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 (swallowing) and
2. Organ of voice production.

Its largest cartilage, the thyroid cartilage (1), is touchable on the outside as Adam's Apple and moves during swallowing from behind. 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 sphencter (circular muscle of the entrance to the larynx). The consequence of this is that the muscle fibers 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 trachea bone (1), Os hyoideum, the thyroid cartilage (2), Cartilago thyroidae, the cricoid cartilage (3), Cartilago cricoidea, the arytenoid cartilages (4), Cartilago aryngeales, 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 layer as vestibule
Middle layer – Morgagni's Ventricule – between false vocal ligament and true vocal cord (the remnants of an old swallowing pouch) and lower layer, which continues into the windpipe.

The office of the larynx is limited in front by the epiglottis (33), Epiglottis, and on the side by the mucous membrane folds (31), Plicae aryepiglotticae. At both sides of the epiglottis runs the piriform fossa (32), Fossa piriformis. In the middle layer of the Morgagni's vestiule and the false vocal ligaments 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. cricothyreoides

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 derived from the arterial vascular system.
bone and the thyroid cartilage, Lig. thyrohyoideum medium.  
9. Lateral ligament of the tongue bone and the thyroid cartilage, Lig. thyrohyoideum, therein is often a fibrocartilage piece: the triteice cartilage, Cartilage triteica.  
10. Joint capsule between thyroid cartilage horn and cricoid cartilage, Capsula articulatrix cricothyroidea.  
11. Crico-thyroid ligament, Lig. cricothyroideum.  
12. Ligament of the cricoid cartilage and the windpipe, Lig. cricoitracheale.  
13. Elastin fibrous substance between the tracheal cartilages, Ligg. auralia trachealis.  

The mucous membrane and the interior space of the larynx.  

15. Thyrohyoid muscle, M. thyrohyoideus.  

A. Bronchus principalis dexter.  
2. Bronchus segmentalis posterior.  
5. Bronchus segmentalis medialis.  
7. Bronchus segmentalis basalis media (cardiaca).  
8. Bronchus segmentalis basalis anterius.  

B. Bronchus principalis sinister.  
1.  
2.  
3.  
4.  
5.  
6.  
7.  
8.  
9.  
10.  

true vocal cord, Lig. vocale.  
29. Vocal muscle, M. voca.  
30. Mucous membrane of the windpipe, Tenia mucosa.  
32. Pyriform fossa, Recessus piriformis.