



JULY 6-8 2017
MAISON DE LA CHIMIE
PARIS - FRANCE



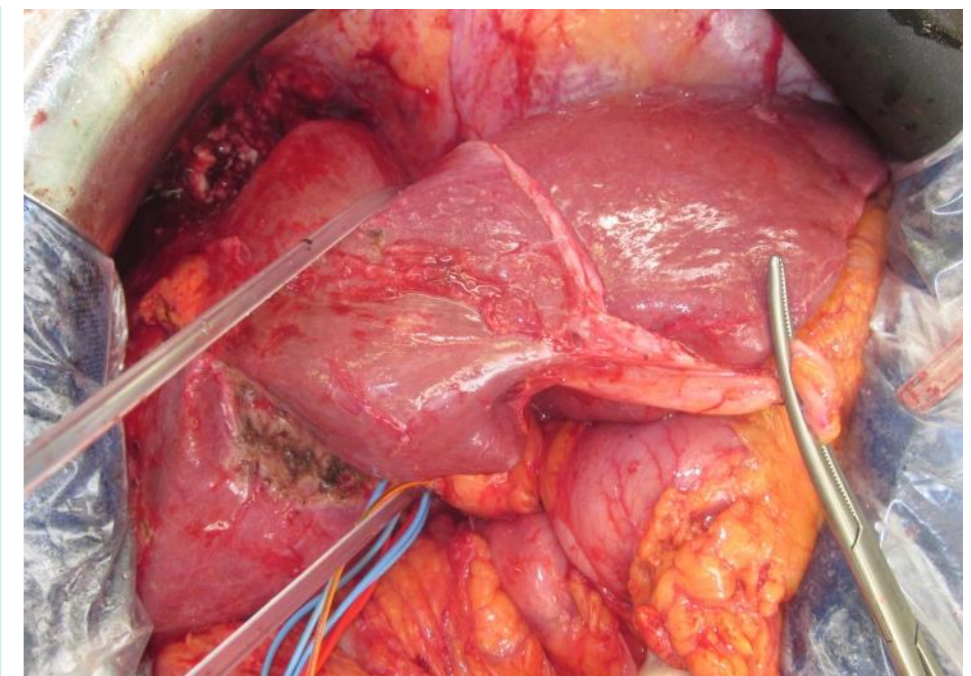
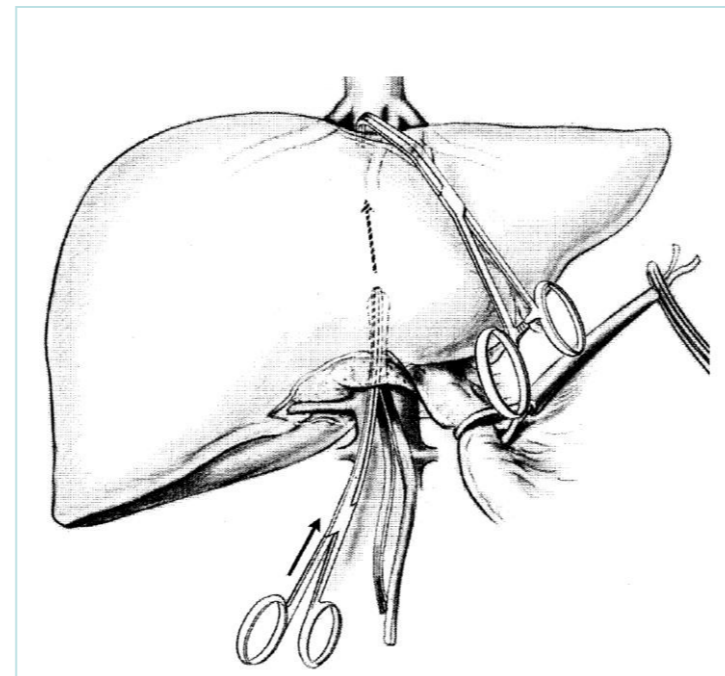
***Comparative outcome of laparoscopic right
hepatectomy by caudal approach vs. open right
hepatectomy with hanging maneuver***

