RESULTS: 16 children, 9 male and 7 female, underwent injection laryngoplasty for LC-1. Mean gestational age at birth was 35.5 weeks (SD 4.0, range 27-41 weeks). Six patients had a major congenital anomaly (37.5%). Mean age at injection was 11.8 months (SD 8.9, range 2.9 to 33.5 months). 9 patients (56.3%) experienced complete resolution of penetration and aspiration based on postoperative modified barium swallow (MBS), 4 patients (25%) had improvement in symptoms, and 2 patients (12.5%) had no change in symptoms. 1 patient did not have postoperative swallowing evaluation. There were no complications. Mean duration of symptom improvement was 2.8 months (SD 1.7, range 0-6 months). Four patients went on to have definitive surgical LC-1 repair.

CONCLUSION: Injection laryngoplasty was found to be safe and efficacious in this group of patients with LC-1. The majority of patients experienced complete resolution of aspiration on MBS. Further studies with a longer follow-up interval are necessary to elucidate the predictive value with regard to success of formal cleft repair.

Laryngomalacia and Sleep Apnea: A Role for Polysomnography?
Tyson Fisher, BS (presenter); G Digoy, MD

OBJECTIVE: To determine the preoperative severity of obstructive sleep apnea (OSA) and to evaluate postoperative polysomnographic (PSG) outcomes in children less than one year old with laryngomalacia (LM) undergoing bilateral laser supraglottoplasty (SGP).

METHOD: We performed a retrospective review of infants with LM treated at our tertiary referral center between 2003 and 2009. Outcome measures included changes PSG parameters before (median one month) and after (median one month) SGP.

RESULTS: 20 children were reviewed. Eleven (55%) and five (25%) patients had a pre- and postoperative AHI >10, respectively. Statistically significant improvements occurred from pre- to postoperative median values for AHI (11.2 vs 4.7; P=0.02). O2 saturation nadir (84.5 vs 86.5; P=0.3) and percentage of sleep spent with <90% O2 saturation (0.1% vs 0.0%; P=0.5) improved, although not significantly. Median total sleep time increased from 271.8 to 357.3 minutes, and median REM sleep increased from 26.5% to 29.7% (P=0.2). Stratification showed similar improvements in PSG parameters after SGP regardless of reflux treatment, secondary airway lesions, or age. Interestingly, post-operative stridor cessation did not correlate with PSG improvements in 28% of patients.

CONCLUSION: Our study is the largest to investigate the severity of OSA and PSG outcomes in infants with LM. Our results suggest that OSA is common and laser SGP may significantly reduce PSG parameters in these patients. We advocate considering PSG to evaluate infants with LM being considered for observation and for patients that remain stridorous or have symptoms of state-dependent LM after therapy.

Linking Extraesophageal Gastric Reflux to Rhinosinusitis
Mohammed Alessa, MD (presenter); John Manoukian, MD, FRCSC

OBJECTIVE: The primary objective of this study was to determine the association between chronic rhinosinusitis in children (CRS) and extraesophageal laryngopharyngeal reflux (EERGR) and to explore the relationship between the inflammatory tissue responses and the presence of pepsinogen.

METHOD: A cross-sectional clinical study from Montreal Children’s Hospital (McGill University health center) in period (April-December) 2009. The study group was composed of 13 nonallergic CRS patients between age 2-16 years old (skin tested negative for respiratory allergies), while the control group was a matched 13 control subjects without CRS. In the study group, paranasal sinus and adenoidal tissue biopsies were obtained during endoscopic sinus surgery (ESS) and only tissue from adenoid were obtained from the control group. Immunocytochemistry (ICC) was used to evaluate the presence of pepsinogen in the adenoid tissue in both groups and also in the paranasal sinus tissue in CRS group. For ICC a modified ABC method with antigen retrieval and monoclonal antibodies was used. Positive cells were identified by light microscopy and analyzed using Image-Pro system. All tissue were also examined with the expression of markers (CD3, CD68, EG2 and Elastase) associated with infiltration of T cell, macrophages, eosinophils, and neutrophils respectively. All data was recorded into SPSS 11.0.2. And the Fisher exact test was used as a statistical analysis to evaluate the proportion of positive samples in both groups.

RESULTS: Immunoreactivity for pepsinogen was identified in the epithelial layer of adenoid (50%) and paranasal sinus (65%) in the study group. Only occasional staining was observed in the epithelial layer of the adenoid tissue of the control group. We have also demonstrated a high number of neutrophils and macrophages in the paranasal sinus in the study group (65%) - which stained positive for pepsinogen - with little staining for markers for eosinophils and T cells. In the adenoid tissue there was large number of T cells in both groups and we could not demonstrate a difference in the number of infiltrated cells between the study and the disease group using all the above markers.

CONCLUSION: The detection of immunoreactivity of pepsinogen and high number of neutrophils and macrophages suggested a possible mechanism for non allergic CRS in subgroup of children with sinus disease.

Pediatric Cystic Fibrosis and Sinusitis: Outcomes & Socioeconomic Status
Lara Kovell, BS (presenter); Stacey Ishman, MD; Pamela Zeitlin, MD, PhD; Emily Boss, MD