Limited Central Hepatectomy for Centrally Located Tumors: Is There a Place for Standardization?

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ABSTRACT

Anatomical central hepatectomy is technically demanding and is often excessive. It has an increased risk for insufficient remnant liver volume, especially in case of P8 dorsal pedicle for segment 7 and/or P5 dorsal for segment 6, and/or abnormal background liver. On the contrary, limited central hepatectomy (LCH) for centrally located tumors, based on preserving the P8 dorsal and some of P5 and P4 pedicles (depending on tumor placement) is conservative, and therefore has a low risk for insufficient remnant liver volume. It is less technically demanding, when compared to anatomical central hepatectomy. The right side of the resection plane is driven along the P8 dorsal pedicle intersecting the P8 ventral pedicle and as few of the P5 pedicles as possible. The left side of the resection plane is established according to tumor placement anywhere in between the Cantlie’s plane and the falciform ligament. The video presents 5 cases that support the conclusion that LCH may be standardized, with good results, especially when using intraoperative ultrasound guidance.

Key words: liver resection, intraoperative ultrasound guidance, central hepatectomy

Background

Anatomical central hepatectomy (S4+S5+S8):
- Often excessive (as all major hepatectomies), according to the modern concept of conservative liver surgery;
- Risk for insufficient remnant liver volume, in case of:
  - P8d for S7 (approx. 45%), or P8d for S7 and P5d for S6 (approx 20%)¹
  - abnormal background liver (steatosis, cirrhosis);
- Technically demanding (hilus approach, RHV exposure);

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Central hepatectomy in case of P8 and/or P5 for S7 and/or S6

Limited central hepatectomy (LCH)

- based on preserving P8d, some of P5 & P4 pedicles - depending on tumor(s) placement
- conservative - no sectional pedicle approach;
- no risk for insufficient remnant liver volume
- less technically demanding - no hilar approach, no RHV exposure;
- facilitated by intraoperative ultrasound (IOUS) guidance

Limited central hepatectomy

78-yr old male, HCC in S8 (6cm) on chronic HCV hepatitis, AFP 13.2 ng/ml
**IOUS diagnosis:**
HCC in P8 with satellite nodules, in contact with P8 pedicle, compressing the MHV.

**IOUS:**
Tumor mapping & Exploration of adjacent vessels.

**Resection planning:**
LCH with segmental resection of MHV.

**Surgery:** 02/2015: IOUS guided LCH.
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No major complications. Discharged in POD 11.
HP: HCC on chronic hepatitis.
HCCs in S8 (5.5cm) in contact with P8d and P8 pedicles, and S6 (2cm) in contact with P6 pedicle.

LCH extended to S6 and S1.
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Technical variants

Lower limited central hepatectomy

Upper limited central hepatectomy

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No major complications
Discharged in POD 9

The remnant liver.

Surgical specimen

No major complications
Discharged in POD 9

The remnant liver.

Regular follow-up at 12 months

Postoperative CT (at 12 months)

A Transversal section -

HP: neuroendocrine carcinoma
Conclusions

- Limited central hepatectomy:
  - Feasible
  - Low morbidity and mortality
  - May be standardized, especially when using IOUS guidance for mapping and intersecting subsegmental pedicles

Conflict of interest

All authors declare that they have no conflict of interest.

REFERENCES