

Patient-Reported Outcomes after Surgical Treatment for Neurogenic Thoracic Outlet Syndrome with at least 1 Year Follow-up

Harvey Chim M.D., Syeda Hoorulain Ahmed M.D., Mohammed Mumtaz, M.D., Ramin Shekouhi M.D.
Division of Plastic and Reconstructive Surgery, Louisiana State University Health Sciences Center, New Orleans, LA



INTRODUCTION

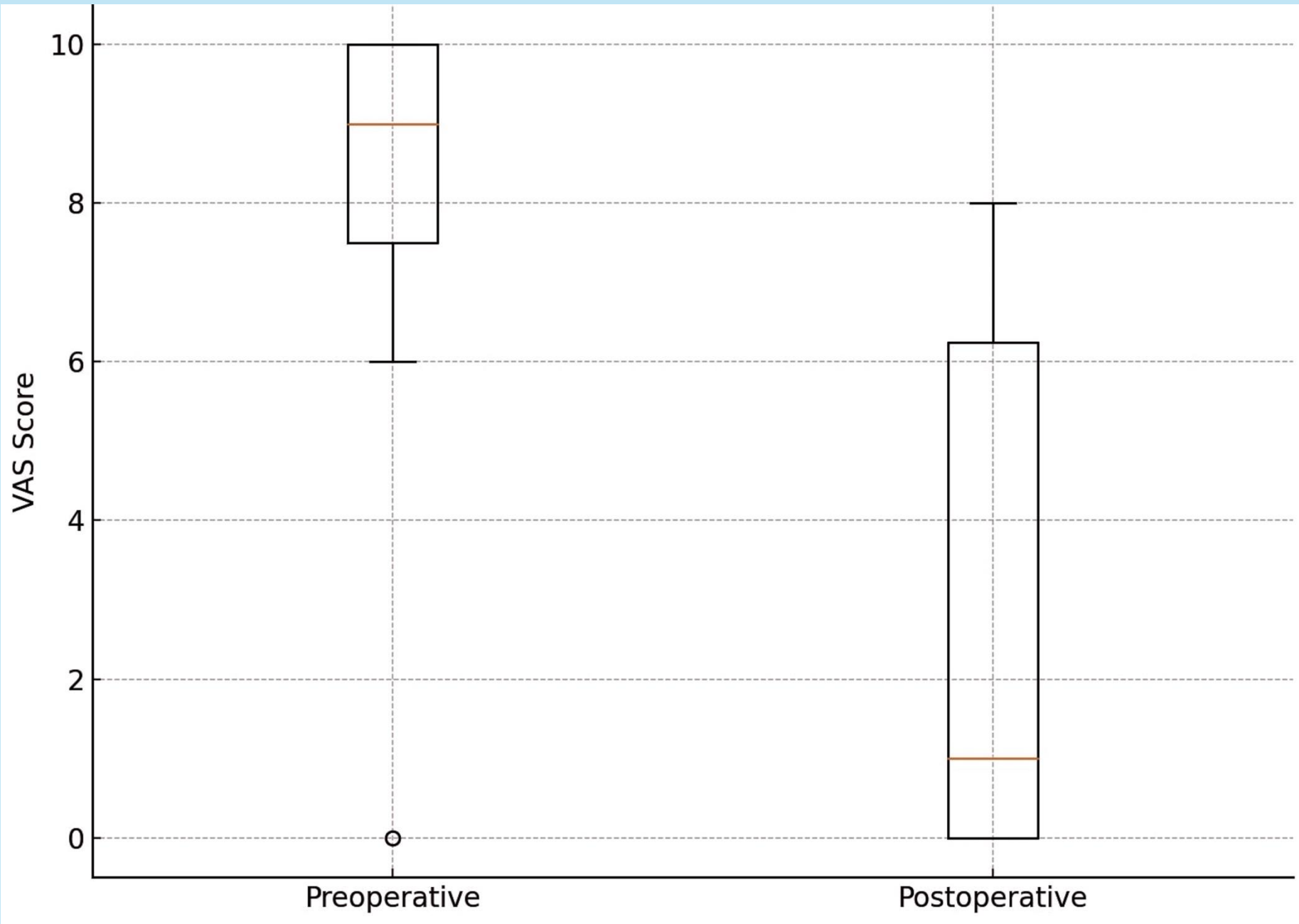
- Diagnosis of Neurogenic Thoracic Outlet Syndrome (nTOS) is challenging.
- History and Physical Examination is the Primary Method for Diagnosis
- Reporting standards by the Society of Vascular Surgeons (SVS), International Thoracic Outlet Syndrome Workgroup (INTOS) and European Association of Neurosurgical Societies (EANS) provide guidelines for Diagnosis and Treatment of nTOS.
- The aim of this study was to analyse and present patient-reported outcomes in a cohort of patients with at least 1 year follow-up after surgical treatment for nTOS.

