



Near Infra-Red Technology to Evaluate Segment IV in Split Liver Transplantation

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Abstract

Background Indocyanine green injected intravenously has been employed in many fields of hepatobiliary surgery such as liver and biliary tree mapping, tumor detection, and graft evaluation in liver transplant. This latter application has, in our opinion, particular potentials when a split liver transplantation is performed^{1–3}.

Methods In this study, we used infrared technology to evaluate in real-time the segment 4 region in a recipient of extended right lobe transplantation. Donor data: 50 years old male, brain death, height, 1.70 mt, weight 69 kg; surgical technique employed was in situ standard split liver procurement. Recipient data: 46 years old male, height 1.75 mt; weight 67 k 23 g, affected by cirrhosis secondary HCV infection, with MELD Na 33. Standard orthotopic liver transplantation was performed with indocyanine green intravenous injection at 15 min after arterial reperfusion.

Results Infrared technology, showed in this video, demonstrates progressive improvement of segment IV viability which was confirmed by the post-operative contrast-enhanced CT scan performed before discharge. The transplant procedure was uneventful and the patient discharged to home 10 days after surgery.

Conclusion The case reported in this video is, to the best of our knowledge, the first in the English literature showing how near infrared technology has predictive value on the evaluation of a split graft. Fast diffusion of the colorant allows dynamic early evaluation and may confirm the presence of intra-hepatic venous shunt, which will determine a full recovery of the originally ischemic area. On the contrary, a permanent absence of the staining might be predictive of dysfunction.

Keywords Liver transplantation · Split liver transplantation · Indocyanine green

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