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**PURPOSE:** Lymphedema is a chronic, progressive condition that can have a profound impact on physical and psychological quality of life (QoL). Early lymphedema is commonly managed with complete decongestive therapy (CDT) while severe cases are treated surgically; options include liposuction, excision, lymphovenous bypass, or lymph node transfer. A majority of current research relies solely on volumetric analysis to determine treatment success. However, these measurements do not convey changes in the patients’ QoL. Our objective was to examine change in quality of life for patients undergoing surgical lymphedema treatment using two validated, health-related QoL instruments: the RAND-36 and the lymphedema-specific LyQLI.

**METHODS:** In this IRB-approved longitudinal cohort study, patients were recruited from a multidisciplinary lymphedema center if they were referred for lymphedema surgery. All patients received baseline RAND-36 and LyQLI, while those electing to undergo surgical lymphedema management were also surveyed at 3 and 6 months postoperatively. Outcomes were assessed using paired and unpaired t-tests where appropriate.

**RESULTS:** 29 patients were recruited with a mean age of 55 years and mean disease duration of 13.5 years. All patients had pursued CDT for at least 3 years prior to consultation and 75% had ISL stage 2 disease. Half of the cases occurred in the upper vs. lower extremities and half were due to primary vs. secondary causes. As of October 2018, 16 patients underwent surgery (6% liposuction, 12% excision, 44% bypass, and 38% transfer) with a mean follow-up time of 2.8 months. There was no significant difference in demographics or comorbidities between those electing to undergo surgery and not.

Patients undergoing surgery witnessed decreased impairment in all LyQLI domains and increased overall health, which trended towards significance. Those with 6-month follow-up also indicated their lymphedema had little or no practical or psychosocial limitations (indicated by LyQLI scores <50). The RAND-36 did not reveal any significant differences, though surgical patients exhibited steady improvement in pain and emotional problems.

**CONCLUSION:** Though our study is ongoing and thus results are restricted due to limited postoperative follow-up, these data indicate that surgical intervention can, within 6 months, produce improved QoL in patients with long-standing lymphedema. Further surveying will be required to differentiate any possible differences between operative method to better inform surgical decision-making.

**LYQLI RESULTS:** N= 13 non-operative patients and n=17 surgical patients (5 with 6-month follow-up and 8 with 3-month follow-up). For physical, psychosocial, and practical domains a mean score <50 indicates none or little impact of lymphedema on QoL and a score of ≥50 as having a substantial impact. Overall health is graded as 0 being the lowest possible QoL and 100 being highest.

**RAND-36 RESULTS:** All domains are graded as 0 being the greatest impact on QoL and 100 being no impact.

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**Hearing Hypernasality: A Novel Assessment of Cleft Speech Using Online Crowdsourcing**

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**PURPOSE:** Speech intelligibility is fundamental to social interactions, which is why speech assessments are such an important focus in the pre- and post-operative care of patients born with cleft palate. Online crowdsourcing of perceptual speech outcomes is a burgeoning technology, and this project represents the first time cleft speech has been evaluated by lay listeners in an online setting. We hypothesized that lay ratings of cleft speech would demonstrate high concordance with the ratings of speech experts.

**METHODS:** Six audio-phrases from videonasoendoscopies (VNEs) of children with cleft palate were selected for varying degrees of hypernasality: Katie-Likes-Cookies...
(KC), Tell-Ted-to-try (TT), Should-I-wash-the-dishes (WD), Peter-has-a-puppy (PP), Sissy-sissy-sissy (SS), and Zippers-are-easy-to-close (ZC). These recordings had previously been assessed by the cleft team’s speech language pathologists (SLP) in clinic, and given a speech score based on the Pittsburgh Weighted Speech Score (PWSS). Phrases were presented to Amazon Mechanical Turk crowdsourced raters to rate for hypernasality on a Likert scale from 1 to 5, corresponding to the hypernasal component (0–4) of the PWSS. The survey page had clickable “gold standard” samples representing hypernasality none (hypernasal component 0 of PWSS), mild (PWSS hypernasal 2), and severe (PWSS hypernasal 4) for the rater to use as reference.

RESULTS: Audio was extracted from VNEs of 3 children with cleft palate, ages 4–8, with timing of recordings ranging from pre-surgical repair to 6.5 years followup. Speech clips were distributed in 68 surveys, resulting in 1,088 unique layperson ratings. When all speech ratings were averaged, Patient 1 crowd mean was 2.62 (SLP rated 2–3); Patient 2 crowd mean 1.76 (SLP rated 2); and Patient 3 crowd mean 2.66 (SLP rated 3). When rounded to nearest whole number for consistency with PWSS scale, all patients matched SLP ratings. To determine the accuracy of each specific phrase, residuals were calculated (layperson minus SLP), showing phrase accuracy ordered WD>PP>ZC>TT>SS>KC.

CONCLUSION: Online crowdsourced ratings of cleft speech for hypernasality are highly consistent with SLP ratings, and predicted SLP ratings in all 3 patients. Phrases had different layperson accuracies: WD~PP~ZC>TT>SS~KC. This novel technology has immediate translation in clinical speech assessments, especially for centers without SLPs or requiring further clinical corroboration.

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Long Term Patient Reported Outcomes Following Post-mastectomy Breast Reconstruction: An 8-year Examination Of 3,268 Patients

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