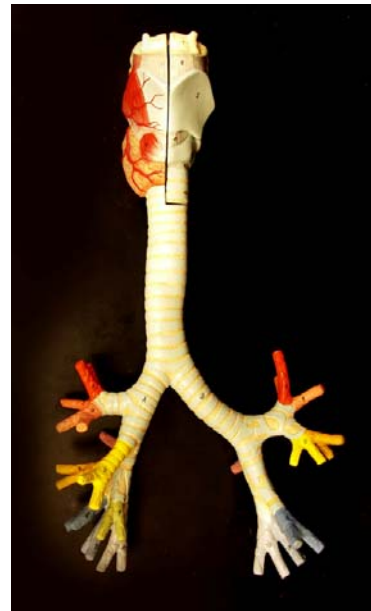
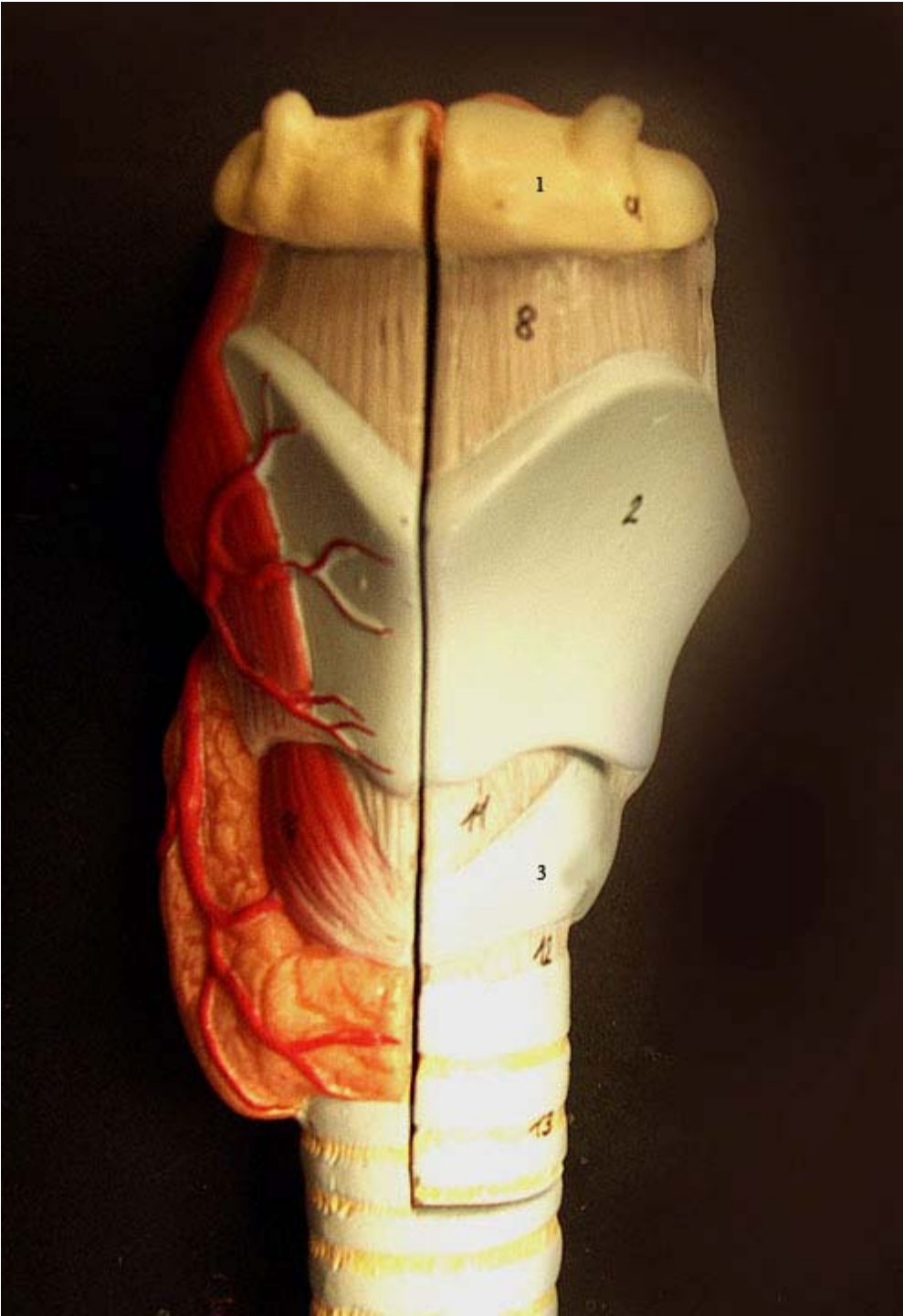


