

Gonstead Lab 2

Cervical Spine C1

Goals: Understanding and practicing the basic motion palpation and adjustment for the atlas

1) Motion Palpation of C1

a) Dr. Gonstead's Style

- i) **Laterality** - lack of movement during rotation of the head (away from the contact side) between C1 and C2 indicates laterality to the side you are contacting.
- ii) **Rotation** - Determined by observation - Higher mastoid on side of laterality indicates anterior, lower mastoid on side of laterality indicates posterior (i.e. "P" down).
 - (a) I've also found I can feel statically the position of the atlas TVP relative to the mastoid and that usually correlates to other methods.
- iii) **Superior/inferior** - Determined primarily by X-ray, however, observation of the patient's chin tilt may allow you to determine AS or AI. I.E., chin up may indicate AS and chin down may indicate AI. Verify with Xray if possible

b) Dynamic (Modified MPI)

- i) **Laterality** - Contact TVP of atlas, laterally flex head toward contact, and press lateral to medial on side of lateral flexion. Lack of end-play indicates a potential upper cervical restriction (occiput or atlas). Use laterality check above (Dr. Gonstead style) to verify atlas subluxation. If the rotation test in part "i" above is negative (i.e. proper movement on both sides) then the problem is likely to be occipital.
- ii) **Rotation** - Turn the patient's head to the left, push P-A on the right TVP/posterior arch, repeat for the left. If restricted on the side of laterality, list it as a "P"; If restricted on side opposite laterality, list as an "A".
- iii) **Superior/inferior** - Determined primarily by X-ray, however, observation of the patient's chin tilt may allow you to determine AS or AI. I.E., chin up may indicate AS and chin down may indicate AI. Verify with Xray if possible

2) The Adjustment

a) AS- listings

- i) Patient Position:
 - (1) Seated
 - (a) The atlas will be near the level of the doctor's umbilicus
 - (b) Feet out a bit to allow for relaxing of the back and neck
 - (c) Hands relaxed in the lab (usually palm up)
 - (i) If the patient's hands roll over when they relax, don't worry about it.
- ii) Doctor Position:
 - (1) Standing behind and a bit toward the listing side of the patient
- iii) CP:
 - (1) pad of thumb
 - (2) Thumb is in tight to the side of the hand with the distal phalanx extended in order to place the pad on the Atlas TVP
- iv) SCP:
 - (1) lateral and very slightly anterior tip of appropriate TVP of atlas
 - (2) You will feel the tip of the mastoid on the side of your thumb

- v) Drive hand position:
 - (1) Contact hand is slightly cupped, thumb in tight, wrist in slight extension.
 - (2) A relaxed hand is much faster here.
 - (3) Let the lateral portion of your index finger lay along the base of the patient's skull to monitor the tension on the sub-occipital musculature.
 - (a) Raise the patient's chin slightly until these muscles relax.
- vi) Stabilizing hand position
 - (1) Thenar is along the posterior ramus of the mandible
 - (2) Fingers extending downward along the lateral/anterior margin of the SCM
 - (3) Pressure is downward into the neck to "Hold the Cookies" during the adjustment
- vii) Line of correction –
 - (1) Lateral to medial (R to L or L to R), appropriate torque (CW torque on the right, CCW torque on the left) to bring the anterior tubercle down
 - (a) Simply think of supinating your hand slightly at the end of the thrust
 - (2) Basically across the shoulders
 - (3) Rotation is taken care of by pre-setting the atlas into direction of correction:
 - (a) P - turn patient's nose away from contact ("P" away)
 - (b) A - turn patient's nose toward contact ("A" to "approach" contact)

b) AI- listings

- i) Patient Position:
 - (1) Prone on knee-chest or Hi-lo table
 - (2) Head turned to the side of laterality
 - (3) Arm on side of laterality raised over the head and laid on the headpiece.
 - (a) This is to relieve tension in the neck
- ii) Doctor Position
 - (1) Standing on the side of the listing
 - (a) Either straight away or angled slightly head-ward on the patient
 - (2) Both arms slightly bent to allow for the thrust
- iii) CP:
 - (1) "Soft" pisiform (the distal aspect of the pisiform)
- iv) SCP:
 - (1) lateral and very slightly anterior tip of appropriate TVP of atlas
- v) Drive hand position:
 - (1) Contact hand is relaxed, fingers lying along back of patient's neck.
 - (a) This is not a toggle arch that isolates the tip of the pisiform
 - (2) A relaxed hand is much faster here.
- vi) Stabilizing hand position
 - (1) On the back of the drive hand so that the thrust can be transferred through the CP
 - (a) I prefer to curl the pinkie and ring fingers (bending them at the joint between the proximal and middle phalanges) and gripping the wrist with my thumb, index and ring fingers. Then the dorsum of the distal two phalanges and the thenar surface of the stabilizing hand make a broad, comfortable contact along the back of the drive hand.
 - (b) This still allows the focus of the thrust to be through the pisiform
- vii) Line of correction –
 - (1) Lateral to medial (R to L or L to R), CCW torque on the right, CW torque on the left to bring the anterior tubercle down
 - (a) Note that the torques are up rather than down for this adjustment.
 - (i) This is one exception to our general rule of
 - 1. right side clockwise
 - 2. left side counter-clockwise
 - (2) Rotation is taken care of by the doctor leaning to create a vector into the direction of correction:
 - (a) P – Doctor leans past the patient so the his/her episternal notch is posterior to the SCP
 - (b) A - Doctor shifts him/her self so that their episternal notch is anterior to the SCP