

Efficacy and usefulness of robotic approach for repeated hepatectomy

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Background

The Efficacy or usefulness of robotic hepatectomy in repeat hepatectomy compared with laparoscopic approach has not yet been reported.

Surg Endosc. 2024 Mar;38(3):1296-1305. Epub 2023 Dec 15.
Robotic or laparoscopic repeat hepatectomy after open hepatectomy: a cohort study
MIRH is feasible after previous open hepatectomy and a safe alternative approach to ORH.

J Robot Surg. 2022 Oct;16(5):1067-1072.
The effect of the robotic platform in hepatectomy after prior liver and non-liver abdominal operations: a comparative study of clinical outcomes
There were no differences in morbidity nor mortality between patients undergoing primary nor reoperative robotic hepatectomy

World J Surg. 2023 Sep;47(9):2241-2249.
Robotic Versus Laparoscopic Hepatectomy: A Single Surgeon Experience of 629 Consecutive Minimally Invasive Liver Resections
RLS may allow for a higher percentage of liver resections to be completed in a minimally invasive way with lower blood loss and a shorter LOS

Methods

2007.4 ～2024. 8
Minimally Invasive Liver resection(MILR) 801

Standardization of indication and procedures

2019.1 ～2024. 8
MILR 453

Excluded
Combined 3
Anatomical 1

2019.1 ～2024. 8
Repeated MILR 51

2023.1 ～ 2024.5
Robotic approach 18

Compared

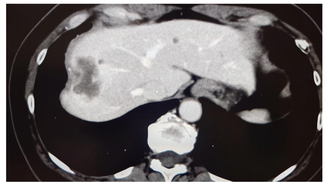
2019.1 ～2023.1
Laparoscopic approach 33

Convert to open
2

Perioperative outcome
Blood loss・OP duration・Labo Data
Complication・Hospital stay

Procedure for Redo liver resection

66y.o. Metastatic liver tumor (S8) after RLR(S8 partial)
Concomitant chemotherapy-induced liver damage Child Pugh score 6



https://youtu.be/qIB1rn7NTZ0
3 min movie

Operative duration 5 h 4 m Blood loss Occ
Hospital stay 7days after OP.

Robotic approach in repeated hepatectomy

Advantages

- Easy approach to multiple joint adhesion wounds
- Safe adhesion removal with precise 3D visualization
- More caudal port placement than LLR

Disadvantages

- Timing the robot docking is difficult
- High cost and extended operative duration
- Less flexibility in port location

Aim

Robotic liver resection (RLR) is a surgical procedure that was approved for Japanese insurance coverage in 2022 and is rapidly becoming more popular in Japan.

In this presentation, we compared the safety and usefulness of robotic liver resection with conventional laparoscopic liver resection (LLR) in frequently encountered cases of repeat liver resection.

Patient Background

	RLR (n=18)	LLR (n=33)	*p value*
Gender(M/F)	15/ 3	22/ 11	*n.s.*
Age	73.5(46-87)	74(54-89)	*n.s.*
BMI	24.4 (17.6-31.0)	23.8(16.7-29.8)	*n.s.*
ASA	2 (2-3)	2 (1-3)	*n.s.*
Child Pugh	5 (5-9)	5 (5-7)	*n.s.*
Diagnosis HCC	12	27	
ICC	1	0	
METs	5	5	
Benign	0	1	
Size (cm)	2.6 (0.9-6.2)	2.2 (1-8.5)	*n.s.*
Solitary /multi	16/ 2	20/ 3	*n.s.*
Previous Hep approach (OLR /LLR/RLR)	3/ 10 / 5	6/ 27 /0	*n.s.*
Previous Hep Site (nearby / others)	6/ 12	7/ 26	*n.s.*

Results

	RLR (n=18)	LLR (n=33)	*p value*
Convert to OLR	0	2	*0.5255*
OP Duration (min)	158(88-304)	113(51-380)	*0.0353*
Blood loss (ml)	0(0-500)	10(0-1100)	*0.0796*
Complication C-D≧ II	1	4	*0.6393*
Complication C-D ≧IIIa	1	2	*0.4918*
Peak value of AST	135 (72-392)	191 (45-2672)	*0.0364*
NRS* day 5	2 (1-5)	4 (2-7)	*0.0351*
Hospital stay	6 (3-13)	6 (3-14)	*0.9127*
Surgical margin	3	2	*0.3423*

Conclusion

RLR was as safe as LLR in repeat hepatectomy.
The RLR conversion rate was lower than with LLR, and the amount of bleeding was relatively small, making it a useful approach for repeated liver resections, because RLR makes it easy to remove adhesions around the liver due to multiple joint arm.

*I have no financial disclosure.