

Anatomy of the vocal fold and origins of lesions of the vocal folds

1st B-Laryphon conference

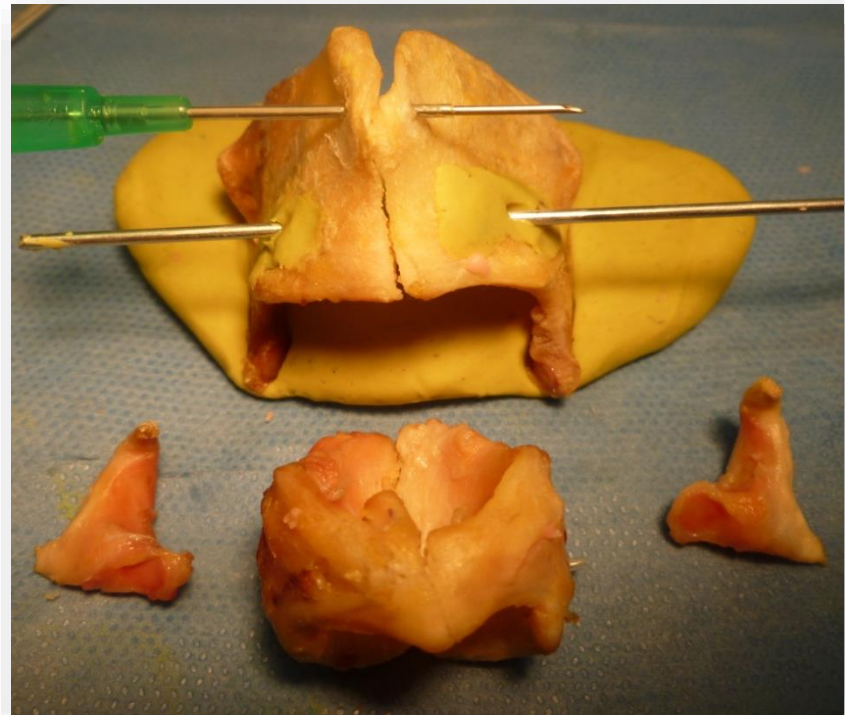
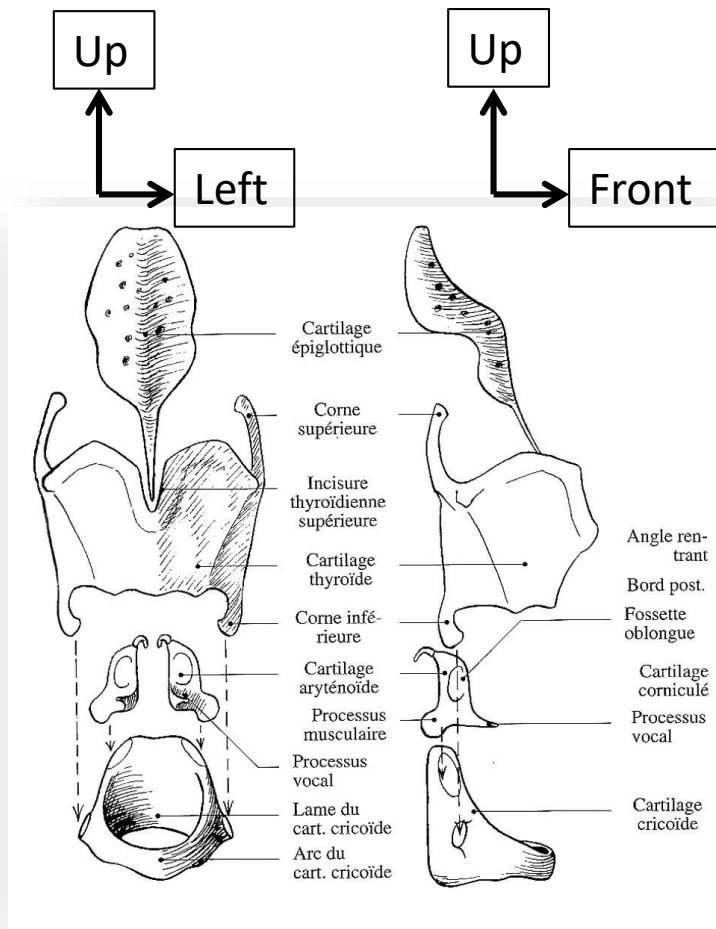


Aude Lagier, CHU de Liège

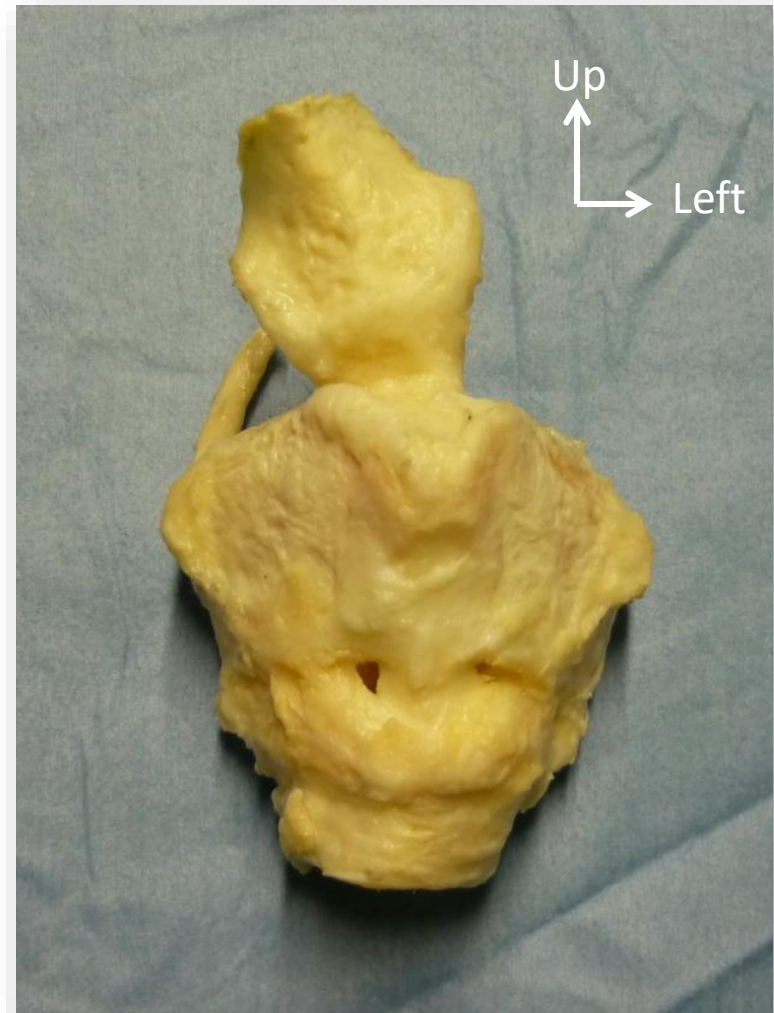
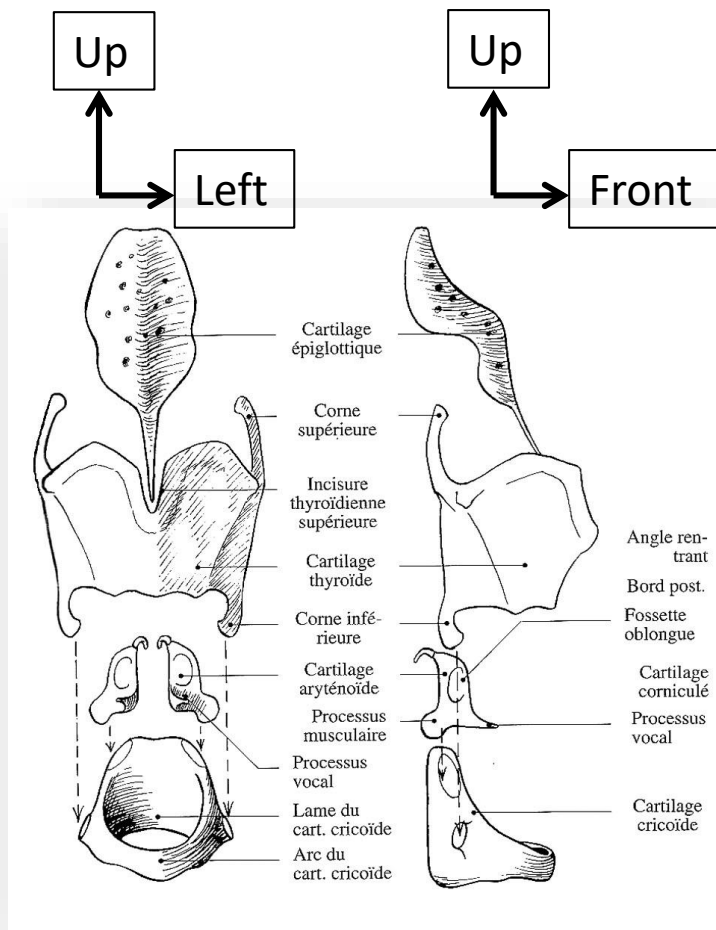
Aude.lagier@chuliege.be



