

# Laparoscopic Surgery and Modified Xiaoyan Lidan Decoction: An Effective Combination for Treating Cholecystitis with Cholelithiasis

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**Abstract:** *Objective:* To assess the clinical effects of combining laparoscopic surgery with Modified Xiaoyan Lidan Decoction in patients diagnosed with cholecystitis and cholelithiasis. *Methods:* Following the guidelines of the double-blind method, 86 cases of cholecystitis with cholelithiasis were randomly divided into two groups, each comprising 43 cases. Both groups underwent laparoscopic surgery, with the observation group additionally receiving Modified Xiaoyan Lidan Decoction. A comparative analysis was conducted on clinical treatment effectiveness, general observation indicators, Traditional Chinese Medicine (TCM) syndrome scores, and the occurrence of adverse reactions between the two groups. *Results:* The observation group demonstrated a significantly higher overall clinical treatment effectiveness compared to the control group ( $P < 0.05$ ). The clinical symptom improvement time and hospitalization time were shorter in the observation group, and the pain score and TCM syndrome score after treatment were lower than those in the control group ( $P < 0.05$ ). No statistically significant difference was observed in the total reaction values ( $P > 0.05$ ). *Conclusion:* The combined application of laparoscopic surgery and Modified Xiaoyan Lidan Decoction can enhance clinical treatment efficiency for patients with cholecystitis and cholelithiasis. It facilitates a quicker improvement in clinical symptoms without causing serious adverse reactions, suggesting its potential for widespread adoption.

**Keywords:** Laparoscopic surgery; Xiaoyan Lidan decoction; Cholecystitis; Cholelithiasis

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## 1. Introduction

Cholecystitis stands as a highly prevalent digestive system ailment within clinical practice. In recent years, the escalating incidence of this disease can be attributed to shifts in national dietary habits and lifestyles. Compounded by its frequent association with cholelithiasis, patients often endure acute attacks marked by severe upper right abdominal pain, accompanied by symptoms such as nausea, vomiting, fever, and chills. Without timely and effective intervention, the progression of this condition may lead to severe complications such as purulent infection and localized perforation, posing a significant threat to the individual's life safety<sup>[1]</sup>.

Laparoscopic surgery, a minimally invasive procedure widely adopted in recent clinical practice,

has gradually supplanted traditional laparotomy. It effectively facilitates lesion removal without causing substantial physical trauma. However, for patients grappling with cholecystitis and cholelithiasis, even when the implementation of laparoscopic surgery, the removal of the gallbladder and the inevitable varying degrees of damage to the bile duct during the operation can impede postoperative recovery. Consequently, combining pertinent traditional Chinese medicine (TCM) therapies is recommended to enhance the patient's clinical symptoms, expedite recovery, and significantly improve prognostic outcomes [2].

Xiaoyan Lidan Decoction, a renowned prescription in TCM, exhibits notable heat-clearing, detoxifying, soothing, and choleric effects. When applied in conjunction with laparoscopic surgery, it proves instrumental in attenuating the body's inflammatory response and expediting the amelioration of related diseases [3]. This study focuses on 86 confirmed cases of cholecystitis accompanied by cholelithiasis, examining the actual therapeutic impact following the incorporation of Modified Xiaoyan Lidan Decoction during laparoscopic surgery.

## 2. Materials and methods

### 2.1. General information

A total of 86 cases diagnosed with cholecystitis and cholelithiasis were enrolled in the study, all of whom underwent treatment within the specific timeframe set by the institute (commencing in September 2021 and concluding in September 2023). The treatment procedures adhered to the relevant standards of the double-blind method. Following group allocation, the control group comprised 43 cases, with 18 males and 25 females. The age range spanned from 34 to 69 years, with an average age of  $51.58 \pm 6.59$  years. The observation group also included 43 cases, with 20 males and 23 females. The age range spanned from 33 to 70 years, with an average age of  $51.49 \pm 6.51$  years. Upon comparing inter-group data, no significant differences were observed ( $P > 0.05$ ).

Inclusion criteria encompassed patients meeting the diagnostic standards outlined in the "China Consensus Opinions on the Medical Diagnosis and Treatment of Chronic Cholecystitis and Cholelithiasis (2018)" [4]. Diagnosis was based on clinical symptoms, imaging, laboratory, and other examinations. Patients eligible for inclusion had surgical indications in line with laparoscopic surgery requirements, maintained complete medical records, and provided informed consent.

Exclusion criteria comprised patients with concomitant functional failure of vital organs, coagulation disorders, immune system diseases, malignant tumors, or a history of mental, cognitive, or psychological disorders. Additionally, individuals with contraindications related to laparoscopic surgery, intolerance to the study medication, allergic reaction, or those departing from the study midway were excluded.

