Short-Term Morbidity after Laparoscopic Antireflux Surgery is Similar in Lung Transplant Recipients and a Matched Non-Transplant Cohort

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INTRODUCTION

- Laparoscopic antireflux surgery (LARS) after lung transplant (LT) has been shown to stabilize allograft function; however, data on perioperative outcomes of LARS in this population is limited.
- Our aim was to study the 30-day readmission rate after LARS in an LT and overall non-transplant (NT) population and to compare the short-term morbidity after LARS in the LT and matched NT cohort.

METHODS

- After IRB approval, all adult patients who underwent laparoscopic or robotic antireflux surgery between 01/01/2015 and 10/31/2021 were included.
- The demographic characteristics, pre-LARS medical comorbidities, operative details, and post-LARS morbidity within 30 postoperative days were obtained from the Society of Thoracic Surgery database.
- Subjects were first grouped as LT recipients and overall NT population; the groups were compared for the 30-day readmission rate after LARS (primary outcome).
- Next, a 1-to-2 propensity score-matched NT cohort was established, which was balanced with patients in the LT cohort based on age, pre-LARS body mass index, and pre-LARS medical comorbidities; the LT and matched NT cohorts were compared for manometry findings, operative outcomes, and 30-day morbidity after LARS (secondary outcome).
- Post-LARS event was defined as any deviation from uneventful postoperative course within 30 days of LARS.
- Lastly, differences in pre- and post-LARS DeMeester score and acid exposure time were compared in the LT cohort.

RESULTS

- A total of 1328 patients (LT recipients, n=55; overall NT population, n=1273) were included.
- The median interval between LT and LARS was 8.2 (5.4, 14.5) months.
- The post-LARS 30-day readmission rate was significantly higher in the LT population compared to the overall NT population (14.5% vs 2.8%, p<0.001; Figure 1).

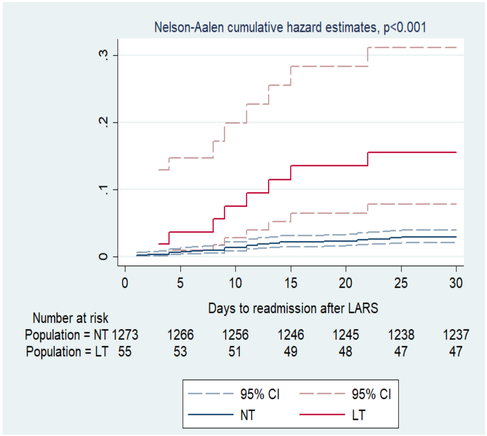


Figure 1: Nelson-Aalen cumulative hazard assessment for 30-day readmission after laparoscopic antireflux surgery in the lung transplant and overall non-transplant population.

- Compared to the matched NT cohort, the prevalence of para-esophageal hernia was lower (45.5% vs 70%, p=0.002), median size of hernia was smaller (3.6 cm vs 4.5 cm, p=0.040), and esophageal body peristaltic vigor was higher (1695 mmHg-cm-s vs 1124 mmHg-cm-s, p=0.047) in the LT cohort.
- Also compared to the matched NT cohort, the median operative time for LARS was significantly lower (86 minutes vs 103 minutes, p=0.002), whereas the median hospital length of stay for LARS was significantly higher (2 days vs 1 day, p=0.003) in the LT cohort.
- The proportion of patients with a post-LARS event was comparable between the LT and matched NT cohorts (21.8% vs 14.5%, p=0.241).

RESULTS (Cont.)

- A significant decrease in the median DeMeester score (39.5 vs 2.1, p=0.001) and median total distal acid exposure time to pH<4 (9.7% vs 0.2%, p=0.002) was noted after LARS in 13 LT recipients (Figure 2).

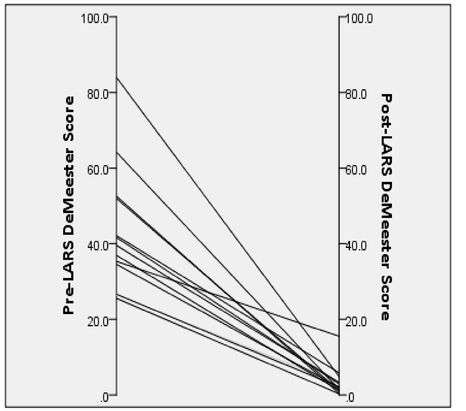


Figure 2: Differences in DeMeester score before and after laparoscopic antireflux surgery in lung transplant cohort.

CONCLUSIONS

- LT recipients had higher post-LARS 30-day readmission rate than overall NT population and longer post-LARS length of stay than matched NT cohort.
- Despite higher perceived risk from comorbidity burden, the post-LARS 30-day morbidity in LT recipients was not inferior to the matched NT cohort at our large-volume center with expertise in transplant and foregut management.
- LARS after LT is safe and results in effective control of reflux.



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