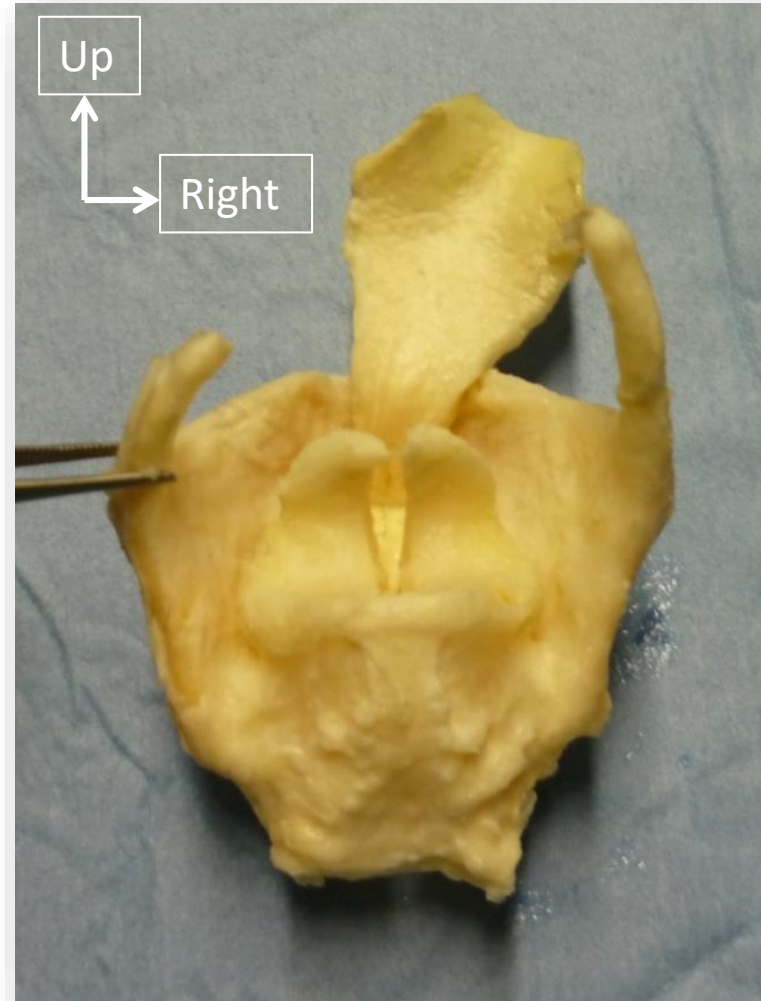
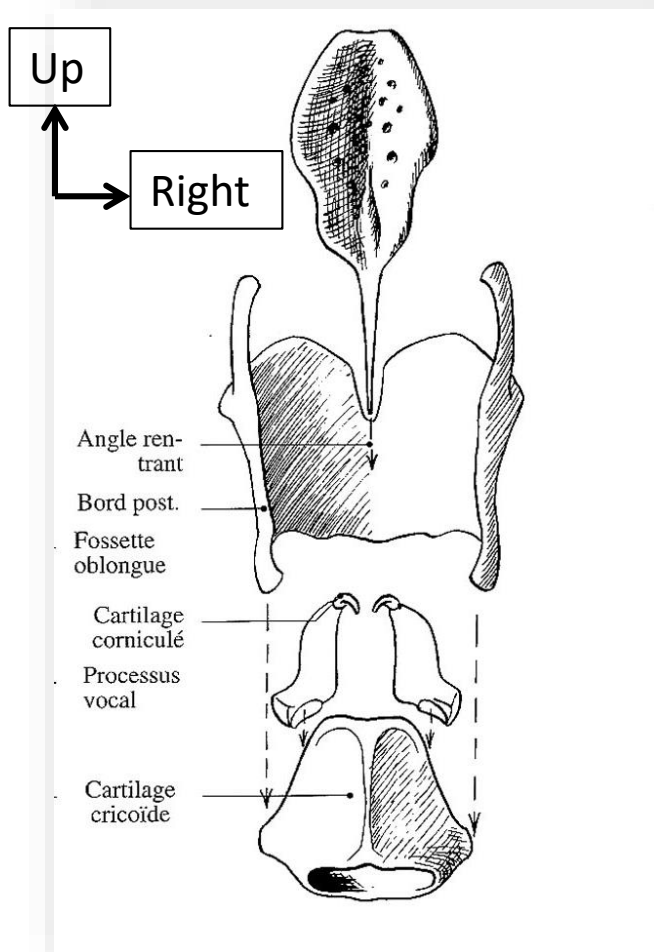
Cartilages and joints of the larynx