### 2.2. Methods

Both groups of patients underwent laparoscopic surgery, wherein they assumed a supine position and received general anesthesia with tracheal intubation. Once the anesthesia took effect, artificial pneumoperitoneum was established, maintaining pressure between 12–14 mmHg, followed by the application of the four-hole method. During laparoscopic surgery, if the gallbladder body exhibited enlargement accompanied by edema symptoms, initial puncture and subsequent removal were performed. In cases of adhesions in the gallbladder neck, effective separation was executed before addressing the cystic artery and cystic duct. When stones were present in the cystic duct, stone removal took precedence, followed by cholecystectomy. After confirming the complete removal of all stones, the abdominal cavity was flushed, a drainage tube was inserted, and the incision was sutured. Relevant antibiotics were administered postoperatively, with extubation typically occurring around 24–28 hours after the procedure.

For the observation group, in addition to the aforementioned treatment, the Modified Xiaoyan Lidan Decoction was introduced. The basic prescription included 30 g of desmodium, 15 g of chicken gizzards membranes, 15 g of *Polygonum cuspidatum*, 12 g of bupleurum, 12 g of white peony, 9 g of turmeric, 9 g of corydalis, 9 g of *Melia azadirachta*, 9 g of *Lygodium japonicum*, 6 g of costus, and 5 g of licorice, with adjustments based on the syndrome. Additional ingredients were incorporated based on specific symptoms: for severe abdominal pain, 9 g of turmeric was added; for dry mouth and thirst, 15 g of *Ophiopogon japonicus*, 15 g of *Adenophora japonicus*, and 15 g of dendrobium were added; for those with a thick and greasy tongue coating, 9 g of *Magnolia officinalis*, 9 g of atractylodes, and 9 g of *Rhizoma atractylodis* were added; and for individuals with severe dampness and heat, 18 g of *Artemisia chinensis*, 15 g of gypsum, 9 g of anemarrhena, and 9 g of gardenia were added. The prescribed dosage involved boiling the mixture with 800 mL of water until approximately 400 mL of mixture remained, to be taken warm twice daily in the morning and evening for a duration of 2 weeks.

### 2.3. Observation indicators

- (1) Effective clinical treatment:
  - (a) Markedly effective: Abdominal pain, nausea, vomiting, and other symptoms have been observed and have essentially disappeared. B-ultrasound results indicate that at least two indicators of gallbladder or cystic duct wall thickness, roughness, and sound transmission have returned to normal.
  - (b) Effective: Relevant clinical symptoms have significantly improved, and B-ultrasound indicates substantial improvement, with at least one of the aforementioned three indicators returning to normal.
  - (c) Ineffective: The relevant content does not meet the above standards.
- (2) General observation indicators: The improvement time of clinical symptoms and hospitalization time for both groups were effectively observed. Simultaneously, the Visual Analog Scale (VAS) was employed before and after treatment. Zero points were assigned for no pain, while severe pain was scored as ten points. Scores were calculated based on the degree of pain, showing a positive correlation between the score and the degree of pain.
- (3) TCM syndrome scores: In accordance with the “Guideline Principles for Clinical Research of New Traditional Chinese Medicines”<sup>[5]</sup>, TCM syndrome scores for both groups were employed before and after treatment. This scoring primarily focused on right upper quadrant pain, nausea and belching, fever, chills, and other symptoms. Each item could be scored from 0 to 3 points, with scores reflecting the severity of symptoms.
- (4) Occurrence of adverse reactions: Adverse reactions that emerged during the treatment of both groups were meticulously documented, encompassing infections, gastrointestinal reactions, rashes, etc. Total values were compared to assess the overall occurrence of adverse reactions.

### 2.4. Statistical analysis

The statistical analysis employed SPSS 25.0 for Windows software as the foundation. All acquired data were categorized by nature. If the data fell under the measurement category, it was presented as mean  $\pm$  standard deviation (SD), and a parallel *t*-test was conducted. For count data, it was represented as percentage (%), and simultaneously, the chi-squared test was applied. A final *P* value less than 0.05 signified a significant difference, establishing statistical significance.

### 3. Results

#### 3.1. Comparison of clinical treatment effectiveness between the two groups

**Table 1** illustrates that the total clinical treatment effective rates were 69.77% and 93.02% for the control and observation groups, respectively. The observation group demonstrated a significantly higher rate ( $P < 0.05$ ).

