



Split Liver in HOPE – A preliminary experience

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INTRODUCTION

Hypothermic Oxygenated Ex-Situ Perfusion (HOPE) has emerged as an effective strategy to improve outcomes in marginal whole liver grafts by mitigating ischemia-reperfusion injury, reducing cold ischemia time (CIT), and safely extending preservation time. Split liver (SL) transplantation represents a valuable technique to increase the availability of size-matched grafts, particularly for pediatric recipients. The integration of machine perfusion (MP) technology in SL procedures holds promise for further optimizing organ utilization by enabling extended criteria donor use, offering a controlled environment for technically demanding procedures and addressing logistical challenges in transplantation. **We aimed to analyze our preliminary experience with SL during HOPE.**

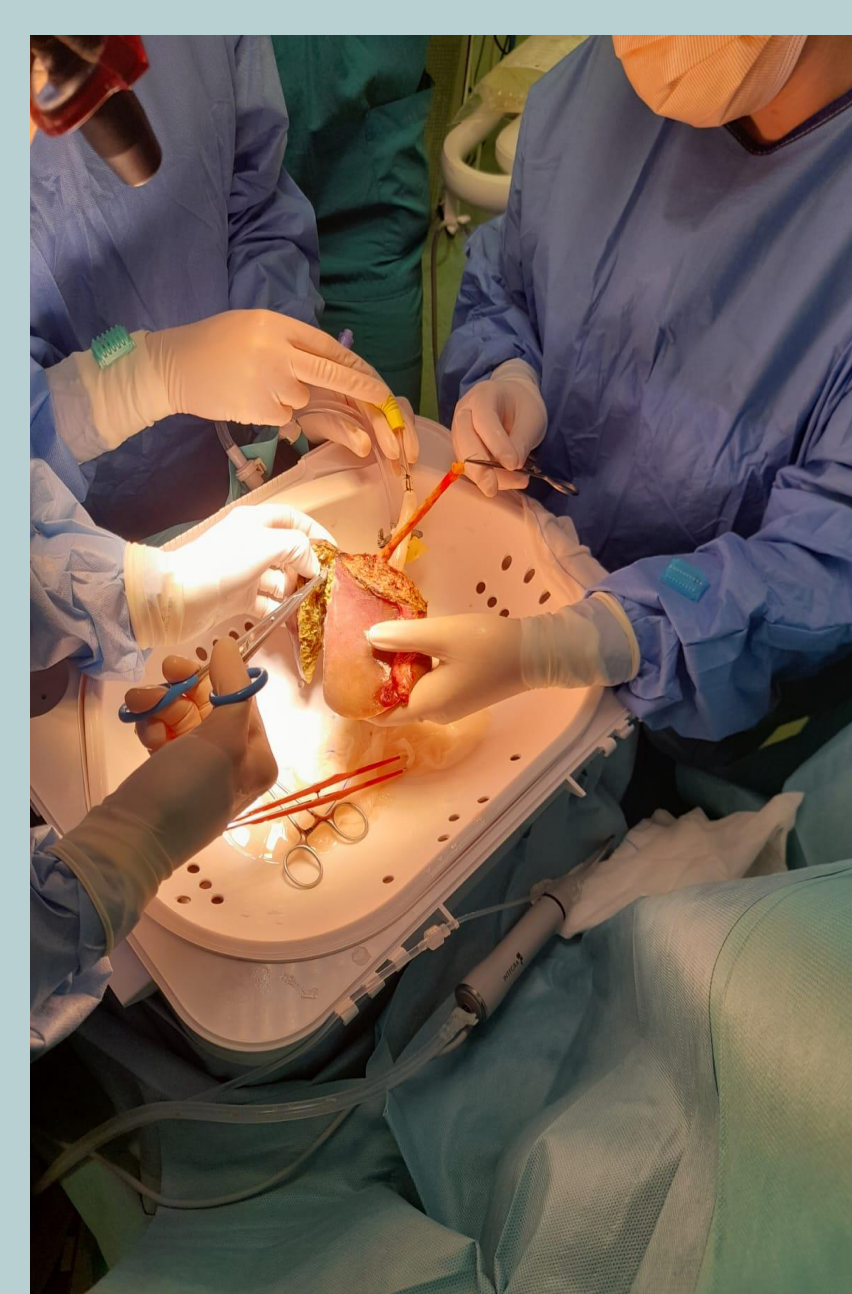
METHODS

We retrospectively analyzed our experience with four SL procedures performed during end-ischemic HOPE using the PerLiver[®] system (Aferetica, Italy). HOPE parameters were adapted from the standard protocol for whole liver perfusion.



RESULTS

From September 2023 to June 2025, four SL procedures were performed: two full left/full right SL, one hyper-reduction of a left lateral segment, and one conventional SL. Donor grafts were procured in demanding clinical contexts, such as hemodynamic instability of the donor, difficult logistics and technically complex procedures. The median total preservation time was 599 minutes (IQR 532–683), with a median HOPE duration of 194 minutes (IQR 97–247) and a median CIT of 434 minutes (IQR 382–459). **The completion rate of the SL procedures was 100%, and no adverse events were observed during HOPE. All grafts were successfully transplanted, with no cases requiring re-transplantation.** At the time of reporting, all recipients are alive and well.



CONCLUSIONS

This is a preliminary report on SL during HOPE, showing the safety and feasibility of the procedure. Further, larger studies are needed to confirm these results and guide the use of machine perfusion in SL transplantation.