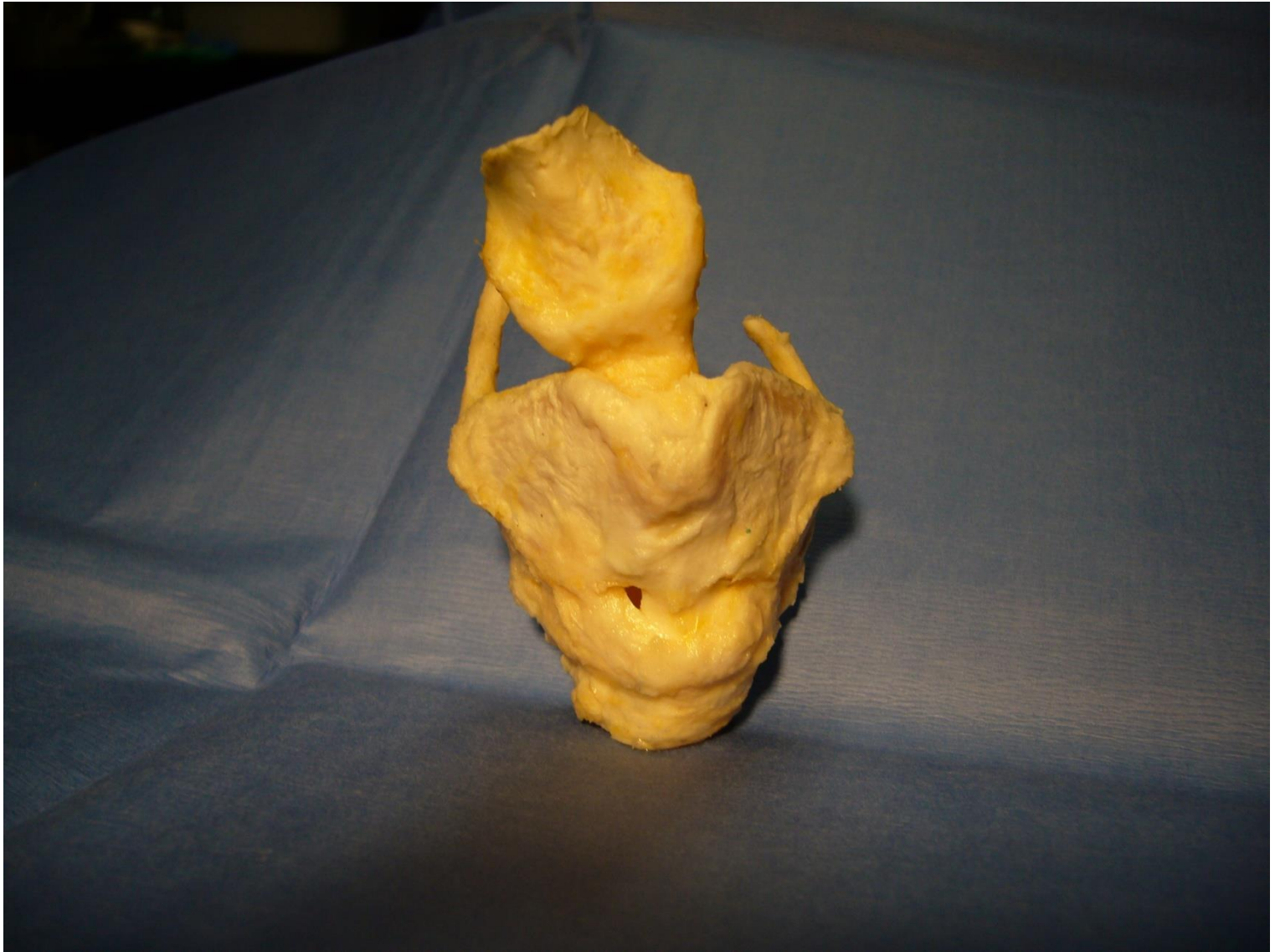


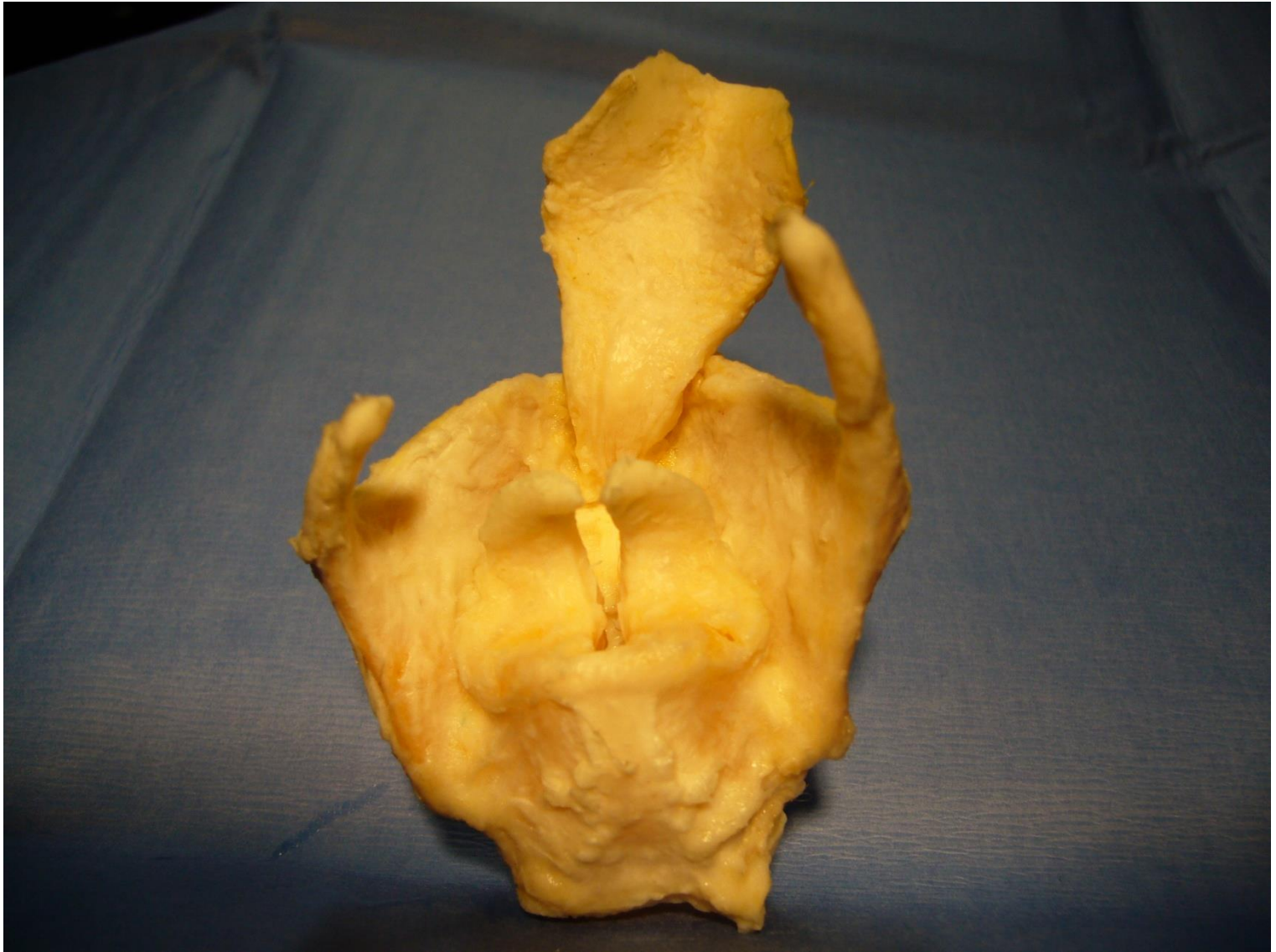
Cartilages and joints of the larynx

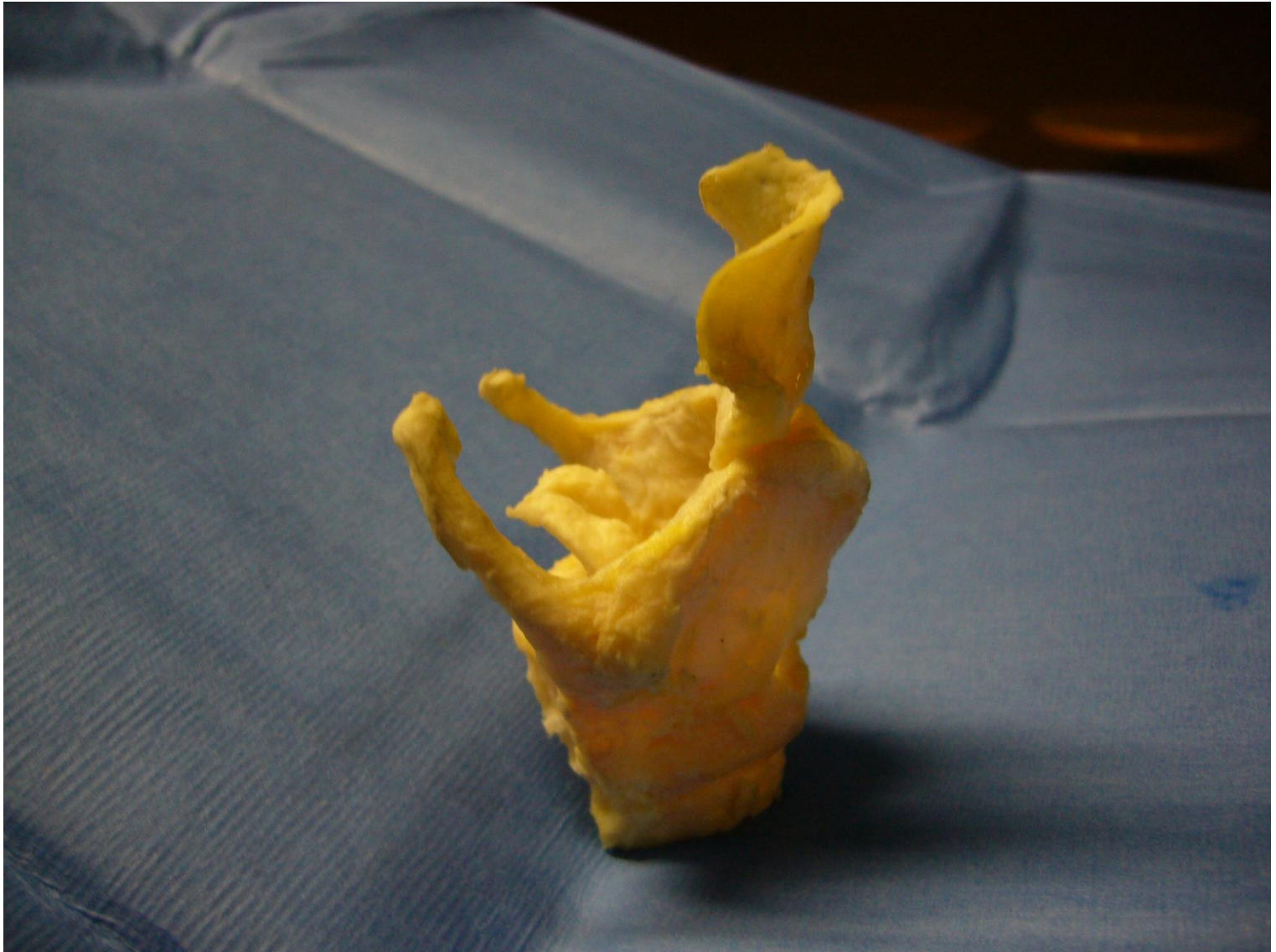


