TCM Treatment Methods for Anorectal Abscess

5.1 Oral Herbal Medicine Treatment

5.1.1 Heat-Clearing and Detoxifying Formulas

Heat-clearing and detoxifying formulas hold significant importance in treating anorectal abscess, particularly for fire-toxin accumulation type. Wu Wei Xiao Du Yin (Five-Ingredient Detoxification Decoction) and Xian Fang Huo Ming Yin (Immortal Formula Life-Giving Decoction) are representative formulas. Wu Wei Xiao Du Yin consists of *Lonicerae Japonicae Flos*, *Chrysanthemi Indici Flos*, *Taraxaci Herba*, *Violae Herba*, and *Begoniae Fimbristipulatae Herba*, primarily clearing heat and detoxifying, secondarily cooling blood and reducing swelling [5]. Modern research shows this formula alleviates local redness, swelling, heat, and pain by inhibiting inflammatory responses and reducing pathogen numbers [8]. Xian Fang Huo Ming Yin further adds *Angelicae Sinensis Radix*, *Paeoniae Radix Rubra*, *Olibanum*, and *Myrrha* to enhance swelling reduction and mass resolution effects. Zhang Wenbing's research demonstrates that Xian Fang Huo Ming Yin combined with surgical drainage significantly reduces pain scores and shortens wound healing time in perianal abscess patients [9]. Additionally, by modulating inflammatory factor levels and promoting tissue repair, this formula shows remarkable efficacy in early-stage anorectal abscess.

5.1.2 Swelling-Reducing and Mass-Resolving Formulas

For anorectal abscess with prominent masses, swelling-reducing and mass-resolving formulas like Xiao Yong Cu Yu Fang (Abscess-Promoting Healing Formula) demonstrate unique advantages. Composed primarily of qi-tonifying and spleen-fortifying herbs such as *Astragali Radix*, *Codonopsis Radix*, *Atractylodis Macrocephalae Rhizoma*, and *Poria*, supplemented with blood-activating and stasis-resolving herbs like *Paeoniae Radix Rubra*, *Salviae Miltiorrhizae Radix et Rhizoma*, and *Chuanxiong Rhizoma*, this formula aims to eliminate masses by supporting healthy qi, dispelling pathogens, softening hardness, and resolving masses [10]. Clinical observations show Xiao Yong Cu Yu Fang not only reduces mass size but also effectively alleviates local pain and improves excessive discharge symptoms. Its mechanism may involve immune regulation, excessive inflammatory response suppression, and local blood circulation promotion [10]. Particularly for high perianal abscess postoperatively, fumigation and washing with Xiao Yong Cu Yu Fang significantly shorten wound healing time and reduce recurrence rates, demonstrating synergistic effects of combined internal and external TCM therapies.

5.1.3 Qi-Blood Tonifying Formulas

Qi-blood tonifying formulas are particularly important in late-stage anorectal abscess or qi-blood deficient patients. Zhu Zheng Qing Du Tang (Healthy Qi-Supporting Detoxification Decoction) is a representative formula containing *Lonicerae Japonicae Flos*, *Codonopsis Radix*, *Astragali Radix*, *Angelicae Sinensis Radix*, and *Poria*, with heat-clearing, detoxifying, qi-tonifying, and blood-nourishing effects [7].

Wang Deying's research shows that oral administration of Zhu Zheng Qing Du Tang combined with Qu Du Tang (Toxin-Removing Decoction) for fumigation and sitz baths postoperatively significantly reduces wound inflammation, accelerates granulation tissue growth, and improves cure rates in perianal abscess patients [7]. Qi-blood tonifying formulas work by enhancing immunity, improving local blood supply, and providing necessary nutritional support for wound healing. Additionally, these formulas alleviate common postoperative deficiency symptoms like fatigue and night sweats, comprehensively improving patients' quality of life.

5.2 External Herbal Medicine Treatment

5.2.1 Ointments

Ointment applications show significant efficacy postoperatively or for local swelling and pain, with Long Xue Jie San Gao (Dragon's Blood Powder Ointment) being commonly used. Containing primarily Dragon's Blood resin, this ointment promotes blood circulation, relieves pain, and generates flesh to close sores. Gan Huiping's research demonstrates that external application of Long Xue Jie San Gao after perianal abscess incision and drainage significantly reduces pain scores and promotes wound granulation tissue growth [7]. Its mechanism may involve active Dragon's Blood components suppressing inflammatory responses, promoting angiogenesis, and collagen synthesis [7]. Moreover, the ointment's viscous texture forms a protective layer on wounds, reducing external irritation and accelerating healing.