METHODS

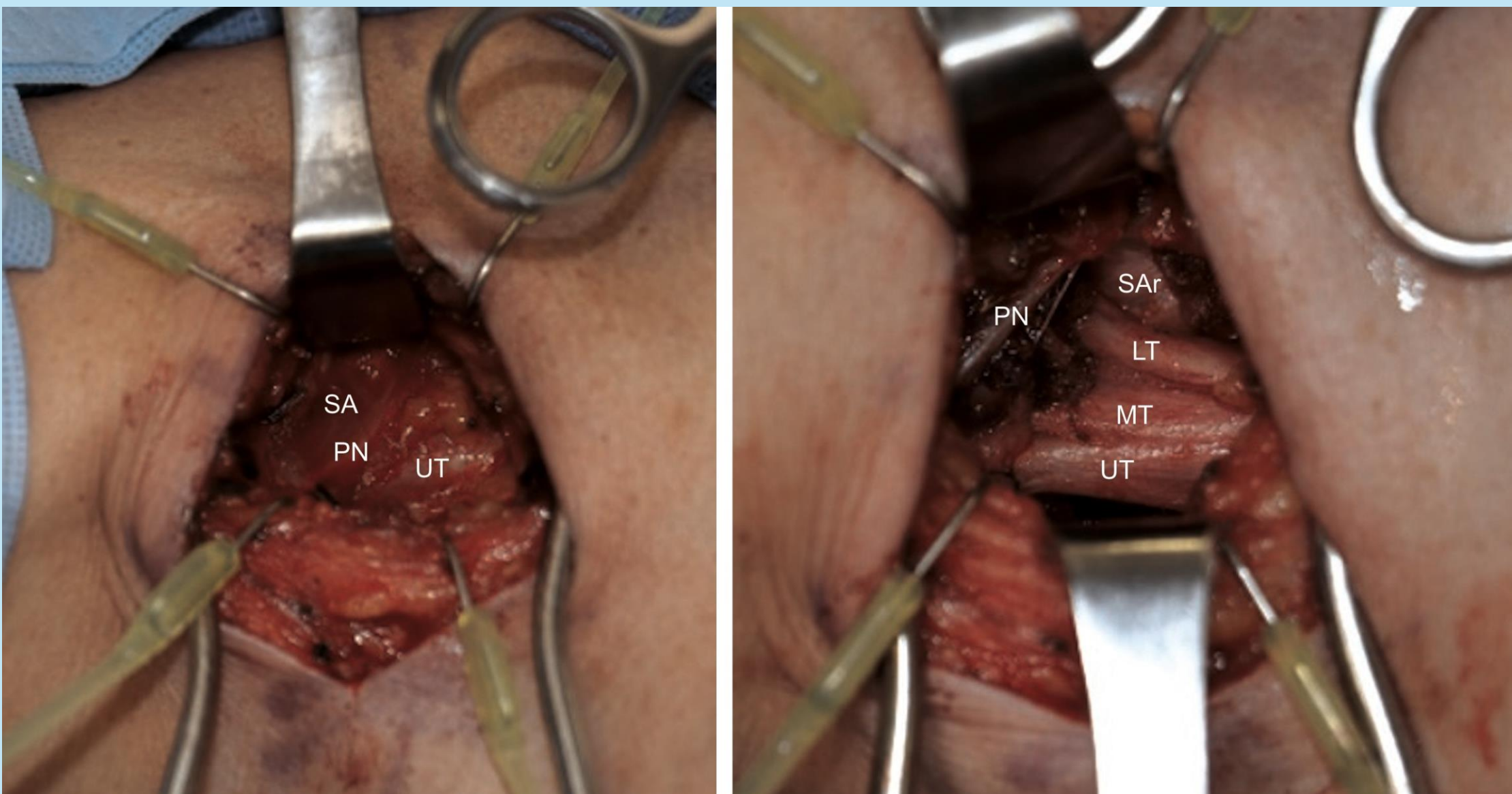
- Consecutive cohort of 44 patients with NTOS
- Surgery: motor symptoms or no improvement after at least 6 months of conservative treatment
- Patient reported outcome measures
 - Visual analogue scale (VAS)
 - Derkash classification
 - DASH
 - Michigan Hand Outcomes Questionnaire
 - Cervical Brachial Symptom Questionnaire (CBSQ)

RESULTS

- nTOS site of involvement
 - Supraclavicular (n=12/ 27.3%)
 - Infraclavicular (n=16/36.4%)
 - Both SC and IC (n=16/ 36.4%)
- Mean follow-up: 10.5 ± 9.8 months
- Mean duration of symptoms before surgery: 34.0 ± 46.3 months
- VAS score
 - Mean preoperative VAS: 8.0 ± 2.9
 - Mean postoperative VAS: 2.6 ± 3.2
 - Univariate linear regression showed positive correlation between symptom onset to surgery and postoperative VAS score
- Derkash classification:
 - Excellent: n=6 (18.8%)
 - Good: n=16 (50.0%)
 - Fair: n=6 (18.8%)
 - Poor: n=4 (12.5%)
 - Univariate linear regression revealed no significant correlation with age, BMI, time to surgery, follow-up duration
- DASH score
 - Mean postoperative score 32.8 ± 21.8
 - Univariate linear regression revealed no significant correlation with age, BMI, time to surgery, follow-up duration
- Michigan Hand Outcomes Questionnaire
 - Mean postoperative score: 68.1 ± 26.5
 - Univariate linear regression revealed no significant correlation with age, BMI, time to surgery, follow-up duration
- CBSQ
 - Mean postoperative score: 39.2 ±32.6



Before and after supraclavicular brachial plexus neurolysis and scalenectomies



CONCLUSIONS

- Longer time to surgery is correlated with higher VAS scores
- Higher VAS scores is significantly correlated with other PROMs (DASH, MHQ, CBSQ, Derkash classification)
- As pain severity increases, patients experience more pronounced functional limitations
- History and physical examination continue to be the most important tool for diagnosis and decision-making in patients with NTOS.

Variables	Coefficient	Standard error	95% CI	P-value
Age	0.03	0.03	-0.05, 0.06	>0.05
BMI	0.06	0.07	-0.08, 0.21	>0.05
Duration of symptoms prior to surgery	0.03	0.01	0.003, 0.02	<0.05
Follow-up duration	0.03	0.05	-0.07, 0.14	>0.05
Site of nTOS	-0.31	0.53	-1.40, 0.80	>0.05
nTOS classification	-0.40	0.50	-1.40, 0.65	>0.05

Table 1. Multiple linear regression model of mean VAS score and study variables.