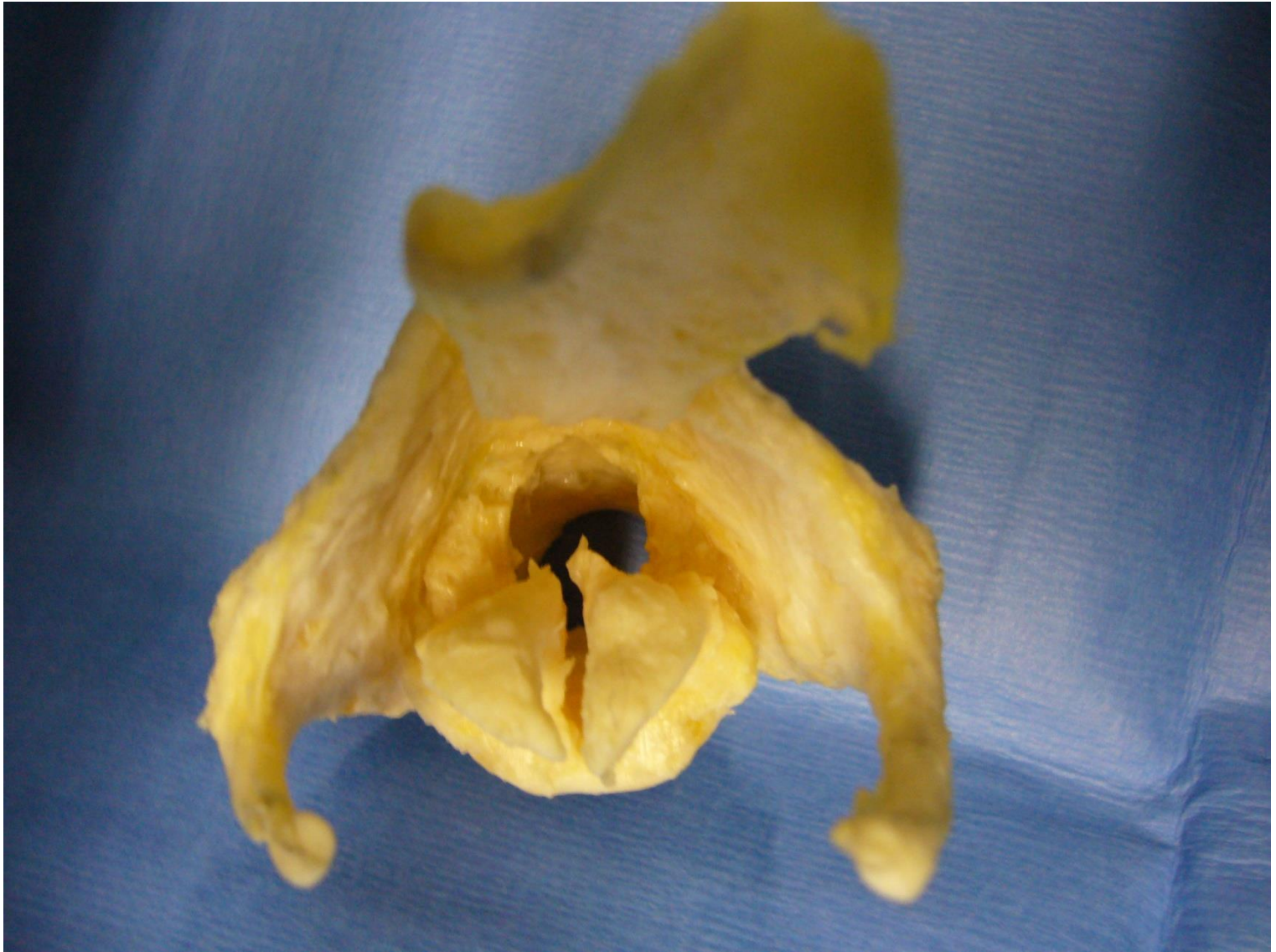
Cartilages and joints of the larynx





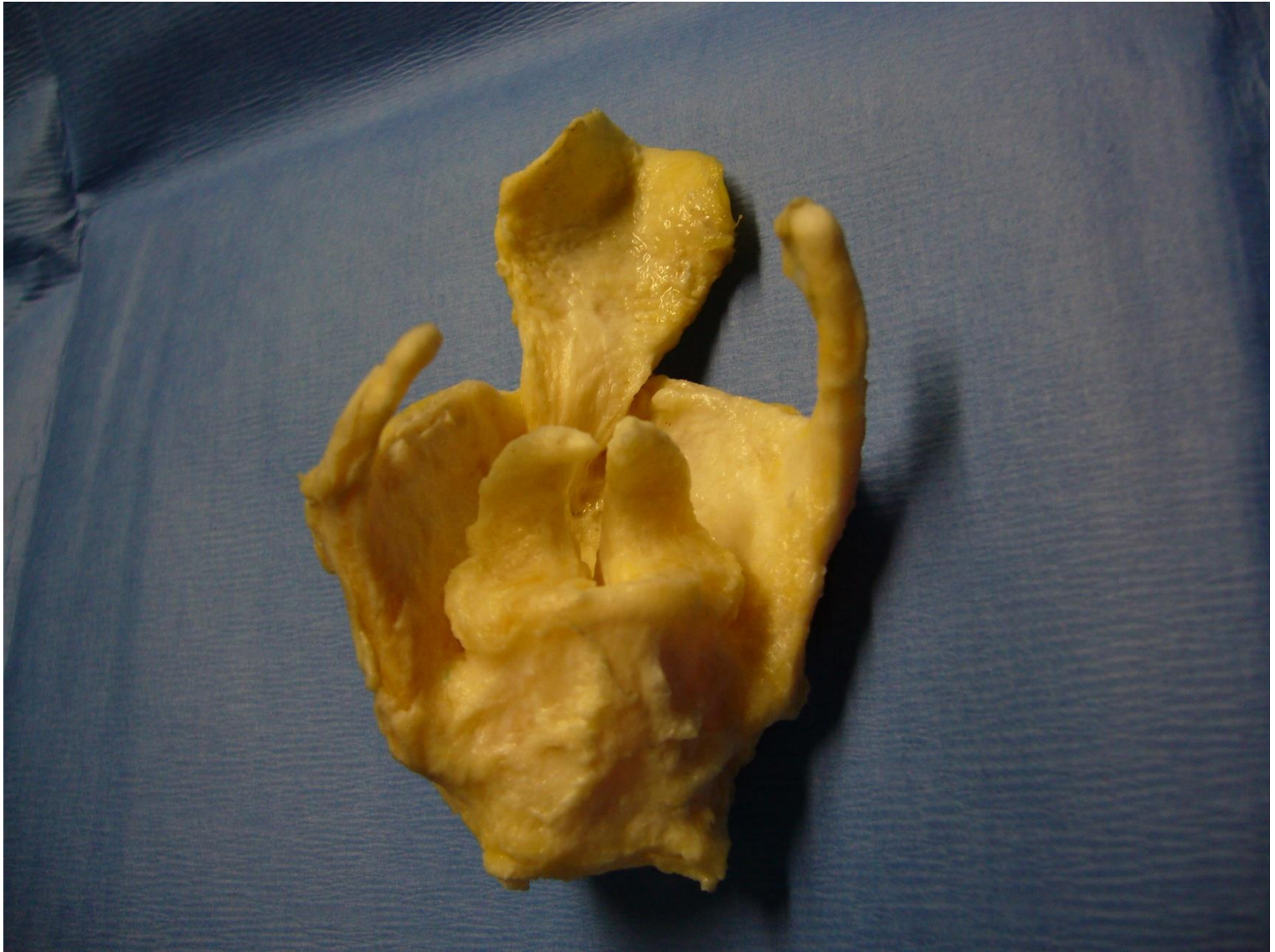