5.2.2 Wash Solutions

Fumigation and sitz baths with wash solutions are important external TCM treatments for anorectal abscess, with Qu Du Tang and Bai Zhi San (Cape Jasmine and Phellodendron Powder) being common choices. Qu Du Tang contains *Galla Chinensis*, *Atractylodis Rhizoma*, *Sophorae Flavescens Radix*, and *Phellodendri Chinensis Cortex*, with heat-clearing, detoxifying, dampness-drying, and itch-relieving effects. Bai Zhi San primarily contains *Phellodendri Chinensis Cortex*, *Gardeniae Fructus*, and *Lonicerae Japonicae Flos*, excelling in fire-purging, detoxifying, swelling-reducing, and mass-resolving [8]. Clinical trials show Bai Zhi San combined with self-formulated detoxifying and swelling-reducing formulas significantly reduces pain index scores and mass size in fire-toxin accumulation type acute anorectal abscess [8]. Wash solution fumigation and sitz baths work by promoting local blood circulation through thermal stimulation while active ingredients directly act on affected areas, exerting anti-inflammatory, antibacterial, swelling-reducing, and pain-relieving effects for combined internal and external treatment.

5.2.3 Other External Preparations

Besides ointments and wash solutions, powders and suppositories have unique value in anorectal abscess treatment. Powders like Xiao Yan Tong Shuan (Anti-inflammatory Pain-Relieving Suppositories) are commonly used for postoperative dressing changes. Rectal administration allows direct action on lesions for

anti-inflammatory and analgesic effects [4]. Suppositories offer convenience and easy absorption, particularly suitable for postoperative open wounds with significant exudate. Additionally, powders can be combined with ointments or wash solutions to enhance efficacy. For instance, applying powders to wounds before covering with ointments simultaneously achieves astringent hemostasis and sore-closing effects, demonstrating the diversity of TCM external therapies [4].

6. TCM Treatment for Different Types of Anorectal Abscess

6.1 Treatment of Low Anorectal Abscess

6.1.1 Surgical Resection Combined with Herbal Dressing Changes

Low anorectal abscess treatment primarily involves surgical resection, with key points being complete removal of infected foci and ensuring adequate drainage to prevent recurrence or fistula formation. Postoperative herbal dressing changes show significant advantages in promoting wound healing. For instance, using Qu Du Tang for fumigation and sitz baths combined with sterile gauze coverage postoperatively exerts heat-clearing, detoxifying, swelling-reducing, and pain-relieving effects [7]. Qu Du Tang contains *Galla Chinensis*, *Atractylodis Rhizoma*, *Sophorae Flavescentis Radix*, and *Phellodendri Chinensis Cortex*, effectively reducing local discharge and accelerating tissue repair. Additionally, Long Xue Jie San, a common external herbal preparation, significantly improves wound healing quality and shortens healing time through anti-inflammatory and granulation tissue-promoting effects [11]. Research shows that on postoperative days 5, 10, 15, and 20, anal pain scores and wound granulation conditions are superior to Western medicine dressing changes alone, with statistically significant differences ($P < 0.05$). Therefore, herbal dressing changes not only alleviate postoperative discomfort but also enhance overall wound healing outcomes.

6.1.2 Oral Herbal Medicine for Rehabilitation

Rational application of oral herbal regimens during postoperative rehabilitation is crucial for consolidating therapeutic effects and preventing recurrence in low anorectal abscess patients. According to TCM theory, postoperative patients often present with qi-blood deficiency and residual toxins, requiring treatment focused on qi-blood supplementation and heat-clearing detoxification. Zhu Zheng Qing Du Tang is a classic oral formula containing *Lonicerae Japonicae Flos*, *Codonopsis Radix*, *Astragali Radix*, and *Angelicae Sinensis Radix*, with healthy qi-supporting, pathogen-expelling, heat-clearing, and detoxifying effects. Research shows this formula significantly enhances immunity, reduces postoperative infection rates, and promotes wound healing [7]. Additionally, for postoperative constipation or dry mouth symptoms, intestine-moistening and laxative herbs like Ma Ren Wan (Hemp Seed Pill) can be supplemented to improve overall condition. Combined internal and external treatment not only accelerates wound recovery but also reduces recurrence rates, improving patients' quality of life.

6.2 Treatment of High Anorectal Abscess

6.2.1 Thread-Drawing Therapy Combined with TCM Treatment

Due to complex anatomical locations, high anorectal abscess is often treated with thread-drawing therapy, which gradually opens abscess cavities through chronic cutting action, avoiding incontinence risks from immediate incision. However, relying solely on thread-drawing therapy may result in slow postoperative wound healing and anal function impairment. Therefore, combining TCM treatment can further improve efficacy and preserve anal function. For instance, combining modified Ku Shen Tang (*Sophorae Flavescentis Decoction*) sitz baths and oral herbal regimens with thread-drawing therapy significantly improves postoperative recovery [12]. Modified Ku Shen Tang contains *Sophorae Flavescentis Radix*, *Phellodendri Chinensis Cortex*, and *Taraxaci Herba*, with heat-clearing, detoxifying, dampness-drying, and itch-relieving effects. Sitz baths allow local penetration to reduce wound inflammation and promote tissue repair [12]. Simultaneously, oral Xiao Zhong Qing Re Jie Du Tang (Swelling-Reducing, Heat-Clearing, and Detoxifying Decoction), composed of *Astragali Radix*, *Angelicae Sinensis Radix*, and *Lonicerae Japonicae Flos*, regulates systemic qi-blood status and enhances resistance for combined internal and external treatment [13]. Results show significantly lower wound infection and anal dysfunction rates in the combined treatment group compared to controls ($P < 0.05$), with lower recurrence rates, indicating that TCM combined with thread-drawing therapy optimizes high anorectal abscess treatment [11].

