

INPLASY

Efficacy and safety of radiofrequency ablation for hemorrhoids: a systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Data analysis.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202670001

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 1 July 2026 and was last updated on 1 July 2026.

INTRODUCTION

Review question / Objective To systematically evaluate the efficacy and safety of RFA for the treatment of hemorrhoids.

Condition being studied Hemorrhoidal disease is a common anorectal disorder, and radiofrequency ablation (RFA) has emerged as a minimally invasive treatment option. However, the efficacy and safety of RFA compared with conventional surgical procedures remain unclear.

METHODS

Search strategy PubMed:

((("Hemorrhoids"[Mesh])
OR (Hemorrhoid*[Title/Abstract]
OR Pile*[Title/Abstract]
OR "Hemorrhoidal disease"[Title/Abstract]))
AND
(("Radiofrequency Ablation"[Mesh])
OR (Radiofrequency[Title/Abstract]

OR RF[Title/Abstract]
OR RFA[Title/Abstract]
OR diathermy[Title/Abstract]
OR monopolar[Title/Abstract]
OR bipolar[Title/Abstract]
OR Rafaelo[Title/Abstract]
OR THD[Title/Abstract]))

EmBase:

1 exp hemorrhoid/
2 (hemorrhoid* or pile* or hemorrhoidal
disease).ti,ab.
3 1 or 2
4 exp radiofrequency ablation/
5 (radiofrequency or rf or rfa or diathermy or
monopolar or bipolar or rafaelo or thd).ti,ab.
6 4 or 5
7 3 and 6

Cochrane Library:

#1 MeSH descriptor: [Hemorrhoids] explode all
trees
#2 (hemorrhoid* OR pile* OR "hemorrhoidal
disease"):ti,ab,kw

#3 #1 OR #2
 #4 MeSH descriptor: [Radiofrequency Ablation] explode all trees
 #5 (radiofrequency OR rf OR rfa OR diathermy OR monopolar OR bipolar OR rafaelo OR thd):ti,ab,kw
 #6 #4 OR #5
 #7 #3 AND #6

Web of Science:
 TS=((hemorrhoid* OR pile* OR "hemorrhoidal disease")
 AND
 (radiofrequency OR rf OR rfa OR diathermy OR monopolar OR bipolar OR rafaelo OR thd)

ClinicalTrials.gov:
 Condition/Disease: hemorrhoid OR hemorrhoids OR hemorrhoidal disease OR pile
 Other Terms: radiofrequency OR radiofrequency ablation OR RFA OR Rafaelo OR THD

WHO ICTRP:
 hemorrhoid OR hemorrhoids
 radiofrequency OR RFA OR Rafaelo.

Participant or population Patients with a clinical or colonoscopic diagnosis of internal hemorrhoids, without restriction by age, sex, or ethnicity.

Intervention RFA as the primary treatment modality.

Comparator Pretreatment.

Study designs to be included Randomized controlled trials, quasi-randomized controlled trials, prospective or retrospective cohort studies, and case series.

Eligibility criteria The inclusion criteria were formulated according to the PICOS (Population, Intervention, Comparison, Outcome, Study Design) framework: (1) patients with a clinical or colonoscopic diagnosis of internal hemorrhoids, without restriction by age, sex, or ethnicity; (2) RFA as the primary treatment modality; (3) pre-to-post self-controlled analysis was performed for single-arm studies; (4) outcomes included postoperative pain (Visual Analogue Scale, VAS), Hemorrhoidal Severity Score (HSS), surgical retreatment, complication rates, and postoperative analgesic use; and (5) the study design included randomized controlled trials, quasi-randomized controlled trials, prospective or retrospective cohort studies, and case series.

Information sources PubMed, Embase, Cochrane Library, Web of Science, ClinicalTrials.gov, and the

WHO International Clinical Trials Registry Platform (ICTRP).

Main outcome(s) Postoperative pain (Visual Analogue Scale, VAS), Hemorrhoidal Severity Score (HSS), surgical retreatment, complication rates, and postoperative analgesic use.

Quality assessment / Risk of bias analysis Newcastle-Ottawa Scale (NOS).

Strategy of data synthesis For continuous variables, the mean difference (MD) and its 95% confidence interval (CI) were calculated when the same measurement tool was used. For dichotomous variables, the pooled incidence rate and its 95%CI were calculated. A random-effects model (DerSimonian–Laird method) was applied for all analyses to account for potential between-study heterogeneity.

Subgroup analysis Not applicable.

Sensitivity analysis Sources of heterogeneity were explored through sensitivity analyses.

Language restriction No restriction.

Country(ies) involved China.

Keywords Radiofrequency ablation; Hemorrhoids; Systematic review; Meta-analysis; Rafaelo procedure.

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