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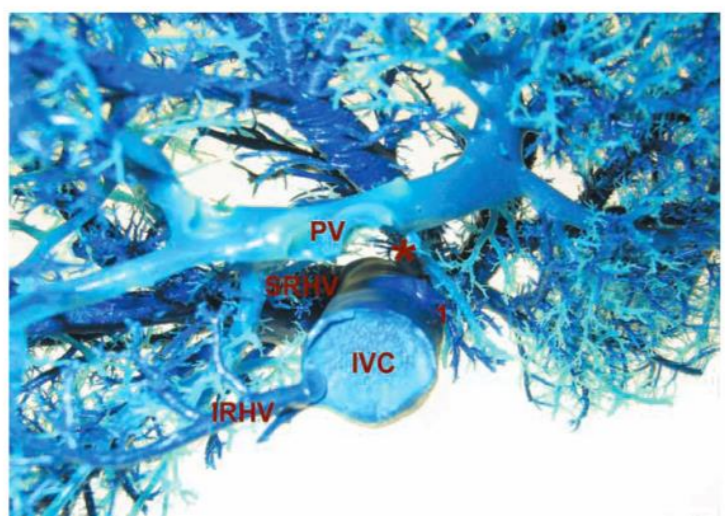
Open Right Hepatectomy

Not always easy

- Mobilization of right liver lobe
- Voluminous liver tumor
- Adhesions to diaphragm



Anterior Approach with Hanging Maneuver



- No mobilization of the liver
- Decrease of blood loss
- + Oncological benefit
- Good transection plane
- No compression of remnant liver