6.2.2 Staged Syndrome Differentiation Treatment

Different stages of high anorectal abscess present distinct pathological characteristics, making staged syndrome differentiation treatment an important TCM intervention strategy. In early stages, patients primarily manifest pathogen-blocked meridians and qi-blood stagnation, requiring treatment focused on dispersing and supporting methods to expel external pathogens and resolve stasis for symptom relief. Common herbs include *Gleditsiae Spina*, *Angelicae Dahuricae Radix*, and *Trichosanthis Radix*, which promote local blood circulation, reducing swelling and pain [6]. In middle stages, as conditions progress, intense heat-toxin and flesh decay with pus formation become primary contradictions, requiring pus-expelling and pathogen-transmitting methods to promote pus discharge and pathogen expulsion. External application of San Jie Tou Nong Fang (Mass-Resolving and Pus-Transmitting Formula) combined with oral Xiao Zhong Qing Re Jie Du Tang is a common treatment regimen for this stage, accelerating pus discharge, reducing wound exudate, and promoting abscess cavity closure [11]. In late stages, toxins discharge with pus but residual toxins remain, requiring supplementation and support methods to tonify qi-blood, resolve stasis, and generate new tissue for wound healing. Herbs like *Astragali Radix*, *Angelicae Sinensis Radix*, and *Paeoniae Radix Alba* are particularly important at this stage, enhancing body repair capacity and improving wound microenvironment to shorten healing time. This staged syndrome differentiation strategy not only demonstrates TCM's holistic advantages but also

provides scientific basis for individualized high anorectal abscess treatment.

7. Discussion and Prospects

7.1 Research Summary

As a common proctological condition, anorectal abscess involves complex and diverse pathogenic factors, including TCM pathological mechanisms such as meridian blockage, qi-blood stagnation, damp-heat pouring downward, and internal fire-toxin accumulation, as well as Western medical factors like anatomical abnormalities, microbial infections, and systemic diseases. Comprehensive analysis of TCM and Western medical pathogenic factors provides a more holistic understanding of anorectal abscess etiology and development patterns. Regarding TCM treatment, various methods including oral herbal medicine, external applications, and acupuncture demonstrate significant clinical efficacy. For instance, heat-clearing and detoxifying formulas are suitable for fire-toxin accumulation type abscesses, swelling-reducing and mass-resolving formulas effectively alleviate prominent mass symptoms, while qi-blood tonifying formulas play crucial roles in late-stage or qi-blood deficient patients [7]. Additionally, external herbal applications like ointments and wash solutions further exemplify TCM treatment characteristics, particularly demonstrating unique advantages in postoperative wound healing and pain management [4]. Acupuncture, by regulating qi-blood circulation and unblocking meridians, not only helps alleviate symptoms but also improves overall rehabilitation. These research findings provide important theoretical foundations and practical guidance for clinical anorectal abscess treatment.

7.2 Research Limitations

Despite progress in research on anorectal abscess pathogenic factors and TCM treatment, several limitations require attention. Firstly, regarding precise pathogenic factor localization, current research primarily focuses on macroscopic descriptive analysis, lacking in-depth exploration of microscopic molecular mechanisms. For instance, the specific biological foundations of meridian blockage and qi-blood stagnation remain incompletely elucidated, hindering TCM theory scientization [3]. Secondly, in TCM treatment protocol standardization, unified diagnostic criteria and standardized treatment processes are lacking, resulting in significant treatment variations across institutions and practitioners. Additionally, mechanisms of some herbal formulas require further validation, with active ingredients and pharmacological actions needing more research [4].

7.3 Future Research Directions

Future research on anorectal abscess pathogenic factors and TCM treatment should emphasize modern technological applications to advance TCM theory modernization and clinical practice precision. On one hand, high-throughput technologies like genomics and proteomics can explore key molecular pathway changes during anorectal abscess development, providing more solid scientific foundations for TCM theory [3]. On the other hand, research should strengthen TCM treatment protocol standardization and

optimization, establishing unified diagnostic criteria and treatment guidelines validated through multicenter, large-sample clinical trials for efficacy and safety. Furthermore, future research should focus on integrating TCM with modern medical technologies, such as using AI-assisted diagnostic systems to improve early anorectal abscess detection rates or developing novel herbal preparations to enhance patient compliance and treatment outcomes [4]. In summary, multidisciplinary collaboration and technological innovation promise to advance anorectal abscess prevention and treatment, providing higher-quality medical services for patients.

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