**Table 1.** Comparison of clinical treatment effectiveness observations [n (%)]

Group	Markedly effective	Effective	Ineffective	Total effective rate
Control group (n = 43)	12 (27.91)	18 (41.86)	13 (30.23)	30 (69.77)
Observation group (n = 43)	15 (34.88)	25 (58.14)	3 (6.98)	40 (93.02)
$\chi^2$	-	-	-	7.679
$P$	-	-	-	0.006

#### 3.2. Comparison of general observation indicators between the two groups

**Table 2** reveals that, upon comparing clinical symptom improvement time and hospitalization time between the two groups, the observation group exhibited significantly lower values ( $P < 0.05$ ). No statistically significant difference was found in the pain scores between the two groups before treatment ( $P > 0.05$ ). However, the pain score of the observation group after treatment was markedly lower than that of the control group ( $P < 0.05$ ).

**Table 2.** Comparison of general indicator observation results (mean  $\pm$  SD)

Group	Time to improve clinical symptoms (d)	Length of stay (d)	Pain score (points)	
			Before treatment	After treatment
Control group (n = 43)	7.31 $\pm$ 2.68	12.87 $\pm$ 5.58	6.21 $\pm$ 2.14	3.56 $\pm$ 1.24
Observation group (n = 43)	5.02 $\pm$ 1.54	8.45 $\pm$ 3.19	6.18 $\pm$ 2.11	2.25 $\pm$ 0.89
$t$	4.858	4.509	0.065	5.628
$P$	0.001	0.001	0.948	0.001

#### 3.3. Comparison of TCM syndrome scores between the two groups

**Table 3** demonstrates that, prior to treatment, there was no statistically significant difference in the integrated TCM syndromes between the two groups ( $P > 0.05$ ). Following treatment, the total TCM syndrome score of the observation group was significantly lower than that of the control group ( $P < 0.05$ ).

**Table 3.** Comparison of TCM syndrome scores before and after treatment (mean  $\pm$  SD, points)

Group	Time	Right upper quadrant pain	Nausea and belching	Fever	Chills	Total score
Control group (n = 43)	Before	2.61 $\pm$ 1.12	2.01 $\pm$ 0.82	1.78 $\pm$ 0.77	1.65 $\pm$ 0.65	7.86 $\pm$ 3.25
	After	1.24 $\pm$ 0.42	0.78 $\pm$ 0.34	0.62 $\pm$ 0.25	0.54 $\pm$ 0.21	3.89 $\pm$ 1.24
Observation group (n = 43)	Before	2.59 $\pm$ 1.09	2.03 $\pm$ 0.84	1.75 $\pm$ 0.74	1.62 $\pm$ 0.63	7.81 $\pm$ 3.22
	After	0.34 $\pm$ 0.12	0.28 $\pm$ 0.09	0.15 $\pm$ 0.05	0.08 $\pm$ 0.02	1.78 $\pm$ 0.42
$t$	Before	0.084	0.112	0.184	0.217	0.072
	After	13.511	9.322	12.089	14.299	10.568
$P$	Before	0.933	0.911	0.854	0.828	0.943
	After	0.001	0.001	0.001	0.001	0.001

### 3.4. Comparison of adverse reactions between the two groups

Table 4 shows that there is no statistically significant difference in the total values of adverse reactions between the two groups ( $P > 0.05$ ).

**Table 4.** Comparison of incidence rates of adverse reactions [n (%)]

Group	Infection	Gastrointestinal reactions	Rash	Total incidence rate
Control group (n = 43)	1 (2.33)	2 (4.65)	1 (2.33)	4 (9.30)
Observation group (n = 43)	0 (0.00)	1 (2.33)	0 (0.00)	1(2.23)
$\chi^2$	-	-	-	1.911
P	-	-	-	0.167

## 4. Discussion

Cholecystitis with cholelithiasis is a prevalent condition in clinical practice, and surgery remains the most direct and efficient treatment method. Laparoscopic surgery, in particular, offers advantages such as minimal invasiveness and safety, surpassing traditional laparotomy. It proves effective in lesion removal, substantially reducing patient pain during treatment. Despite the efficacy of surgery, its inherently invasive nature necessitates integration with high-quality treatment options to enhance patient prognosis [6].

