Domain III

III.H.1

Airway Anatomy and Assessment

YOU SHOULD BE ABLE TO

- ✓ Name the laryngeal cartilages and the nerve that supplies each part of the airway
- ✓ Perform and grade a bedside airway exam (Mallampati, thyromental distance, upper lip bite, neck motion)
- ✓ Predict difficult mask ventilation, laryngoscopy, SGA placement, and front-of-neck access

THE LESSON ON ONE PAGE

Nerves

- IX: tongue base, pharynx, gag
- Internal SLN: above the cords
- External SLN: cricothyroid (pitch)
- RLN: below cords + all other muscles
- Bilateral RLN: stridor

Bedside exam

- Mallampati III to IV
- TMD under 6 cm, mouth under 3 cm
- Sternomental under 12.5 cm
- ULBT class III
- Limited neck extension

Predict each task

- Mask: MOANS
- Laryngoscopy: LEMON
- SGA: RODS
- Front of neck: SHORT
- Radiation: strongest for impossible mask

Plan

- ASA 2022: judge each task separately
- Mask and tube both hard: think awake
- Mark the CT membrane early
- No test rules difficulty out

KEY TABLES

Cord muscles and injury

Injury	What you see
Unilateral RLN	Hoarseness. Affected cord sits paramedian
Bilateral RLN, acute	**Stridor** and respiratory distress. Both cords near midline
Bilateral RLN, chronic	Aphonia; airway often adequate at rest
External SLN	Weak voice, loss of high pitch; often subtle
Unilateral vagus	Hoarseness (RLN and SLN both lost)

The airway history

Condition	Airway problem
Rheumatoid arthritis	Atlantoaxial instability, cricoarytenoid arthritis, stiff TMJ
Ankylosing spondylitis	Fixed, flexed cervical spine
Down syndrome	Large tongue, atlantoaxial instability, small subglottis
Acromegaly	Big tongue and epiglottis, narrowed glottis
Diabetes (long-standing)	Stiff joints ("prayer sign"), reduced neck extension
Pregnancy	Mucosal edema, worse Mallampati, fast desaturation
Pierre Robin, Treacher Collins	Small mandible, tongue falls back

BOARD TRAPS

"Unilateral RLN injury causes stridor."

Usually not. One paralyzed cord gives **hoarseness**. Stridor and distress point to **bilateral** injury, with both cords near midline.

"The cricoid is the narrowest part of the adult airway."

False for adults. In adults it is the **glottis**. The cricoid is the classic answer for young children, though imaging studies now suggest the glottis and subglottis are functionally narrowest there too.

"Mallampati and Cormack-Lehane grade the same thing."

No. Mallampati is an awake **prediction** (Roman numerals I to IV). Cormack-Lehane is the **actual view** at laryngoscopy (grades 1 to 4). A Mallampati I can still be a grade 3 view.

"Obesity alone predicts difficult laryngoscopy."

Weakly at best. BMI strongly predicts **difficult mask ventilation** and fast desaturation. For laryngoscopy in obese patients, **neck circumference** and Mallampati class matter more than BMI.

MEMORY DEVICES

Airway nerves in order down the neck

Tongue, Top, Tune, Tail

- **Tongue** CN IX: posterior tongue, tonsils, pharynx. Gag afferent
- **Top** Internal SLN: sensation from epiglottis to the top of the cords
- **Tune** External SLN: cricothyroid, the pitch muscle
- **Tail** RLN: below the cords, plus every other intrinsic muscle

Mallampati classes

PUSH

- **P** Class I: Pillars (faucial) and everything above them visible
- **U** Class II: Uvula fully visible, pillars hidden
- **S** Class III: Soft palate and base of the uvula only
- **H** Class IV: Hard palate only