

Robotic Versus Open Retroperitoneal Lymph Node Dissection in Testicular Cancer Patients with Elevated BMI: A Systematic Review and Meta-Analysis

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Background

- RPLND in overweight patients is associated with increased complexity and perioperative risks.
- Robotic-assisted RPLND is a minimally invasive approach that may improve perioperative outcomes.
- This study compares robotic vs. open RPLND in overweight patients (BMI ≥ 25 kg/m²).

Key Findings at a Glance

7 observational studies

842 patients
(262 robotic / 580 open)

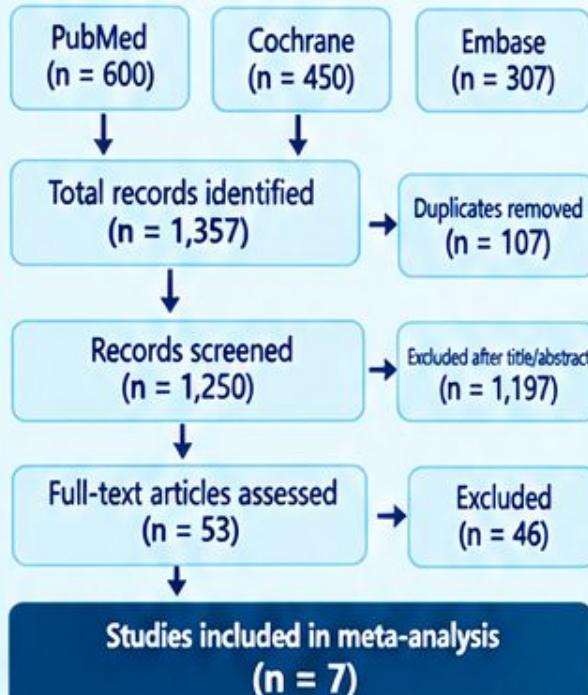
2016 – 2025
(study period)

Significant reductions
Length of stay
MD **–3.20 days**
Blood loss
MD **–271.87 mL**

Methods

Design	Systematic review and meta-analysis (PRISMA & Cochrane guidelines)
Databases	PubMed, Embase, Cochrane Library (Inception – April 2025)
Inclusion	RPLND and O-RPLND in overweight (BMI ≥ 25 kg/m ²) testicular cancer patients
Outcomes	Operative time, hospital stay, lymph node yield, blood loss, complications, ejaculation disorder, recurrence
Analysis	RevMan 5.4 (MD for continuous, RR for dichotomous), I ² and Cochran Q for heterogeneity
Quality	Newcastle-Ottawa Scale (NOS)

Study Flow



Baseline Characteristics

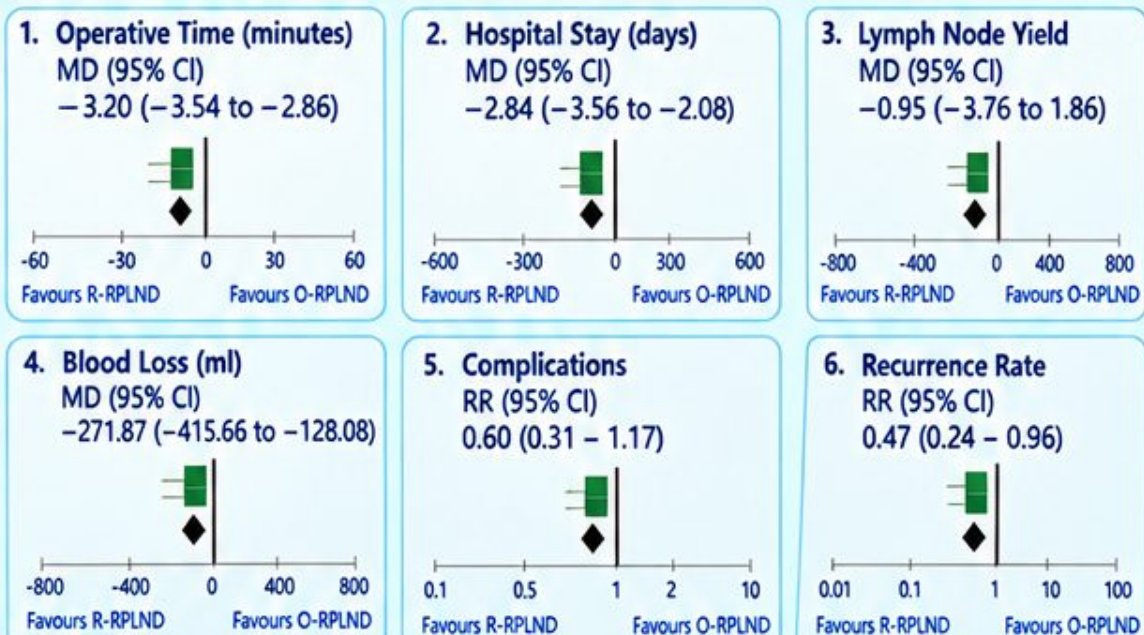
	R-RPLND	O-RPLND
Total patients	262	580
Mean age (years)	25 – 44	25 – 44
BMI (mean)	≥ 25 kg/m ²	≥ 25 kg/m ²
Countries	Canada, USA, Germany	Canada, USA, Germany
Study design	Observational (retrospective & prospective)	Observational (retrospective & prospective)
Time frame	2016 – 2025	2016 – 2025

Risk of Bias (NOS)

★★★★★

All studies: acceptable quality (≥ 6 stars)

Key Results



Interpretation & Conclusion

- ✓ Robotic-assisted RPLND offers comparable oncologic efficacy to open RPLND in overweight patients.
- ✓ May be associated with shorter hospital stay, less blood loss and earlier recovery.
- ✓ No significant difference in operative time, lymph node yield, complications, ejaculation disorder or recurrence.
- ✓ Evidence is limited by only seven observational studies and heterogeneity.

