

## Laparoscopic Toupet Fundoplication in Lung Transplant Recipients

Authors: Celeste G. Yergin, Kelly M. Herremans, Sara E. Hensley, Alexander L. Ayzengart

1. Department of Surgery, University of Florida College of Medicine, Gainesville, FL 32608

**Background:** Following lung transplant, recipients have increased rates of gastroesophageal reflux disease (GERD) secondary to factors such as potential vagal nerve damage, medication-induced esophagogastric dysmotility, changes in diaphragmatic excursion, and weight gain due to steroid use. Unfortunately, GERD predisposes these patients to bronchiolitis obliterans syndrome and obstructive chronic lung allograft dysfunction, ultimately resulting in early rejection and death. Laparoscopic Nissen fundoplication (LNF) has historically been the procedure of choice for lung transplant related GERD. However, LNF is associated with higher rates of post-operative dysphagia and bloating in the general population. In this study, we evaluate laparoscopic Toupet fundoplication (LTF) as an option for anti-reflux surgery in lung transplant recipients.

**Methods:** A retrospective review of lung transplant patients scheduled for fundoplication (n=65) was performed. Patients were excluded if their operation included gastrectomy (2), LNF (5) or no fundoplication was performed (2). Patient demographics including gender, age, body mass index (BMI), transplant type, reason for transplant and presence/absence of hiatal hernia were obtained. Preoperative and postoperative outcomes were measured. Quantitative measures of GERD, gastric emptying, and lung function were obtained through pH probe studies, esophageal manometry, gastric emptying studies, pulmonary function tests (PFTs), and bronchoalveolar lavage (BAL). Qualitative metrics of GERD symptomatology were obtained through provider clinic notes. Statistical analysis was performed using Wilcoxon signed-ranked test and Pearson Correlation.

**Results:** Lung transplant recipients who underwent LTF experienced a reduction in GERD (p=0.0007) based on Demeester scores. Patients did not experience a significant change in lung function following their operation (FVC p= 0.1474, FEV1 p=0.4366, FEV1/FVC p=0.4934). Additionally, the presence of pepsin in bronchoscopy did not appear to be a useful marker of reflux postoperatively, which may be attributed to collection method and low number of patients tested.

**Conclusion:** LTF is a feasible option for anti-reflux control in lung transplant recipients. Patients who undergo LTF have decreased complications when compared to LNF. This surgical technique may be applied in lung transplant recipients for adequate reflux improvement. LTF ultimately has the potential to improve outcomes in lung transplant recipients through the prevention of early rejection and decreased mortality rates.