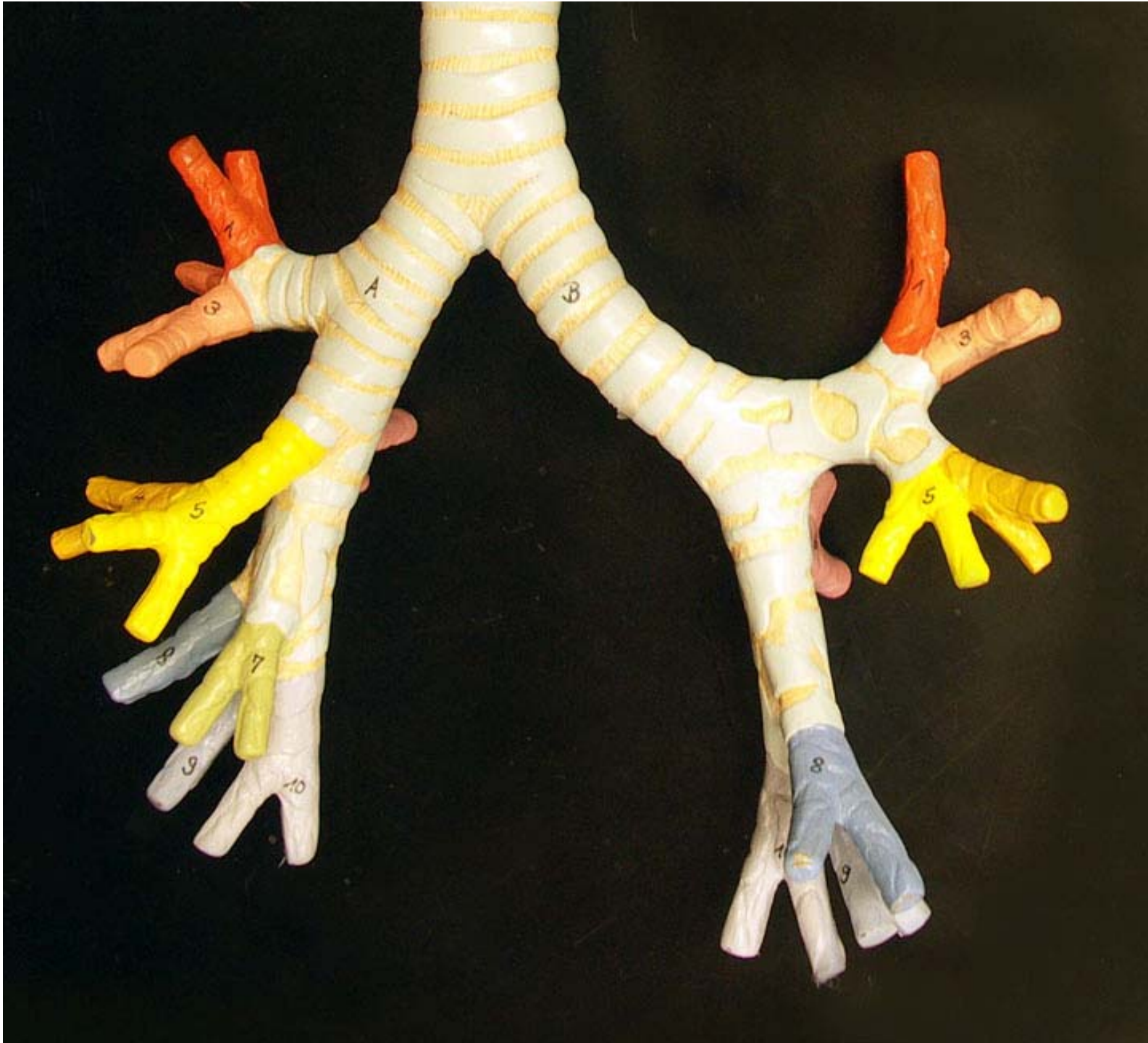
# Larynx & Airways

## Lab Model















## Larynx

### The Larynx

The larynx at the entrance of the windpipe has two tasks:

