

## 1 Intrinsic Muscles of the Larynx

Muscle	Innervation	Action	Injury Result
Posterior cricoarytenoid	Recurrent laryngeal nerve	<b>Abduction</b> of true vocal cords (opens rima glottidis)	Severe breathing difficulty, airway obstruction
Lateral cricoarytenoid	Recurrent laryngeal nerve	<b>Adduction</b> of true vocal cords	Hoarseness, weak phonation
Transverse arytenoid	Recurrent laryngeal nerve	<u>Closes</u> posterior rima glottidis	Incomplete cord closure, aspiration risk
Oblique arytenoid <small>obliquus = inclin.</small>	Recurrent laryngeal nerve	Assists closure of laryngeal inlet	Aspiration during swallowing
Vocalis (thyroarytenoid)	Recurrent laryngeal nerve	Fine tuning & relaxation of vocal cords	Voice fatigue, loss of pitch control
Cricothyroid	<b>External laryngeal nerve</b>	Tenses vocal cords → high pitch	Monotonous, low-pitch voice
Aryepiglottic	Recurrent laryngeal nerve	Opens laryngeal inlet	Poor airway protection

## 2 Nerves of the Larynx

Nerve	Origin	Supply	Injury Result
Internal laryngeal nerve	Superior laryngeal nerve (vagus)	Sensory above true vocal cords	Loss of cough reflex → aspiration
External laryngeal nerve	Superior laryngeal nerve (vagus)	Motor to cricothyroid	Inability to produce high-pitch voice
Recurrent laryngeal nerve	Vagus nerve	Motor to all intrinsic muscles except cricothyroid; sensory below cords	Depends on injury type

### Recurrent Laryngeal Nerve Injury Outcomes

Injury Type	Result
Unilateral complete	Hoarseness, voice compensation
Bilateral complete	Severe breathing difficulty, loss of voice
Unilateral partial	Hoarseness

Injury Type	Result
<b>Bilateral partial</b>	<b>Adduction of both cords → suffocation → tracheostomy</b>

### 3 Arteries of the Larynx

Artery	Origin	Accompanies	Supply
Superior laryngeal artery	Superior thyroid artery (external carotid)	Internal laryngeal nerve	Upper larynx
Inferior laryngeal artery	Inferior thyroid artery (subclavian)	Recurrent laryngeal nerve	Lower larynx

### 4 Veins of the Larynx

Vein	Drainage
Superior laryngeal vein	Superior thyroid vein → Internal jugular vein
Inferior laryngeal vein	Inferior thyroid vein → Left brachiocephalic vein

### 5 High-Yield Exam Rules

- **Abduction = open airway** (posterior cricoarytenoid)
- **Adduction = closed airway** (lateral cricoarytenoid)
- Most dangerous injury: **bilateral partial recurrent laryngeal nerve lesion**
- Only intrinsic muscle NOT supplied by recurrent laryngeal nerve: **cricothyroid**