Laparoscopic Right Hepatectomy

Caudal approach



Conceptual change

More recent procedure

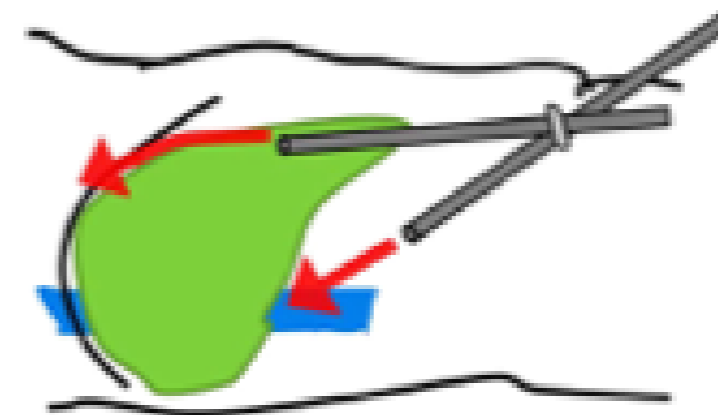
Difficult even for experienced team

Mobilization of heavy right liver lobe

Transection plane difficult to follow

Laparoscopic Hanging Maneuver ?
More difficult

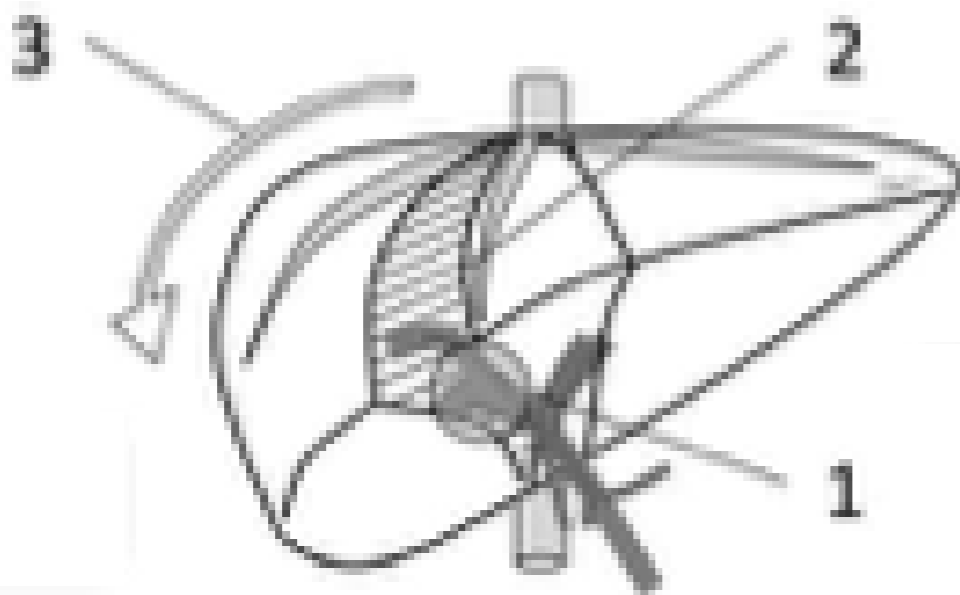
Need for standardization



SAFE
REPRODUCIBLE
ONCOLOGICALLY VALID

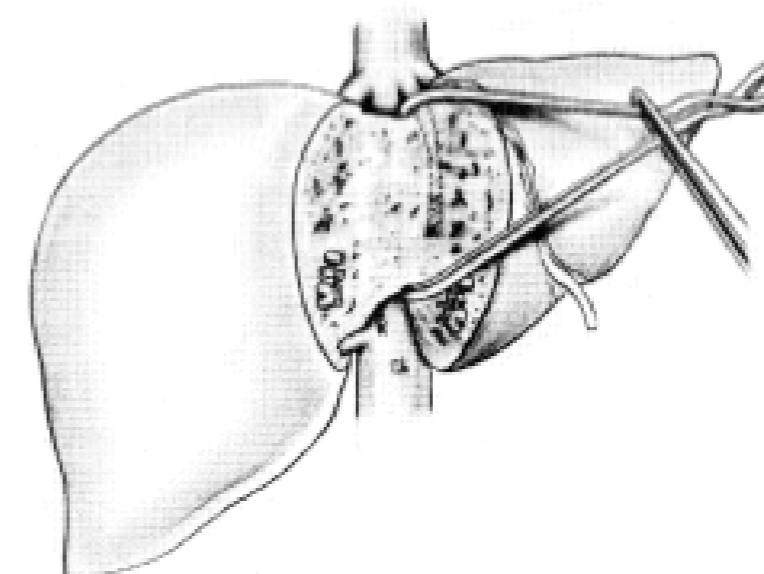
Aim

To validate the laparoscopic caudal approach as standard practice



Laparoscopic caudal approach

vs.



Open RH with hanging maneuver

Control of retrohepatic IVC
Parenchyma transection plane
« No touch »

Materials and Methods

	LRH	ORH
Center	Beaujon Hospital Pitié Hospital	Beaujon Hospital
Nb patients	77	704
		Propensity score analysis 1 : 2 interval matching method
Included	29	58

- Covariates**
- Indication for hepatectomy
 - History of laparotomy
 - Tumor characteristics
 - Preoperative management
 - Extrahepatic resections, vascular or biliary reconstruction
 - BMI > 28 kg/m²

Results

Indication

	ORH n= 58	LRH n= 29	p
Malignancy, n (%)	43 (74.1)	23 (79.3)	0.79
HCC, n (%)	22 (37.9)	12 (41.4)	0.82
Colorectal liver metastases, n (%)	16 (27.6)	6 (20.7)	0.6
Cholangiocarcinoma, n (%)	5 (8.6)	5 (17.2)	0.29
Benign disease, n (%)	15 (25.9)	6 (20.7)	0.79
Liver cell adenoma, n (%)	6 (10.3)	0 (0)	0.07
Hydatic cyst, n (%)	3 (5.2)	0 (0)	0.21
Other, n (%)	6 (10.3)	4 (13.7)	0.79