1. Closing of the air passage against the food passage (switching of points) and
2. Organ of voice production.

Its largest cartilage, the thyroid cartilage (2), *Cartilago thyroidea*, is touchable on the outside as Adam's Apple and moves during swallowing tangibly upwards. It develops very early on the ventral side of the anterior intestine in the head-piece of the pulmonary system immediately behind the heart.

With human beings it is exceptionally primitive and serves as morphological proof of the early origin of the human being from the vertebrate animal stem. Despite its primitive construction, the human larynx is, as a vocal organ, of the highest perfection. The human vocal folds (28) *Plicae vocales*, have developed from a vocal cord blastema which interrupts the primitive

gaments are numerous glands for the irrigation of the vocal cords. The vocal cord (viz 28), *Lig. vocale*, is an elastic cord with membranous covering and with the vocal muscle (29), *M. vocalis*.

The muscular motion apparatus of the larynx has its task in the voice generation and in the protective function of the air passage (swallowing).

### The functions of the individual larynx muscles:

1. Opening of the rima glottis:  
Posterior cricoid cartilage - arytenoid cartilage muscle (17), *M. cricoarytenoideus posterior*
2. Closing of the true glottis:  
Transverse arytenoid muscle (18), *M. arytenoideus transversus*, oblique arytenoid muscle (19), *M. arytenoideus obliquus*, as well as the not depicted lateral crico - arytenoid muscle, *M. cricoarytenoideus lateralis*.
3. Movement of the vocal cord:  
Vocal muscle (29), *M. vocalis*
4. Tightening of the vocal cord:  
Crico-thyroid muscle (16), *M. cricothyroideus*

sphincter (circular muscle of the entrance to the larynx). The consequence of this is that the muscle fibres of this circular muscle cannot close in front into a muscular ring, but are joined in a specific human arrangement on the vocal cord (viz 28). The larynx skeleton is formed by the tongue bone (1), *Os hyoideum*, the thyroid cartilage (2), *Cartilago thyroidea*, the cricoid cartilage (3), *Cartilago cricoidea*, the arytenoid cartilages (4), *Cartilago arytenoidea*, and some smaller cartilage parts. The parts of the larynx skeleton are linked through membranes and larynx muscles.

We distinguish in the inner relief:

Upper storey as vestibule

Middle storey - Morgagni's Ventricle - between false vocal ligament and true vocal cord (the remnants of an old bellowing pouch) and lower storey, which continues into the windpipe.

The orifice of the larynx is limited in front by the epiglottis (23), *Epiglottis*, and at the side by the mucous membrane folds (31), *Plicae aryepiglotticae*. At both sides of the epiglottis runs the piriform fossa (32), *Recessus piriformis*. In the middle storey of the Morgagni's ventricle and the false vocal li-

The nervous provision of the larynx is through the branches of the vagus nerve, the superior laryngeal nerve (22), *N. laryngeus superior*. The superior laryngeal artery (21), *A. laryngea superior* and the superior thyroid artery (20), *A. thyroidea superior*, are educed from the arterial vascular system.

1. Tongue bone, *Os hyoideum*
  - a) Body, *Corpus*
  - b) Greater cornu, *Cornu majus*
  - c) Lesser cornu, *Cornu minus*
2. Thyroid cartilage, *Cartilago thyroidea*
- d) Superior cornu of the thyroid cartilage, *Cornu superius*
- e) Inferior cornu of the thyroid cartilage, *Cornu inferius*
3. Cricoid cartilage, *Cartilago cricoidea*
4. Arytenoid cartilage, *Cartilago arytenoidea*
5. Cartilage of Santorini, *Cartilago cormiculata*
6. Wrisberg's cartilage, *Cartilago cuneiformis*
7. Windpipe cartilages, *Cartilagine tracheales*
8. Middle ligament of the tongue

