

Parenchyma Sparing ALPPS – A New Technical Variant. Case Presentation (with video)

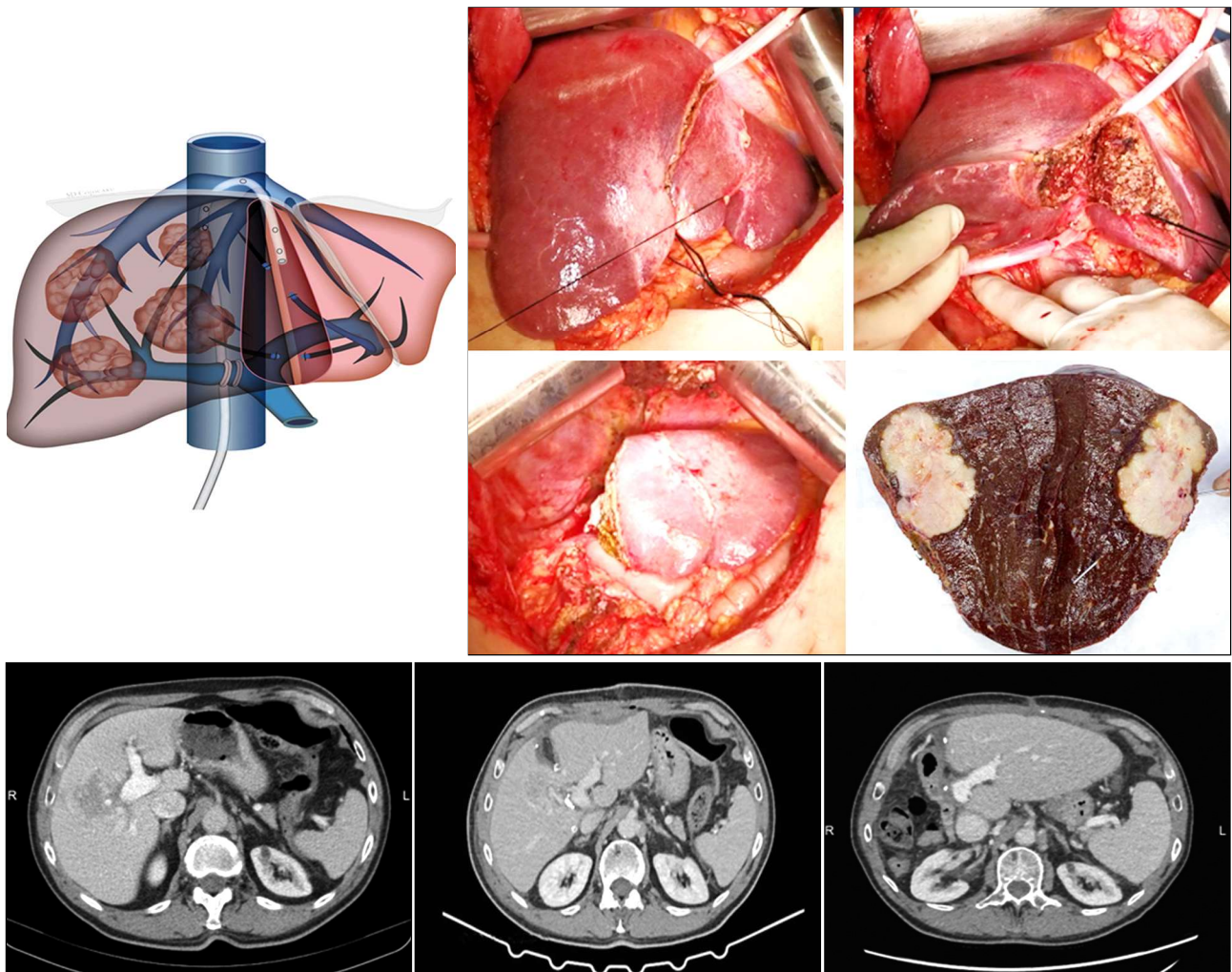
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Associating liver partition and portal vein ligation (ALPPS) is nowadays an established surgical strategy for patients with liver tumors who are not amenable for upfront hepatectomy because of a too small future liver remnant

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(FLR) (1). In these patients, we proposed a new technical variant of ALPPS, called parenchyma sparing ALPPS, consisting in shifting the transection plane through segment 4 (instead of the falciform ligament), thus increasing the FLR (2). The transection plane was established and performed under guidance of intraoperative ultrasound, ensuring oncological margins while maximizing the remnant liver volume.

Therefore, the main principles of our surgical strategy and technique were:

- Preserving the left part of S4;
- Partial transection through S4 using IOUS guidance;
- (Right) portal vein ligation with minimal hilum dissection;
- Partial (right) liver venous deprivation - right accessory veins sectioned-ligated;
- Longer interstage interval (2-3 weeks);
- Extra-glissonian approach during staged 2.

The advantages are:

- Feasible even when ALPPS is not (S2-3 volume is <15%);
- Safer than ALPPS: eliminates ischemia of segment 4, avoids biliary fistula due to segment 4 exclusion, and reduces the risk of liver failure due to small FLR.

We present the case of a 78-year-old male patient with significant comorbidities (atrial fibrillation, grade II hypertension, moderate pulmonary hypertension, compensated heart insufficiency, dyslipidemia), diagnosed at contrast MRI and CT with a tumor located in segments 5-8 liver lesion with extension to segments 6, 7, 4 and 1, in contact with the middle hepatic vein, enclosing the anterior right portal pedicle and in contact with the posterior right and the right portal pedicles (see video). The percutaneous tumor biopsy showed a moderate differentiated intrahepatic cholangiocarcinoma.

The patient required and extended right hepatec-

tomy. However, the volumetry of segment 2 and 3 was insufficient even for a standard ALPPS, with parenchymal transection in the plane of the falciform ligament. Therefore, our new variant of ALPPS, parenchyma sparing ALPPS, was deployed, adding to the future remnant liver (FLR) part of segment 4 (see video). In this setting, the preoperative FLR was 24.8%, that increased to 34% during the interstage interval. No intraoperative adverse events were encountered during both operations. During the interstage interval of 15 days, there was a minor bleeding exteriorized through the drain placed on the cut surface, conservatively treated, requiring transfusion (1 unit). After the second stage, the postoperative course was uneventful, and the patient was discharged on the POD 8. The patient was alive and disease-free at 18 months.

In conclusion, parenchyma sparing ALPPS successfully combines two concepts of major liver surgery, regenerative and parenchyma-sparing liver surgery, and safely achieves resectability otherwise not be possible with any other technique.

Conflict of interest

The authors declare no conflicts of interests.

Ethical of approval

For this case ethical approval was obtained.

REFERENCES

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