

Barral Institute Case Study

Neural Manipulation – Dysphonia & Vocal Cord Dysfunction Veronika Campbell, P.T., C.S.C., CNMP

Abstract: A case study of a 21-year-old male suffering with dysphonia and vocal cord dysfunction that resolved with treatment of cervical fascial, cranial dura, and cranial nerves with neural manipulation. Signs of possible vagal disequilibrium were also present and decreased after treatment of neural structures.

Key words: neural manipulation, vocal cord dysfunction, vagus nerve, laryngeal nerve, vagal disequilibrium, cervical and TMJ dysfunction.

Date: 5/06/2016

Diagnosis: vocal hoarseness & difficulty singing in 21 y.o. male amateur singer

History: No significant past medical history and not taking any medications.

Symptoms began 7 months ago possibly after sleeping sitting up in a hunting blind. His neck was bent backwards for many hours and woke up with some neck stiffness and noticed progressively more difficult with phonation and signing. He noticed significant loss of vocal range and projection as the months went on and worse at end of day or if he was fatigued. MRI of head and neck were negative. He c/o neck stiffness and some L TMJ clicking since. He also noted slight twitches in his body in evening when he is more tired.

Objective Assessment:

Posture B protracted shoulder complex, FHP with slight left side bend cervical spine, L shoulder complex elevated, and increased thoracic kyphosis

General Listening: L anterior cervical region

Local listening: L VSOTN

Manual Thermal: L anterior neck

Pre Treatment pain 0/10. Pulse O_x=94% HR=82

Cervical AROM flexion = 53° Ext=37° R Rotation=52°L=52° SB R=18° L=22°.

Standing Functional UE NTT: R=25° and L=20°.

Standing Thoracic/Lumbar Rotation R=5% L=0%.

Extension Slump Dural tension test R=---75° L=---75°

Flexion Slump Dural tension test R=---10° L=---10°.

Hip PROM IR R=17° L=16°.

Restrictions in L VSOTN, L anterior cervical fascia, L thyrohyoid fascia, cranial sutures and L TMJ click at end range mouth opening on left.

Procedure/Treatment: Patient was seen for an initial evaluation and treatment session that lasted 75 minutes and two 60 minute follow up treatment sessions every other day. Treatment techniques included neural manipulation techniques to

L occipital suture, jugular foramen, L anterior superficial and mid cervical fascia, L

vagus at VSOTN, L Vagus at mediastinum/esophagus, Vagus at stomach, L superior laryngeal nerve, L recurrent laryngeal nerve, T1---5 sympathetic chain, balanced cardiac and celiac plexus. Treatment laryngeal nerves were done with functional humming and swallowing, Pt was taught self skin rolling for laryngeal nerves with humming and signing as HEP as well as an exercise to down regulate Vagus nerve.

Reassessment post treatment sessions:

General Listening: mild to L anterior neck

Local listening: mild to L Vagus nerve at VSOTN

Pulse Ox=98% HR=62 Twitching in trunk and extremities gone after first visit

Cervical AROM flexion = 77° Ext=72° R Rotation=NT L=NT SB R=38° L=32°.

Standing Functional UE NTT: R=165° and L=160°.

Standing Thoracic/Lumbar Rotation R=60% L=60%.

Extension Slump Dural tension test R=---20° L=---20°

Flexion Slump Dural tension test R=neg° L=neg°.

Hip PROM IR R=28° L=28°.

Much improved tissue mobility in L VSOTN, anterior cervical & thyrohyoid fascia, TMJ better tracking without click. Posture more upright with less kyphosis. Follow up phone call two weeks later and patient reports able to sing with much better projection, range, and no vocal fatigue at the end of his day with speech or singing and body twitches had seemed to resolve.

Discussion: Findings indicate mechanical strain may have caused neck stiffness and TMJ faulty tracking but may have also caused possible neural tension of vagus nerve due to prolonged strain of anterior neck after falling sleep for hours in end range cervical extension. The prolonged strained position may have created tension into laryngeal branches of vagus nerve affecting vocal chords. The vagal irritation may have also been contributing to body twitches, elevated HR, and protective posturing into increased kyphosis due to a vagal disequilibrium.

Conclusion and Recommendations: Further assessment of neck strain causing neural tension at Vagus nerve affecting vocal chords and vagal tone needs to be studied.

Treating Therapist: Veronika Campbell, PT, MPT, CSCS, NSC

References:

- Barral Institute Neural Manipulation Course Workbooks from NM1-NM4, 2006-2016
- Barral & Croibier. *Manual Therapy for the Cranial Nerves*. Palm Beach Gardens FL: Barral Productions; 2013
- Barral & Croibier. *Manual Therapy for the Peripheral Nerves*. Palm Beach Gardens FL: Barral Productions; 2013
- Barral. *The Thorax*. Seattle WA: Eastland Press Inc; 1991
- Barral & Croibier. *Trauma an Osteopathic Approach*. Seattle WA: Eastland Press Inc; 1999
- Barral. *Manual Thermal Evaluation*.