- bone and the thyroid cartilage, *Lig. thyrohyoideum medianum*
9. Lateral ligament of the tongue bone and the thyroid cartilage, *Lig. thyrohyoideum*, therein is often a fibrocartilage piece: the triticeous cartilage, *Cartilago triticea*
  10. Joint-capsule between thyroid cartilage horn and cricoid cartilage, *Capsula articularis cricothyroidea*
  11. Crico-thyroid ligament, *Lig. cricothyroideum*
  12. Ligament of the cricoid cartilage and the windpipe, *Lig. cricotracheale*
  13. Elastic fibrous substance between the tracheal cartilages, *Ligg. anularia [trachealia]*
  14. Posterior membranous wall of the windpipe, *Paries membranaceus*

The windpipe, *Trachea*, divides before the 4th or 5th thoracic vertebrae into the two bronchi, *Bronchus principalis [dexter et sinister]*.

15. Thyrohyoid muscle, *M. thyrohyoideus*

16. Crico-thyroid muscle, *M. cricothyroideus*, on which one distinguishes a superficial part, *Pars recta*, and a lower part, *Pars obliqua*.
17. Posterior crico-arytenoid muscle, *M. cricoarytenoideus posterior*
18. Transverse arytenoid muscle, *M. arytenoideus transversus*
19. Oblique arytenoid muscle, *M. arytenoideus obliquus*
20. Superior thyroid artery, *A. thyroidea superior*
21. Superior laryngeal artery, *A. laryngea superior*
22. Superior laryngeal nerve, *N. laryngeus superior*

The mucous membrane and the interior space of the larynx.

23. Epiglottis, *Epiglottis*
24. Ligament of the tongue bone and the epiglottis, *Lig. hyoepiglotticum*
25. Thyro-epiglottic ligament, *Lig. thyroepiglotticum*
26. Sinus of larynx, *Ventriculus laryngis*
27. Vestibular fold, *Plica vestibularis*
28. False vocal cord, *Plica vocalis*, with

- true vocal cord, *Lig. vocale*
29. Vocal muscle, *M. vocalis*
30. Mucous membrane of the windpipe, *Tunica mucosa*
31. Ary-epiglottic folds, *Plica aryepiglottica*
32. Piriform fossa, *Recessus piriformis*

*Right*

A. ~~Bronchus principalis dexter~~

- |  |   |   |
|--|---|---|
| <ol style="list-style-type: none"> <li>1. <i>Bronchus segmentalis apicalis</i></li> <li>2. <i>Bronchus segmentalis posterior</i></li> <li>3. <i>Bronchus segmentalis anterior</i></li> <li>4. <i>Bronchus segmentalis lateralis</i></li> <li>5. <i>Bronchus segmentalis medialis</i></li> <li>6. <i>Bronchus segmentalis apicalis [superior]</i></li> <li>7. <i>Bronchus segmentalis basalis medialis (cardiacus)</i></li> <li>8. <i>Bronchus segmentalis basalis anterior</i></li> <li>9. <i>Bronchus segmentalis basalis lateralis</i></li> <li>10. <i>Bronchus segmentalis basalis posterior</i></li> </ol> | } | <i>Bronchus lobaris superior dexter</i> |
|  | } | <i>Bronchus lobaris medius dexter</i>   |
|  | } | <i>Bronchus lobaris inferior dexter</i> |

*Left*

B. ~~Bronchus principalis sinister~~

- |   |   |   |
|---|---|---|
| <ol style="list-style-type: none"> <li>1. } <i>Bronchus segmentalis</i></li> <li>2. } <i>apicoposterior</i></li> <li>3. <i>Bronchus segmentalis anterior</i></li> <li>4. <i>Bronchus lingularis superior</i></li> <li>5. <i>Bronchus lingularis inferior</i></li> <li>6. <i>Bronchus segmentalis apicalis [superior]</i></li> <li>8. <i>Bronchus segmentalis basalis anterior</i></li> <li>9. <i>Bronchus segmentalis basalis lateralis</i></li> <li>10. <i>Bronchus segmentalis basalis posterior</i></li> </ol> | } | <i>Bronchus lobaris superior sinister</i> |
|   | } | <i>Bronchus lobaris inferior sinister</i> |