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PURPOSE: Millions of scars are formed annually with wide-ranging effects on the quality of life of the individual. Currently, there is no internationally validated, rigorously tested PRO measure (‘PROM’) that can be used to assess scar outcomes of all major etiologies in both children and adults. Nor, do we currently understand why patients may seek scar revision surgery. The purpose of this study is to describe the international field-test of seven clinics in four countries, the psychometric properties of the PROM, and the independent risk factors of patients requiring scar revision surgery.

METHODS: Between March, 2017 and April, 2018 data were collected from 7 outpatient clinics in New Zealand, Chile, Canada, and the USA. Participants completed a questionnaire booklet with demographic and clinical questions as well as the preliminary SCAR-Q (Appearance, Symptom, and Psychosocial Impact). Rasch Measurement Theory (RMT) analysis was conducted examining item response options, item fit statistics, dependency, targeting, stability, and person separation index. In addition, Cronbach’s alpha and intraclass correlation coefficient were completed to examine reliability. In addition, a multivariable regression analysis was completed to examine independent risk factors for patients self-reporting the need for scar revision surgery.

RESULTS: 773 patients were consented and 731 patients completed the survey results in full. Participants were aged 8–88 years with predominantly surgical scars (n=354, 48.4%), traumatic (n=199, 27.2%), and burn scars (n=184, 25.1%). Analysis led to the refinement of the SCAR-Q scales: Appearance, Symptoms, and Psychosocial Impact from 48 items to the final 29 items. RMT analysis showed ordered thresholds for response options, 25 items had fit residuals within the required range, and residual correlations were found only with one pair of items. Reliability was high, with Person Separation Index values of 0.90, 0.82, 0.84, Cronbach alpha values 0.96, 0.91, 0.95 and Intraclass Correlation Coefficient values of 0.92, 0.94, 0.88 respectively. Finally, having a health condition (OR 2.032; 0.944, 4.370), perceiving that one scars badly (OR 2.631, 1.195–5.792), a prior scar revision surgery (0.253; 0.127–0.672), and scoring poorly on the SCAR-Q Psychosocial Impact scale (OR 0.339; 0.171–0.672) were independent risk factors for reporting the need for future scar revision surgery.

CONCLUSION: This RMT analysis showed that the 3 SCAR-Q scales performed well in this international, field-test sample, with good to excellent reliability. The SCAR-Q represents a rigorously developed PROM that can be used to evaluate scars in research, clinical care, and quality improvement initiatives. In addition, this study suggests that patients with the listed independent risk factors may require heightened attention and clinical care. These individuals may require more scar symptom management, psychosocial support in the case of social work or in severe cases a psychiatry referral, and/or scar treatment to help alleviate their appearance related concerns.

The Use of Ultrasound Guidance for the treatment of Raynaud’s Disease of the Hand with Botulinum Toxin

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PURPOSE: While the use of Botulinum Toxin in the treatment of episodic vasospasm of the hand is established, the possibility of causing objectionable intrinsic muscle weakness exists with delivery of the toxin using a traditional
landmark-based surface anatomy approach. The present study sought to examine the feasibility and effectiveness of the use of ultrasound as a clinical adjunct in the delivery of Botulinum Toxin for the treatment of Raynaud’s phenomenon of the hand.

METHODS: For the anatomic feasibility study, cadaveric elbow-to-fingertip specimens were injected with dye using either a landmark-based surface anatomy approach or using ultrasound guidance to specifically target the common digital arteries. The specimens were dissected and areas of distribution of the dye at the levels of the neurovascular bundles and intrinsic muscles of the hand were objectively analyzed using Image J (National Institutes of Health).

For the clinical efficacy of ultrasound-guided delivery, three patients diagnosed with Raynaud’s Disease of the hand who had failed other non-surgical interventions were treated with Botulinum Toxin using ultrasound guidance.

RESULTS: The cadaver hand injected with dye using the traditional landmark-based approach demonstrated significantly increased infiltration of the intrinsic muscles of the hand compared to the cadaver hand injected using ultrasound guidance.

The area of vasculature that were infiltrated with the dye was not statistically different between the two techniques.

All three patients treated with Botulinum Toxin using ultrasound guidance reported improvement in symptoms and function after injection (PROMIS Upper Extremity T score pre-injection mean 29.2, post-injection mean 37) and zero patients reported intrinsic hand weakness.

CONCLUSION: Ultrasound guided injection of a simulation material dye was significantly more accurate in this anatomical study for targeting the vasculature and avoiding the intrinsic muscles of the hand. Ultrasound guidance was practicable in the clinic setting for the delivery of Botulinum Toxin for treatment of vasospastic disease of the hand with no hand weakness reported in this study. Further studies are required to characterize the apparent risk reduction using ultrasound guidance and to demonstrate cost effectiveness.

Analysis of Post-Operative Reoperation Timing and Risk Factors For Post-Operative Free Flap Compromise in Head and Neck Reconstruction: A National Retrospective Cohort

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PURPOSE: Unplanned reoperation, specifically for free flap compromise, following head and neck reconstruction exerts a significant toll on the healthcare system and its resources. The timing of the different indications for reoperation remains to be elucidated. Given that the National Surgical Quality Improvement Program (NSQIP) groups all causes of unplanned reoperations into a single variable, we aim to identify the rates and timing of various indications for reoperation and the independent predictors of head and neck free flap compromise.

METHODS: A retrospective review of all patients who underwent head and neck free flap reconstruction for a malignant head and neck lesion was done in the ACS-NSQIP database 2012–2014. CPT codes 15756, 15757, and 15758 were identified to determine free flap reconstruction. Preoperative demographics, intraoperative variables and postoperative surgical morbidities were identified. Manual identification of ICD-9 codes allowed for determination of cause of reoperation. Subgroup analysis of mean time to reoperation was performed. Multivariate logistic regression was used to identify the independent predictors of unplanned free flap reoperation in the head and neck free flap population. An increased operative time was defined as >75%-tile (612 minutes).

RESULTS: From 2012–2014, a total of 300 patients underwent head and neck free flaps. 62 patients (20.7