

# Treatment of complex renal calculi

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<b>Registration date</b> 18/08/2025	<b>Overall study status</b> Completed	<input type="checkbox"/> Protocol
<b>Last Edited</b> 15/08/2025	<b>Condition category</b> Urological and Genital Diseases	<input type="checkbox"/> Statistical analysis plan
		<input type="checkbox"/> Results
		<input type="checkbox"/> Individual participant data
		<input checked="" type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Complex renal calculi is a common type of urinary calculi, which is difficult to treat and has a high probability of recurrence. The characteristics of rigid mirrors determine that there will inevitably be blind spots in the treatment of multiple renal stones and staghorn stones, resulting in serious consequences such as bleeding and renal parenchymal injury. RIRS has the advantages of less trauma, less bleeding, flexible bending of the end, and rapid recovery of damage caused by non-lens prying when entering the renal pelvis and calyces, which makes up for the shortcomings of rigid endoscopy but is a complex operation. Percutaneous disposable electronic soft lens combined with percutaneous hard lens in the treatment of large renal load calculi has some advantages that flexible ureteroscopy does not have. There are few related studies on it, and its clinical efficacy still needs to be further explored. This study is to investigate the clinical efficacy of single-channel percutaneous nephrolithotomy combined with disposable electronic soft lens in the treatment of complex renal calculi, and further explore the advantages and disadvantages and safety of this combined procedure for clinical reference.

### Who can participate?

Patients with complex renal calculi. There were 13 males and 7 females in the observation group, with an average age of  $45.80 \pm 5.51$  years and an average stone size of  $3.44 \pm 0.32$  cm. There were 10 males and 10 females in the control group, with an average age of  $46.25 \pm 4.25$  years and an average stone size of  $3.43 \pm 0.29$  cm.

### What does the study involve?

The observation group was treated with percutaneous renal single-channel disposable electronic soft lens combined with percutaneous nephroscopy, while the control group was treated with traditional single percutaneous nephroscopy.

### What are the possible benefits and risks of participating?

The percutaneous disposable electronic soft lens combined with percutaneous hard lens used in this study has some advantages that the flexible ureteroscopy does not have. It has higher resolution and clarity, and is not easy to cause renal parenchymal damage. Therefore, it can further shorten the operation time and reduce the bleeding rate. Although the situation has improved, there is still a risk of residual stones.

Where is the study run from?

This study was conducted at Hebei Yanda Hospital (China)

When is the study starting and how long is it expected to run for?

August 2023 to May 2025

Who is funding the study?

Investigator initiated and funded

Who is the main contact?

Yunbo Yang, Yangyunbo1266@163.com

## Contact information

### Type(s)

Public, Scientific, Principal investigator

### Contact name

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## Additional identifiers

### Clinical Trials Information System (CTIS)

Nil known

### Protocol serial number

Nil known

## Study information

### Scientific Title

Clinical observation of single channel percutaneous nephrolithotomy combined with disposable electronic soft lens in the treatment of complex renal calculi

### Study objectives

Percutaneous disposable electronic soft lens combined with percutaneous hard lens in the treatment of large renal load calculi has some advantages that flexible ureteroscope does not

have. To explore the clinical efficacy of single-channel percutaneous nephrolithotomy combined with disposable electronic soft lens in the treatment of complex renal calculi, and further explore the advantages and disadvantages and safety of this combined procedure.

### **Ethics approval required**

Ethics approval required

### **Ethics approval(s)**

approved 12/05/2025, The Ethics Committee of Hebei Yanda Hospital (Sipulan Road, Yanjiao Development Zone, Sanhe City, 065000, China; +86-03163306666; ZJX\_yandadoc@21cn.com), ref: Ethical Approval (Sci) No. 2025-05-009

### **Study design**

Single-centre non randomized controlled trial

### **Primary study design**

Interventional

### **Study type(s)**

Treatment

### **Health condition(s) or problem(s) studied**

Treatment of patients with complex kidney stones

### **Interventions**

The patients are divided into observation group and control group by voluntary admission in advance. The observation group is treated with percutaneous renal single-channel disposable electronic soft lens combined with percutaneous nephroscopy; the control group is treated with traditional single percutaneous nephroscopy.

Total treatment time: preoperative to discharge, followed up for 3 months after surgery

### **Intervention Type**

Procedure/Surgery

### **Primary outcome(s)**

Stone clearance rate is measured using non-contrast computed tomography (CT) at 24 hours post-procedure

### **Key secondary outcome(s)**

1. Stone clearance rate is measured using non-contrast computed tomography (CT) at 3 months post-operation
2. Operation time is measured using intraoperative surgical records at the time of surgery
3. Intraoperative blood loss is measured using surgical suction volume and gauze weight at the time of surgery
4. Hospitalization time is measured using patient discharge records from admission to discharge
5. Postoperative complications are measured using the Clavien-Dindo classification at ...
6. Quality of life is measured using the Generic Quality of Life Inventory-74 (GQOLI-74) at baseline and 1 month post-surgery
7. Inflammatory response is measured using serum C-reactive protein (CRP) levels at 24 hours before surgery (T0), end of anesthesia (T1), 2 hours after surgery (T2), 12 hours after surgery (T3), 24 hours after surgery (T4), and 48 hours after surgery (T5)

8. Renal function is measured using serum cystatin C levels at baseline (before surgery), 2 hours after surgery, 12 hours after surgery, 24 hours after surgery, 48 hours after surgery, and 72 hours after surgery

**Completion date**

30/05/2025

## **Eligibility**

**Key inclusion criteria**

1. Patients diagnosed with complex renal calculi combined with medical history, signs and imaging findings
2. All patients with preoperative urinary tract infection received anti-infective treatment and were well controlled
3. Patients with abnormal blood pressure, blood glucose and electrolyte before operation returned to normal and maintained stable after active treatment by doctors
4. Patients with preoperative renal insufficiency or severe hydronephrosis had undergone one-stage nephrostomy
5. The patients were able to accept the hospitalization expenses of the double-mirror combination, and the willingness to operate was strong. All patients signed the informed consent
6. The case data were complete and the examination was perfect

**Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Adult

**Lower age limit**

39 years

**Upper age limit**

55 years

**Sex**

All

**Total final enrolment**

40

**Key exclusion criteria**

1. There were systemic hemorrhagic diseases, and the coagulation function had not been corrected
2. Long-term use of anticoagulant drugs such as aspirin, warfarin, preoperative non withdrawal for more than 1 week
3. With severe heart and lung disease, can not tolerate surgery and anesthesia

4. Renal malignant tumor, renal tuberculosis, pelvic ectopic kidney, polycystic kidney and severe renal prolapse were found before operation
5. The presence of severe joint or spinal deformity affects the placement of surgical position
6. Extremely obese, the skin-kidney distance value was too large, affecting the establishment of percutaneous renal working channel
7. Pregnant patients

**Date of first enrolment**

01/09/2023

**Date of final enrolment**

30/09/2024

## Locations

**Countries of recruitment**

China

**Study participating centre**

Hebei Yanda Hospital

Sanhe City

China

065000

## Sponsor information

**Organisation**

Hebei Yanda Hospital

## Funder(s)

**Funder type**

Other

**Funder Name**

Investigator initiated and funded

## Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study will be available upon request from Dr.Yunbo Yang  
email: Yangyunbo1266@163.com

**IPD sharing plan summary**

Available on request