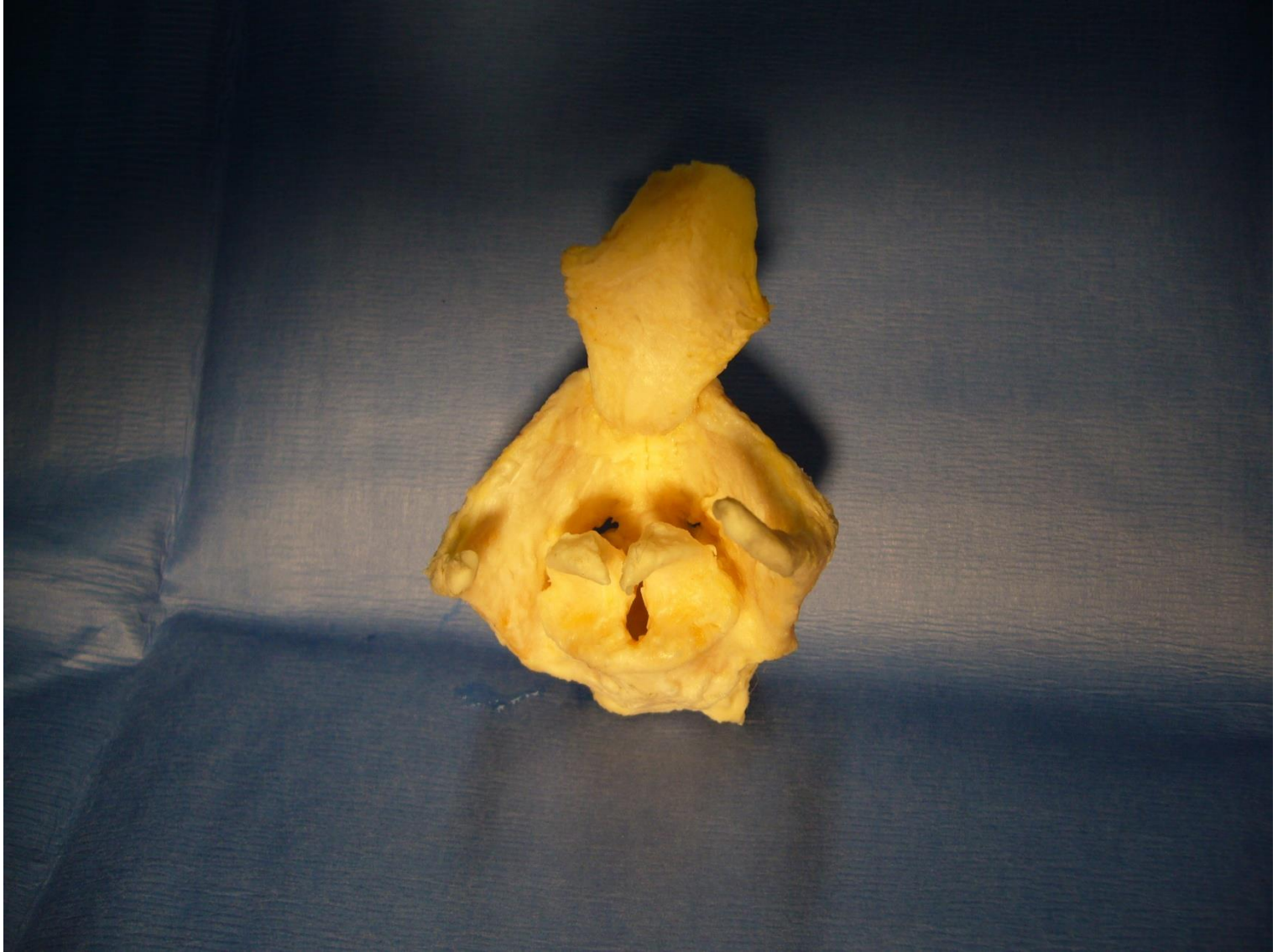


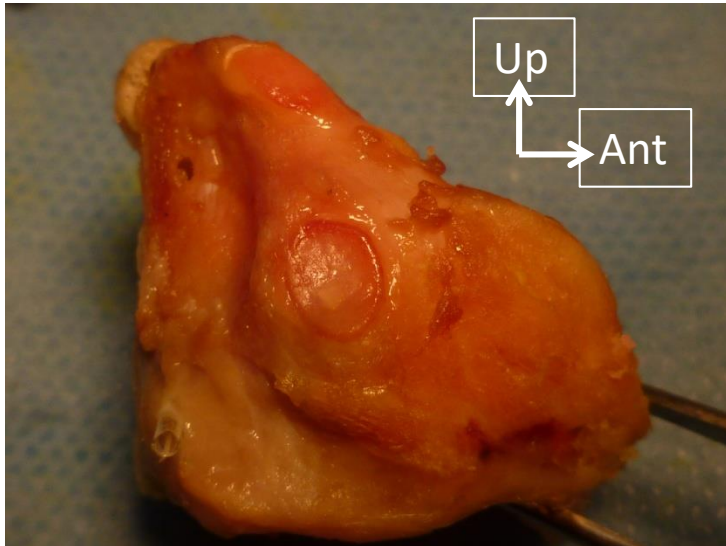
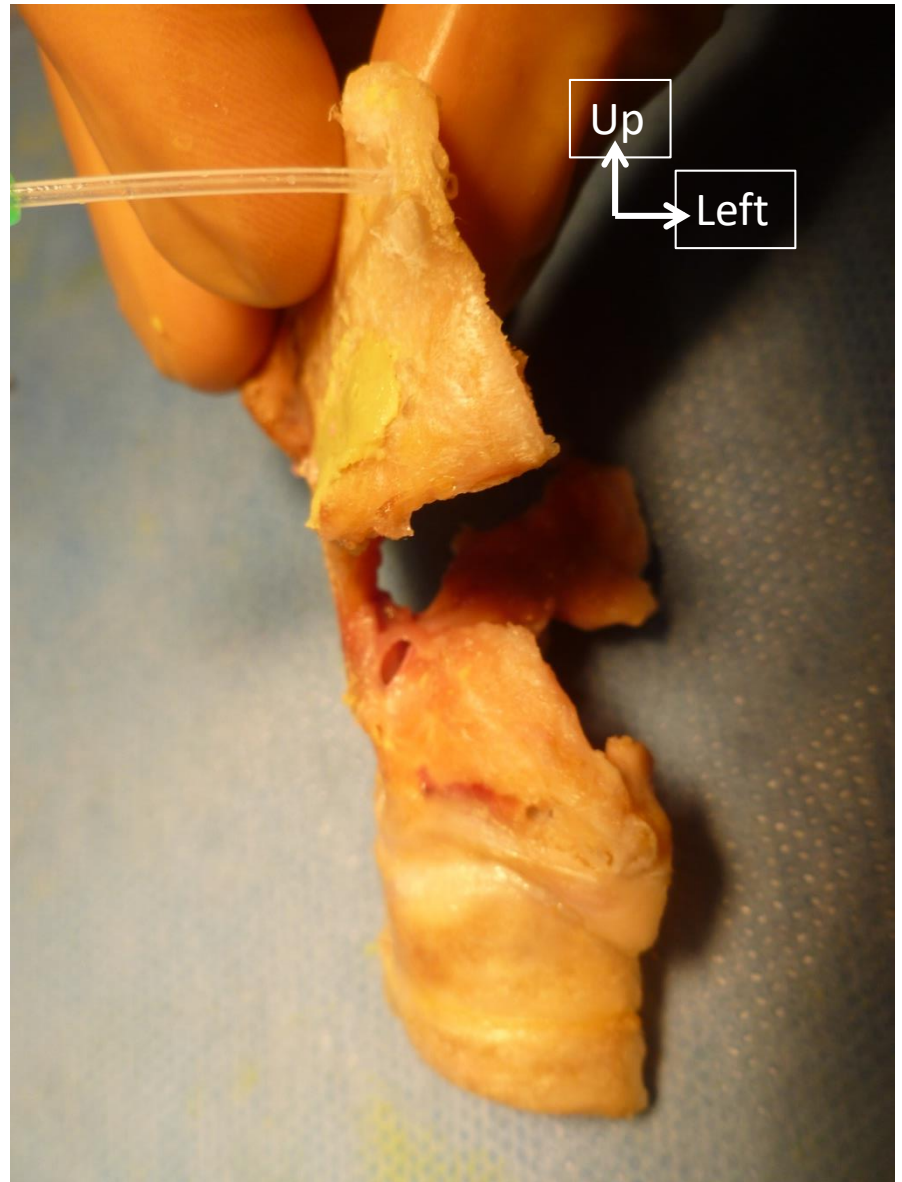
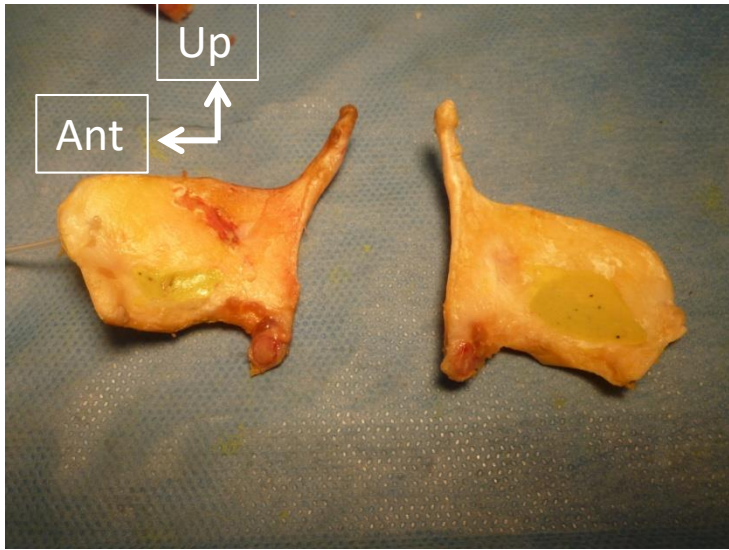




