

Multicenter observational study comparing robotic retrorectus and open preperitoneal mesh repair for treatment of primary ventral hernias

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Aim

This study aimed to compare the long-term surgical outcomes of the open preperitoneal (PREPER) versus a robot-assisted laparoscopic retrorectus (rTARUP) approach in the treatment of primary ventral hernias (PVH), focusing on recurrence rates and quality of life.



Material & Methods

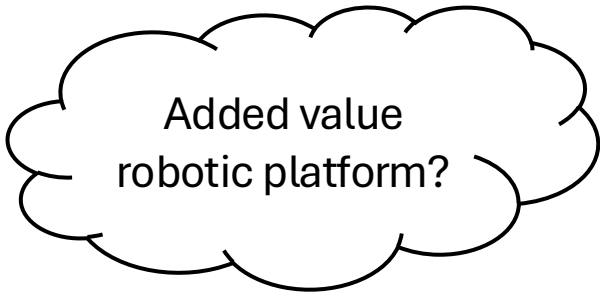
A prospectively maintained database was reviewed for patients who underwent PVH repair using either the PREPER or rTARUP. Data were collected on demographics, hernia and mesh dimensions, as well as intra- and postoperative outcomes. Patients were contacted by telephone and assessed using the EuraHS-QoL and PINCH-Phone questionnaires. Clinical evaluations were conducted in cases where a recurrence was suspected.

	PREPER N=82	rTARUP N=80	P-value
Age at operation (years)	53.4 (14.5)	53.7 (9.8)	P=0.89
Gender, % Female	26.8% (22/82)	17.5% (14/80)	P=0.19
BMI (kg/m ²)	27.1 (6.2)	29.4 (4.3)	P=0.0069
Hernia type, % Epigastric	13.4% (11/82)	25.0% (20/80)	P=0.073
Comorbidities			
Hepatic disease, % Yes	14.6% (12/82)	2.5% (2/80)	P=0.010
Renal disease, % Yes	7.3% (6/82)	0.0% (0/80)	P=0.028
Active smoker, % Yes	20.3% (16/79)	16.3% (13/80)	P=0.54

Results

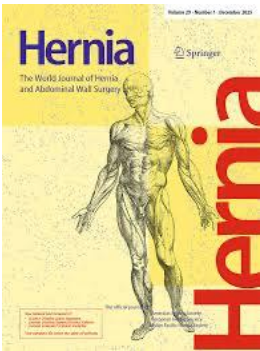
The analysis included 82 PREPER patients and 80 rTARUP patients, with an overall follow-up time of 6.2 and 5.1 years respectively. BMI was higher in the rTARUP group (29.4 kg/m² vs. 27.1 kg/m², p=0.0069), and hernia and mesh sizes were significantly larger in the rTARUP group (p<0.0001). No significant differences in postoperative 30-day complications were observed (PREPER: 8.5%, rTARUP: 6.3%; p=0.77). Long-term recurrence rates were 0.0% in the PREPER group and 2.5% in the rTARUP group (p=0.24). EuraHS-QoL scores showed low levels of pain, restriction of activities, and esthetic discomfort in both groups, with no significant differences.

	PREPER N=82	rTARUP N=80	P-value
Hernia dimensions			
Width of hernia (cm)	1.48 (0.71)	2.26 (0.81)	P<0.0001
Length of hernia (cm)	1.47 (0.69)	2.10 (0.80)	P<0.0001
Mesh dimensions			
Width of mesh (cm)	7.77 (1.26)	14.84 (0.65)	P<0.0001
Length of mesh (cm)	8.76 (1.68)	17.21 (4.14)	P<0.0001
Operation duration (mins)	66 (29)	73 (19)	P=0.11
Intraoperative complications, % Yes	0.0% (0/82)	0.0% (0/80)	P=0.99
In-hospital complications, % Yes	1.2% (1/82)	3.8% (3/80)	P=0.36
EuraHS QoL score	2.21 (4.50)	1.44 (3.60)	P=0.53
PINCH Phone +	14 (17.1%)	11 (13.8%)	P=0.66
Recurrence	0 (0%)	2 (2.5%)	P=0.24



Conclusions

Both the PREPER and rTARUP demonstrate favorable long-term outcomes, with low recurrence rates and high quality of life. No clear clinical advantage of one approach over the other was observed. Considering evidence indicating longer operative times and higher costs associated with the robotic platform, its use may provide limited added value in cases of low complexity.



Vierstraete M, Dries P, Allaey M, Muysoms F, Berrevoet F. Multicenter observational study comparing robotic retrorectus and open preperitoneal mesh repair for treatment of primary ventral hernias. *Hernia*. 2025;29(1):129