Results

General characteristics

	ORH n= 58	LRH n= 29	p
Men, n (%)	35 (60.3)	17 (58.6)	1.0
Median BMI (range), kg/m²	24.6 (16.4-37.0)	25.3 (18.3-37.2)	0.54
BMI > 28 kg/m², n (%)	12 (20.7)	8 (27.6)	0.59
ASA Score > 2, n (%)	54 (93.1)	25 (86.2)	0.43

Results

Comorbidities

	ORH n= 58	LRH n= 29	p
Cirrhosis	8 (13.8)	6 (20.7)	0.54
Hypertension, n (%)	13 (22.4)	9 (31)	0.43
Diabetes, n (%)	5 (8.6)	7 (24.1)	0.05
Dyslipidemia, n (%)	5 (8.6)	6 (20.7)	0.165
Metabolic syndrome, n (%)	5 (8.6)	5 (17.2)	0.235
Coronary heart disease, n (%)	2 (3.4)	1 (3.4)	1.0
COPD, n (%)	0 (0)	0 (0)	1.0

Results

Preoperative management

	ORH n= 58	LRH n= 29	p
Chemotherapy > 6 cycles, n (%)	0 (0)	2 (6.7)	0.11
TACE, n (%)	10 (17.2)	5 (17.2)	1.0
PVE, n (%)	21 (36.2)	10 (34.5)	1.0

Results

Surgery

	ORH n= 58	LRH n= 29	p
Inflow clamping, n (%)	56 (96.6)	12 (41.4)	< 0.001
> 60 mn, n (%)	2 (3.4)	0 (0)	0.55
Median duration (range), min	27.6 (3-122)	12.3 (0-60)	0.001
Wedge resection or RFA, n (%)	2 (3.4)	2 (6.7)	0.6
Median operative time (range), min	307.5 (185-515)	361.5 (210-600)	0.004
Median blood loss (range), ml	572 (50-2000)	214 (50-700)	< 0.001
Transfusion, n (%)	12 (20.7)	1 (3.4)	0.05
Abdominal drainage, n (%)	50 (86.2)	12 (41.4)	< 0.001
Conversion, n (%)	-	8 (27.6)	

Results

Postoperative course

	ORH n= 58	LRH n= 29	p
Overall morbidity	25 (43.1)	15 (51.7)	1.0
Mortality	1 (1.7)	0 (0)	1.0
Clavien 1-2, n (%)	20 (34.5)	11 (37.9)	0.8
Clavien 3-4, n (%)	14 (24.1)	4 (13.8)	0.44
Reoperation, n (%)	3 (5.2)	0 (0)	0.55
Median hospital stay (range), d	16 (4-79)	12 (5-49)	< 0.001

Results

Postoperative course

	ORH n= 58	LRH n= 29	p
Pulmonary complications, n (%)	23 (39.7)	3 (10.3)	0.001
Ascites, n (%)	19 (32.8)	1 (3.4)	0.002
Bile leakage, n (%)	2 (3.4)	3 (10.3)	0.33
Abdominal collection, n (%)	2 (3.4)	6 (20.7)	0.02
Hemorrhage, n (%)	2 (3.4)	0 (0)	0.55
Liver failure, n (%)	1 (1.7)	2 (6.7)	0.26
Renal insufficiency, n (%)	5 (8.6)	0 (0)	0.17

In summary

**Laparoscopic RH
with Caudal Approach**

vs.

**Open RH
with Anterior Approach**

Blood loss

Pulmonary complications

Drainage

Hospital stays

Operation time

Abdominal collections



Conclusion

RH by caudal approach is the laparoscopic version of the anterior approach in open surgery.

LRH yields at least similar outcomes than open surgery and therefore can be considered standard practice.



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LAPAROSCOPIC LIVER RESECTION:
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