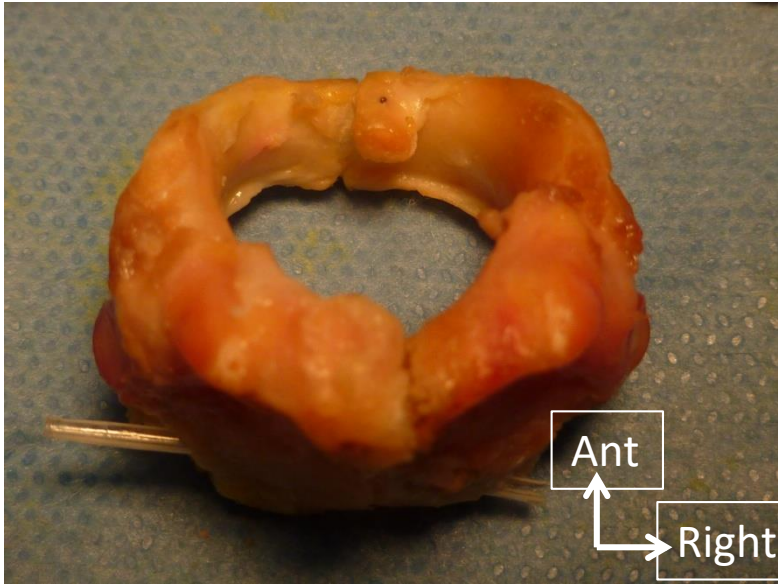




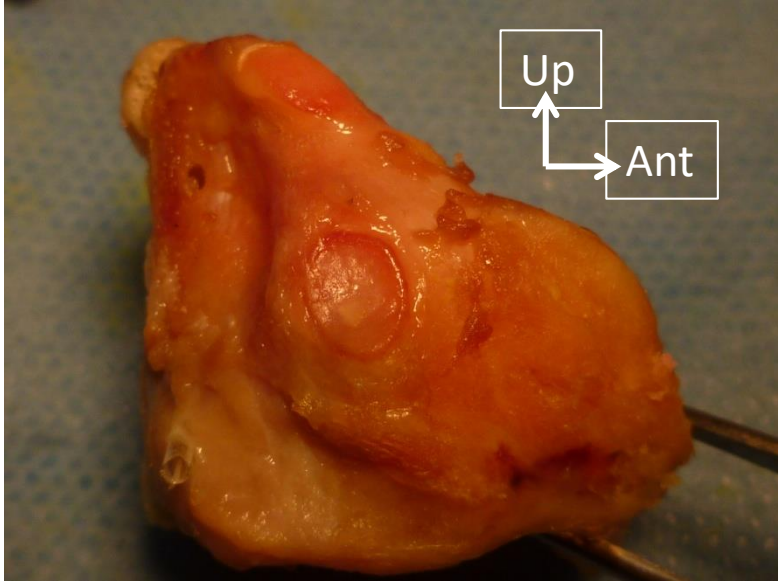
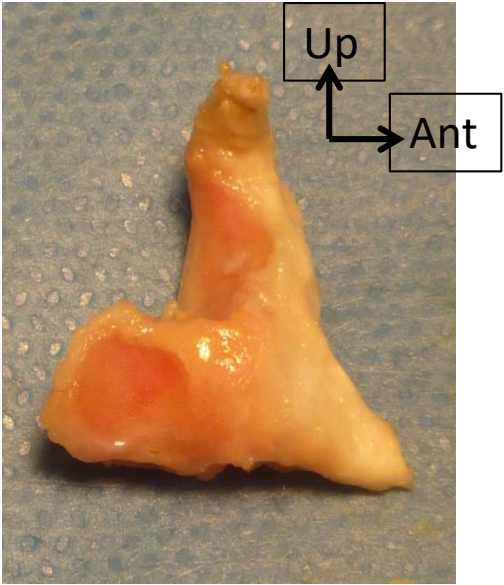




