

# INPLASY PROTOCOL

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None declared.

## Comparison of efficacy and safety of Retrograde intrarenal surgery and Percutaneous nephrolithotomy for the treatment of stones in horseshoe kidney: A systematic review and meta-analysis

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**Review question / Objective:** To compare the efficacy and safety of PCNL and RIRS for the treatment of urolithiasis in HK patients.

**Condition being studied:** Urolithiasis is the most common complication of horseshoe kidney(HK), which can be treated by extracorporeal shock wave lithotripsy (ESWL), retrograde intrarenal surgery (RIRS), and percutaneous nephrolithotomy (PCNL). When comparing treatments of PCNL and RIRS, it is unclear which is more efficient and safe.

**Eligibility criteria:** (1) Studies comparing RIRS and PCNL in the treatment of HK patients with calculi. (2) Reported outcomes we interested in ,including SFR, operation time, complication rate, hospital stay, and auxiliary procedure rate.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 31 October 2022 and was last updated on 31 October 2022 (registration number INPLASY2022100120).

### INTRODUCTION

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**Condition being studied:** Urolithiasis is the most common complication of horseshoe kidney(HK), which can be treated by extracorporeal shock wave lithotripsy (ESWL), retrograde intrarenal surgery

(RIRS), and percutaneous nephrolithotomy (PCNL). When comparing treatments of PCNL and RIRS, it is unclear which is more efficient and safe.

## METHODS

**Search strategy:** (“Renal Fusion” OR “Horseshoe Kidney ” OR “Fused Kidney”) AND (“renal” OR “kidney”) AND (“calculi” OR “stone” OR “urolithiasis” OR “lithiasis”).

**Participant or population:** Patients were diagnosed as HK with urolithiasis undergo PCNL /RIRS.

**Intervention:** Retrograde intrarenal surgery.

**Comparator:** Percutaneous nephrolithotomy.

**Study designs to be included:** randomized controlled trials (RCTs), non-zRCTs, prospective observational studies, or retrospective observational studies.

**Eligibility criteria:** (1) Studies comparing RIRS and PCNL in the treatment of HK patients with calculi. (2) Reported outcomes we interested in ,including SFR, operation time, complication rate, hospital stay, and auxiliary procedure rate.

**Information sources:** All relevant literatures on PubMed, Embase and Cochrane library database were reviewed.

**Main outcome(s):** The main outcomes are SFR and complication rate. The secondary results are operation time, hospital stay, re-treatment rate and radiation exposure time.

**Quality assessment / Risk of bias analysis:** We used the Cochrane collaboration's tool to evaluate the methodological of each randomized controlled trial. we used the Newcastle-Ottawa Scale for each included cohort studies. Studies with a score  $\geq 6$  was eligible for our meta-analysis.

**Strategy of data synthesis:** The weighted-mean difference (WMD) and relative risk

(RR) with 95% CIs were used as the summary statistics for continuous and dichotomous variables, respectively. Pooled estimates were calculated using a fixed-effects model, unless significant heterogeneity was detected, in which case a random-effects model was applied. Funnel plots were generated in order to screen for potential publication bias. Additional sensitivity analyses were performed by ruling out studies in which participants of the two groups were not equally matched.

**Subgroup analysis:** To compare the efficacy of RIRS and PCNL for stone 2cm, respectively. and the stone location.

**Sensitivity analysis:** Additional sensitivity analyses were performed by ruling out studies in which participants of the two groups were not equally matched.

**Language restriction:** English.

**Country(ies) involved:** China.

**Keywords:** Retrograde intrarenal surgery, Percutaneous nephrolithotomy, stone, horseshoe kidney, Meta-analysis.

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