Laparoscopic Liver Resection
Vascular Control

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Percentage of laparoscopic liver resections / open

1.026 liver resections  →  302 LLR (15% major)
# Liver Pedicle Control

<table>
<thead>
<tr>
<th>Technique</th>
<th>Author / Year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intrafascial</strong></td>
<td></td>
</tr>
<tr>
<td>(Classic)</td>
<td>Lortat-Jacob 1952</td>
</tr>
<tr>
<td><strong>Extafascial</strong></td>
<td></td>
</tr>
<tr>
<td>Intrahepatic</td>
<td>Lin 1960</td>
</tr>
<tr>
<td>(during transection)</td>
<td>Ton That Tung 1963</td>
</tr>
<tr>
<td><strong>Extafascial</strong></td>
<td></td>
</tr>
<tr>
<td>Intrahepatic</td>
<td>Launois 1992</td>
</tr>
<tr>
<td>(without transection)</td>
<td>Machado 2003</td>
</tr>
<tr>
<td><strong>Extafascial</strong></td>
<td></td>
</tr>
<tr>
<td>Extrahepatic</td>
<td>Takasaki 1987</td>
</tr>
</tbody>
</table>

Couinaud C, 1989
University of São Paulo
Laparoscopic Liver Resection

Program starts

2005

1st Major Hepatectomy
Classic Extrafascial Approach

2007

Intrahepatic Glissonian Approach

2009

2014

Takasakis’ Extrahepatic Glissonian Approach
Laparoscopic Right Hepatectomy
Intra-Hepatic Glissonian Approach

A-C = Right pedicle

Machado & Herman Arch Surg, 2003
Intrahepatic Glissonian Approach
University of São Paulo Laparoscopic Liver Resection

Program starts
2005

Major Hepatectomy
Classic Extrafascial Approach

2007

Intrahepatic Glissonian Approach

2009

Takakisis’ Extrahepatic Glissonian Approach

2014
University of São Paulo
Laparoscopic Liver Resection

- Program starts
- 2005
- Major Hepatectomy
  - Classic Extrafascial Approach
- 2007
- Intrahepatic Glissonian Approach
- 2009
- Takasakis’ Extrahepatic Glissonian Approach
- 2014

Fast; Safe; Complete vision of stapler tip;
No need for parenchyma section;
Avoidance of vein lesion
University of São Paulo
Laparoscopic Liver Resection

The graph shows the number of procedures performed at the University of São Paulo between 2007 and 2017. The procedures are classified into three categories: Classic, Intrahepatic glissonian, and Extrahepatic glissonian.

- **Classic**: The number of procedures has remained consistent and relatively low throughout the years.
- **Intrahepatic glissonian**: There was a significant increase in the number of procedures from 2009 to 2013, peaking in 2011, followed by a decrease till 2017.
- **Extrahepatic glissonian**: The number of procedures started increasing in 2011 and continued to rise sharply until 2017, surpassing the number of Classic procedures.

The graph indicates a shift in the preference for different types of liver resection procedures at the University of São Paulo.
Systematic extrahepatic Glissonian pedicle isolation for anatomical liver resection based on Laennec’s capsule: proposal of a novel comprehensive surgical anatomy of the liver

Atsushi Sugioka · Yutaro Kato · Yoshinao Tanahashi
HEPATIC VEIN CONTROL

- Extrahepatic
- Intrahepatic
RIGHT HEPATIC VEIN
Extra-Hepatic Control
RIGHT HEPATIC VEIN
Intra-Hepatic Control
Your preferred technique to approach hepatic pedicle is:

- Dissection of hilar structures 40.5%
- Extrahepatic Glissonian approach 21.4%
- Intrahepatic Glissonian approach 16.7%
- Intrahepatic approach during transection 19%
- Other 2.4%

Liver Resection
Brazilian Survey (43 groups)
Thank You

liversurgeryusp.com
Glissonian Approach Above the Hilar Plate
Avoidance of Anatomical Variations

Couinaud, 1989
EH Glissonian Pedicle Approach - Experimental
Takasaki’s Liver Segmentation

Glissonean Pedicle Transection Method for Hepatic Resection

Three Glissonean pedicles enter the liver
PRINGLE MANEUVER
Laparoscopy - Major Resections

Pringle H, Br J Surg 1908
Non-anatomic resections
Glissonian Right Pedicle Approach
RIGHT HEPATIC VEIN
Extra-Hepatic Control
Glissonian Pedicle Approach

3 segments
1. Right
2. Middle
3. Left

Takasaki K, 2007
CONCLUSIONS

• Liver anatomy knowledge is mandatory for the success of liver surgery

• Different techniques can be used with safety and good results; experience is mandatory; there is no ideal technique
Laparoscopic Right Posterior Hepatectomy – IH Glissonian Approach
PRINGLE MANEUVER
Laparoscopy
Left Lateral Sectionectomy
Pedicle Control
LEFT HEPATIC VEIN
Intra-Hepatic Control
Acesso ao Pedículo Glissoniano

Regimbeau & Mauvais, J Chir 2008
Glissonian Right Pedicle Approach
IH Glissonian approach

Launois & Jamieson, SGO 1992
• Intrafascial (Classic)

• Extrafascial
  – Intrahepatic
    • With parenchymal transection
    • Without parenchymal transection
  – Extrahepatic

Couinaud C, 1989
PRINGLE MANEUVER
Laparoscopy

Pringle H, *Br J Surg* 1908
Right Posterior Sectionectomy
1.024 hepatectomias → 290 hepatectomias VL