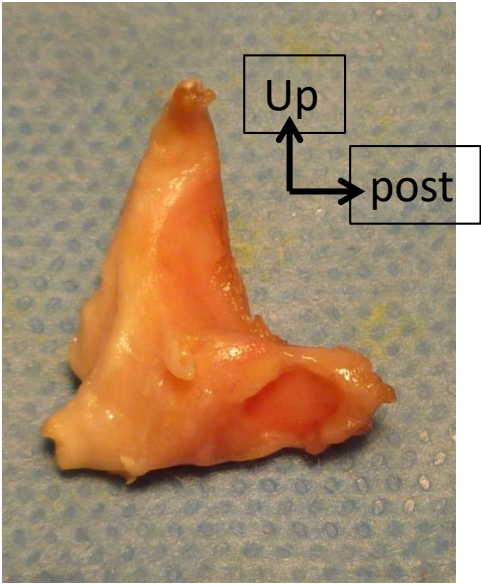




Left Arytenoid



Cricoid

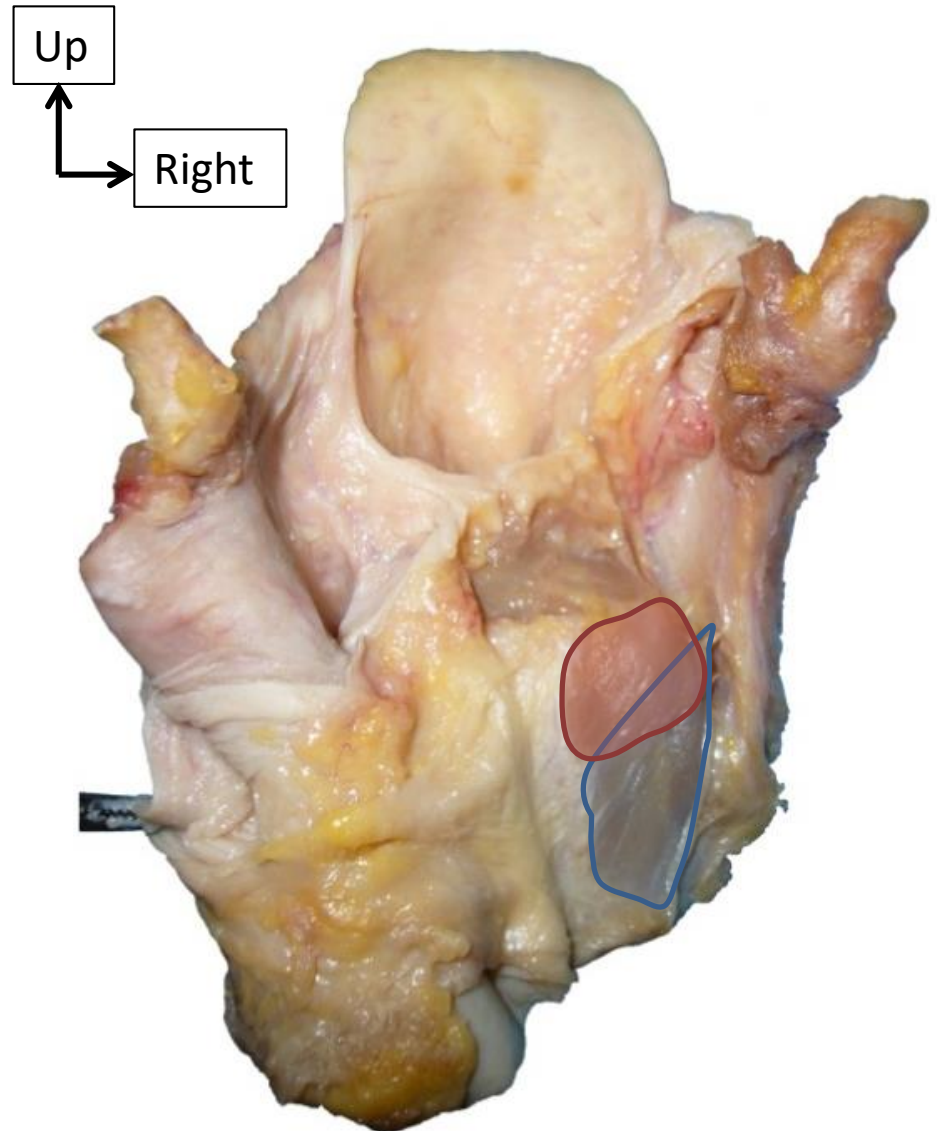


Right Arytenoid

Intrinsic laryngeal muscles

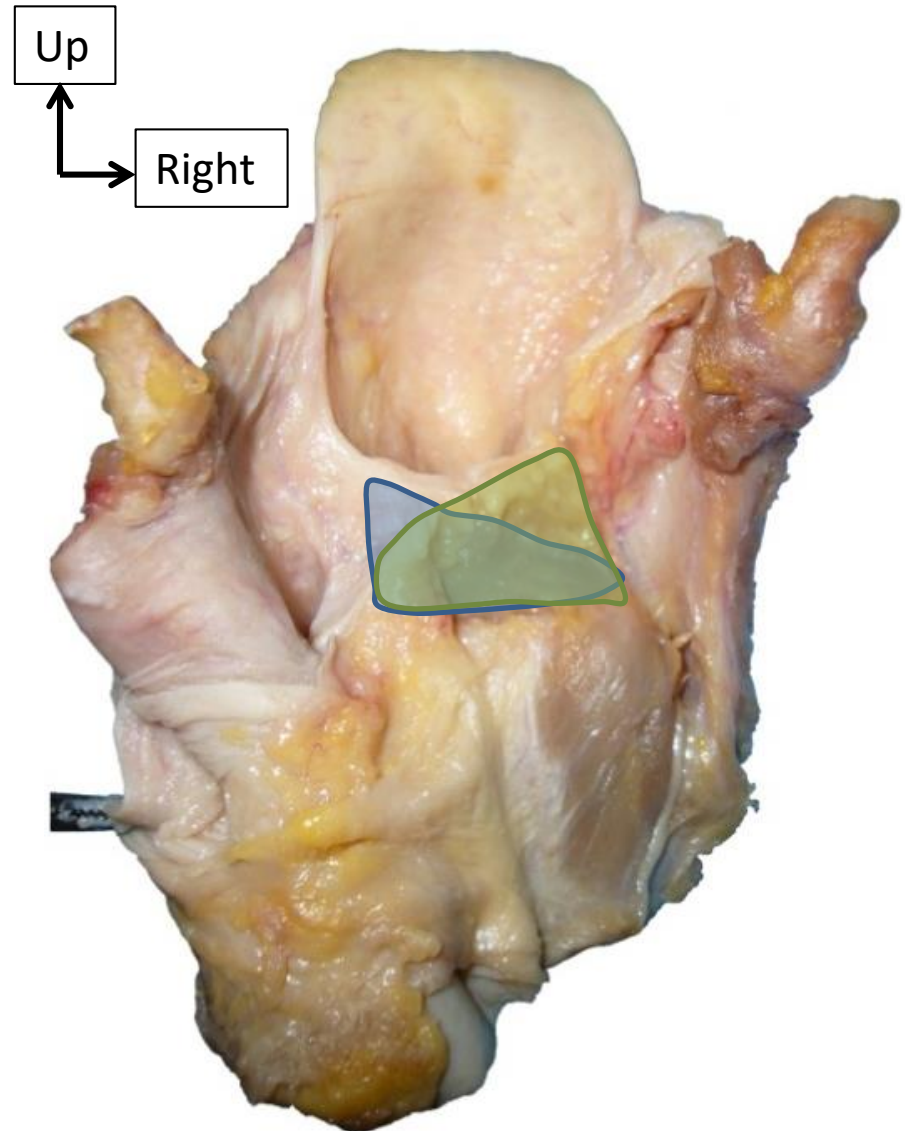
Posterior Crico-Arytenoid Muscle (PCA)