In recent years, the integration of traditional Chinese and Western medicine has emerged as a mainstream trend. From a Western medicine perspective, laparoscopic surgery effectively eliminates known lesions, and when combined with TCM, it further controls the body's inflammatory response [7]. TCM views cholecystitis and cholelithiasis through categories such as “gallbladder bloating” and “costal pain.” Their occurrence is closely linked to factors such as improper diet, poor mood, and exogenous dampness. Hindered excretion and drainage of gallbladder organs lead to bile stagnation, blockage, and over time, the formation of gallbladder stones. Treatment strategies focus on soothing the liver, promoting gallbladder function, anti-inflammation, analgesia, and softening and clearing stones. The Modified Xiaoyan Lidan Decoction plays a pivotal role in this treatment [8]. Components such as *Desmodium japonica* and *Polygonum cuspidatum* reduce jaundice and swelling, induce diuresis, and detoxify; Chicken gizzard membranes and acosta strengthen the spleen, eliminate food, and relieve stranguria; Bupleurum addresses external and internal issues, soothes the liver, and alleviates stagnation; White peony root softens the liver and relieves pain. Turmeric dissipates blood stasis and replenishes qi; *Melanium japonica* and corydalis promote qi and blood circulation, relieve heat, and ease pain; *Lygodium japonicum* relieves dampness, heat, stranguria, and pain; Licorice harmonizes various medicines. The combined use of these ingredients functions to break qi, eliminate accumulation, disperse pimples, soften hardness, soothe the liver, promote gallbladder function, clear away heat, and detoxify [9-11]. As evidenced by the results in the tables in this article, the observation group achieved a high total clinical treatment effectiveness of 93.02%, with only 2.23% experiencing adverse reactions. Moreover, the clinical symptom improvement time and hospitalization time were shorter, and both pain and TCM syndrome scores were lower. These findings suggest that combining laparoscopic surgery with the Modified Xiaoyan Lidan Decoction can yield satisfactory treatment outcomes for patients.

In summary, the application of Modified Xiaoyan Lidan Decoction during laparoscopic surgery for patients with cholecystitis and cholelithiasis can significantly reduce the improvement time of related symptoms, enhance the clinical treatment's effectiveness, and improve overall treatment safety. This approach holds considerable promise for wider application and promotion.

## Disclosure statement

The author declares no conflict of interest.

## References

- [1] Liao S, 2020, Clinical Observation of Xiaoyan Lidan Decoction Combined with Laparoscopic Surgery in the Treatment of Cholecystitis Accompanied by Cholelithiasis. *Chinese Modern Distance Education of Traditional Chinese Medicine*, 18(5): 50–52.
- [2] Lu L, 2020, Clinical Effect of Laparoscopic Surgery in the Treatment of Elderly Patients with Cholecystitis and Cholelithiasis. *Medical Equipment*, 33(17): 136–137.
- [3] Sun Y, 2018, 41 Cases of Chronic Cholecystitis of Liver and Gallbladder Damp-Heat Type Treated with Xiaoyan Lidan Decoction Combined with Western Medicine. *Journal of Integrated Traditional Chinese and Western Medicine for Liver Disease*, 28(1): 48–49.
- [4] Chinese Journal of Digestion Editorial Board, Chinese Medical Association Gastroenterology Branch Hepatobiliary Disease Collaborative Group, 2019, Chinese Consensus Opinions on Medical Diagnosis and Treatment of Chronic Cholecystitis and Cholecystolithiasis (2018). *Chinese Journal of Digestion*, 39(2): 73–79.
- [5] State Administration of Traditional Chinese Medicine, 2002, Principles of Clinical Research Guidelines for New Traditional Chinese Medicines, China Medical Science and Technology Press, Beijing, 239–243.
- [6] Dong P, Guo S, Cao D, et al., 2020, Effects of Traditional Chinese Medicine Prescriptions Combined with Laparoscopic Surgery on Blood Phosphorus, Blood Calcium, Bile Acids, and Cholesterol in Patients with Paraplegic Cholelithiasis. *Journal of Guangxi Medical University*, 37(4): 737–741.
- [7] Liu Y, Han Y, 2023, The Effect of Qinggan Lidan Decoction Combined with Laparoscopic Surgery on Patients with Acute Cholecystitis and the Impact of Serum TnI and M-CSF Levels. *Journal of Guangzhou University of Traditional Chinese Medicine*, 40(3): 615–620.
- [8] Han S, 2020, Observation on the Effect of Laparoscopic Surgery Combined with Modified Xiaoyan Lidan Decoction in the Treatment of Cholecystitis Accompanied by Cholelithiasis. *Heilongjiang Traditional Chinese Medicine*, 49(1): 13–14.
- [9] Shen L, Yuan L, Ding S, et al., 2021, Research on the Efficacy of Xiaoyan Lidan Zhitong Decoction in the Treatment of Chronic Cholecystitis and the Changes in Oxidative Stress Factors and Gallbladder Function. *Chinese Journal of Traditional Chinese Medicine*, 39(1): 48–50.
- [10] Shi H, Zhang S, Lin B, 2018, Clinical Effect of Modified Xiaoyan Lidan Decoction Combined with Laparoscopic Surgery in the Treatment of Cholecystitis Associated with Cholelithiasis. *Chinese Contemporary Medicine*, 25(8): 161–162 + 166.
- [11] Ma B, Zhang J, Huang W, 2020, Clinical Study on Modified Dachaihu Decoction in the Treatment of Cholelithiasis and Cholecystitis After Partial Gastrectomy. *Journal of Beihua University (Natural Science Edition)*, 21(4): 518–520.

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