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VISCERAL SURGERY VIDEOS

Totally laparoscopic ALPPS for multiple and bilobar colorectal metastases (with video)

M.-A. Machado[a,b,*], R.-C. Surjan[b], T. Bassères[b], F.-F. Makdissi[a,b]

[a] University of São Paulo, Rua Dona Adma Jafet 74 cj 102, São Paulo, Brazil
[b] Sirio Libanes Hospital, São Paulo, Brazil

KEYWORDS
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The ALPPS procedure, which stands for associating liver partition and portal vein ligation for staged hepatectomy, has become a new strategy for patients with otherwise non resectable liver tumors [1,2]. On the basis of our previous experience with laparoscopic extended hepatectomies and staged laparoscopic hepatectomies using portal vein ligation, we safely performed and reported a totally laparoscopic ALPPS procedure in 2012 [3]. This video shows a totally laparoscopic ALPPS procedure in a patient with multiple and bilateral colorectal metastases. Both stages were totally performed using laparoscopy. We present in this video the case of a 66-year-old woman with colorectal liver metastases in all liver segments, except S1 and S4. She was evaluated as unresectable. She underwent chemotherapy with objective response and multidisciplinary board decided for ALPPS procedure. The plan was to perform resection of segment 2, enucleation in segment 3, followed by right portal ligature and in situ liver partitioning as stage 1, followed by right hemihepatectomy as stage 2. Future liver remnant was estimated in 197 mL. The patient was placed in a supine position with the surgeon standing between patient's legs. At laparoscopy, signs of blue liver but no peritoneal implants were detected. Intraoperative ultrasound showed no new lesions. Segment 4 was clear. A large metastasis was found in segment 2, with close contact with left hepatic vein. Liver was carefully dissected with identification of the left hepatic vein and its branches from segment 2 and 3. Branch from segment 2 was divided and segment 2 was removed with preservation of left hepatic vein. Next step was to dissect and ligate the right portal vein. In this case, an early bifurcation of anterior and posterior branches of right portal vein was observed. The liver was then partitioned along main fissure. Patient was discharged home between the 2 stages. CT-scan before second stage showed a good regeneration with adequate hypertrophy of the future liver remnant (115%). The second stage took place three weeks after first stage. At laparoscopy, there were some loose adhesions that were easily divided. Area of liver partition was separated with blunt maneuver. Intrahepatic approach was performed and right glissonian pedicle was divided with stapler, followed by division of right hepatic vein. Surgical specimen was removed through suprapubic incision. In conclusion, laparoscopic ALPPS is feasible and may be useful to decrease morbidity. This video shows the different steps (Fig. 1) necessary to perform this complex operation in a selected group of patients.

* Corresponding author. University of São Paulo, Rua Dona Adma Jafet 74 cj 102, São Paulo, Brazil. Tel./fax: +55-11-3256-4098.
E-mail address: dr@drmarcel.com.br (M.-A. Machado).

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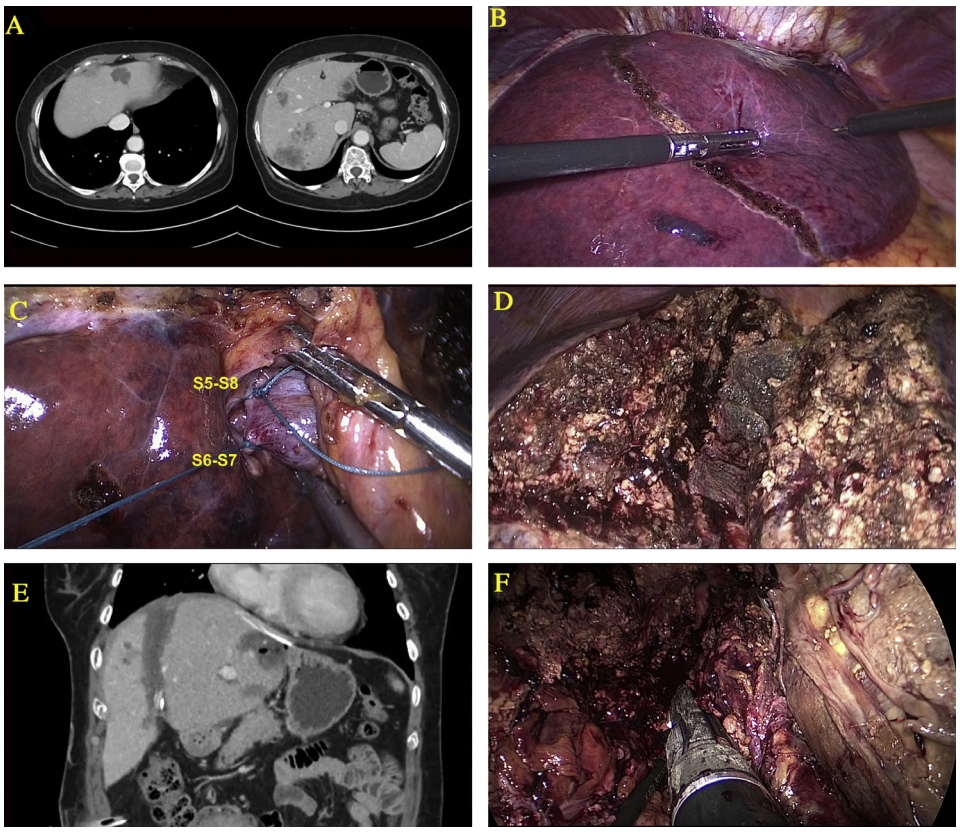

Figure 1. Main steps for totally laparoscopic ALPPS. A. Preoperative CT scan shows bilobar colorectal metastases and a small FLR of 0.2 (197 mL). B. Intraoperative photograph before cleaning of the FLR (2 lesions) resection of segment 2 (liver capsule demarcation) and enucleation on segment 3. C. Portal vein occlusion is performed by ligature of the individual ligature of right anterior (S5-S8) and right posterior (S6-S7) portal vein, without mobilization of the right lobe. D. The liver is partitioned at the level of the main fissure. E. CT scan between stages shows an adequate hypertrophy of the FLR. F. After the right lobe is mobilized, ALPPS is completed by division of the right hepatic vein using the endostapler.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.jviscsurg.2016.11.004.

Disclosure of interest

The authors declare that they have no competing interest.

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