

**Comparative study of
Pure laparoscopic living donor
right hepatectomy
VS
Conventional open living donor
right hepatectomy**

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Introduction

- Laparoscopic 'minor' liver resections are demonstrated safe and feasible.
- Major anatomic liver resections, initially considered to be unsuitable for laparoscopy.
- But, laparoscopic 'major' liver resections are increasingly performed by various centers worldwide.



Introduction

- Live donor hepatectomy is performed under “non-pathologic” condition
- Most important to guarantee the donors safety
- Important to consider quality of life such as post operative pain, cosmetic effect



Experience at Asan Medical Center



Methods

- Subjects:
 - ✓ All consecutive cases of Pure laparoscopic living donor right hepatectomy (n=30) and 1:2 case matched open living donor right hepatectomy(n=60) of 812 cases during same period at Asan Medical Center, Seoul, Korea
- Study period:
 - ✓ Nov. 2014 ~ May. 2017



Methods

- Laparoscopy indication:
 - ✓ Graft volume \leq 700g (CT volumetry)
 - ✓ No anatomical variation
 - ✓ A single, longer RHA,RPV, and RBD
 - ✓ The fewer IRHV



Preoperative donor characteristics

	LLDRH (N=30)	OLDRH (N=60)	P value
Age (years)	24.67 ± 5.7	24.85 ± 7.5	0.911
Gender (M:F)	7 : 18	19 : 31	0.801
BMI (kg/m ²)	21.6 ± 3.2	21.4 ± 2.3	0.784
ICG	9.0 ± 3.2	8.1 ± 3.5	0.338
ASA	all 1	all 1	-



Operative donor characteristics 1/2

	LLDRH (N=30)	OLDRH (N=60)	P value
OP time (mins)	362.5 ± 63.7	303.2 ± 47.2	0.001
Graft volume (g)	639.3 ± 91.4	636.1 ± 52.6	0.874
Remnant liver volume (%)	34.9 ± 2.9	35.8 ± 3.9	0.433
Fatty change (%)	3.6 ± 4.1	2.7 ± 3.8	0.532
WIT (mins)	5.63 ± 1.32	4.84 ± 1.54	0.065



Operative donor characteristics 2/2

	LLDRH (N=30)	OLDRH (N=60)	P value
Converted to open, n (%)	0 (0)		-
Reconstructed V/ VIII MHV branches median (range)	2 (1-5)	2 (1-4)	0.765
IRHV median (range)	0 (0-2)	0 (0-2)	0.625
BD anatomy	Type A: 28 Type B: 1 Type C: 0 Type D: 1	Type A: 57 Type B: 0 Type C: 2 Type D: 1	0.724



Post-operative donor characteristics 1/2

	LLDRH (N=30)	OLDRH (N=60)	P value
NRS score on day 1 median (range)	3 (2-7)	6 (2-10)	0.035
NRS score on day 3 median (range)	2 (1-6)	4 (1-8)	0.023
NRS score on day 5 median (range)	1 (0-3)	2 (2-6)	0.014
Diet (days)	2.1 ± 0.4	2.6 ± 1.0	0.024
Hospital stay (days)	7.8 ± 1.7	10.3 ± 1.1	0.000

NRS: numeric rating scale



Post-operative donor characteristics 2/2

	LLDRH (N=30)	OLDRH (N=60)	P value
Minimum PT(%)	48.2 ± 6.1	46.3 ± 4.5	0.235
Peak values			
AST (units/l)	272.7 ± 90.2	146.5 ± 42.3	0.000
ALT (units/l)	244.5 ± 84.2	132.5 ± 43.2	0.000
total bilirubin(μmol/l)	2.2 ± 0.9	2.3 ± 0.6	0.542
Estimated blood loss	175.4 ± 58.5	316.5 ± 181.1	0.000
CCI (range)	0	0 – 8.7	0.317
Post op complication	0 (0%)		
wound infection		1 (2%)	
pleural effusion		1 (2%)	
Mortality	None	None	-

Recipients characteristics

	LLDRH (N=30)	OLDRH (N=60)	P value
Age (years)	51.7 ± 9.5	52.4 ± 9.1	0.613
Gender (M:F)	26 : 4	43: 17	0.118
ABOi	9 (33.3%)	10 (20.0%)	0.224
GRWR	0.84 ± 0.12	0.88 ± 0.13	0.328
CTP (A:B:C)	10 : 13 : 7	16 : 27 : 17	0.942
MELD (<20:≥20)	25 : 5	44 : 16	0.385
Hospital stay(d)	21.4 ± 9.8	23.1 ± 11.7	0.691
Complication (30d) <i>clavien-dindo</i>			0.632
I/II			
III/IV	0	1	
	2	3	
Mortality (30d)	none	none	-

Preoperative and postoperative characteristics of the donor according to perform Pringle maneuver

	LLDRH without PM (N=8)	LLDRH with PM (N=22)	P value
Age (years)	24.5 ± 5.6	22.4 ± 8.3	0.706
Sex, M/F (%)	2/6 (25.0)	6/16 (27.2)	0.523
BMI, kg/m ²	19.45±2.37	22.31±3.52	0.232
ICG-R15,	8.05±2.91	8.68±3.65	0.711
Operation time (min)	393.75 ± 74.06	345.42 ± 64.49	0.532
EBL (mL)	197.50 ± 56.44	132.65 ± 32.45	0.029
Postoperative lab			
Minimum PT (%)	51.25 ± 5.50	42.34 ± 3.40	0.001
Peak-AST (IU/L)	232.50 ± 89.37	290.32 ± 149.55	0.243
Peak-ALT (IU/L)	205.00 ± 56.94	270.34± 92.41	0.084
Peak-T-bilirubin (mg/dL)	2.16 ± 0.92	2.06 ± 0.65	0.744
Hospital stay(d)	7.50 ± 1.51	8.06 ± 1.72	0.662

Conclusion

- Pure laparoscopic living donor right hepatectomy required less estimated blood loss, shorter hospital stay and had no complication during study period
- Pure laparoscopic living donor right hepatectomy by well experienced surgeon is safe and feasible procedure for selected donors



Conclusion

- The strict indication is required for safe LLDRH
 - ✓ Graft volume \leq 700g (CT volumetry)
 - ✓ No anatomical variation
 - ✓ A single, longer RHA, RPV, and RBD
 - ✓ The fewer IRHV

The most important thing is
Donors safety



Thank you