- Abduction of the vocal folds
 - Breathing muscle



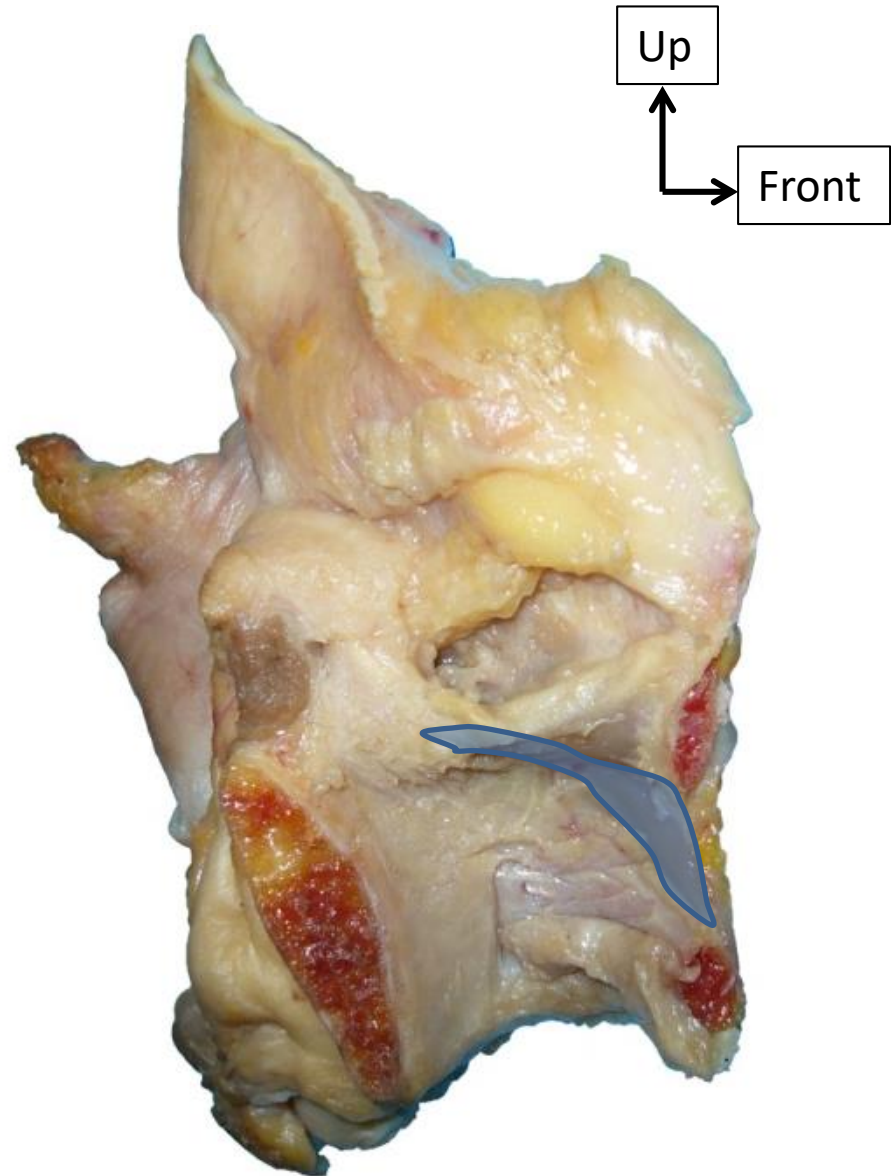
Inter-Arytenoid Muscle (IA)

- Adduction of the arytenoids



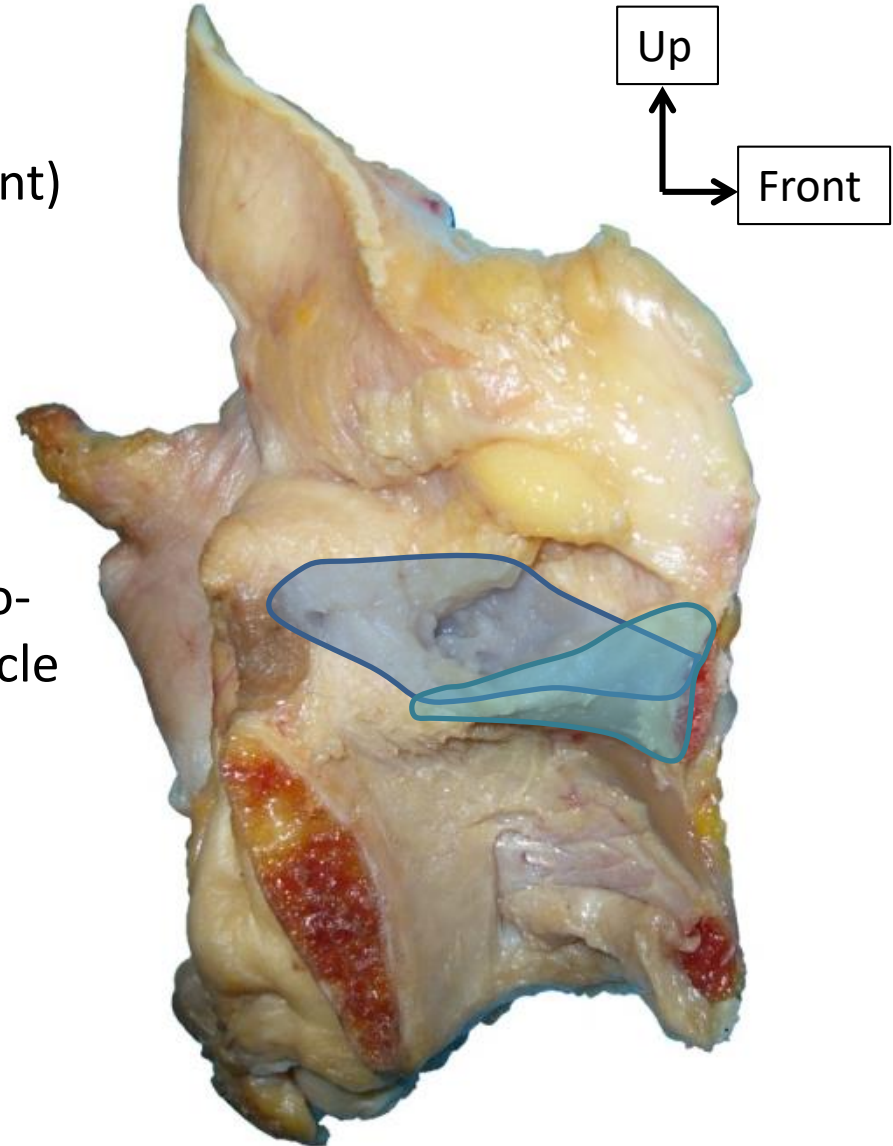
Lateral Crico-Arytenoid Muscle

- Adduction of the vocal process of the arytenoids
- Sharpening of the vocal fold edge



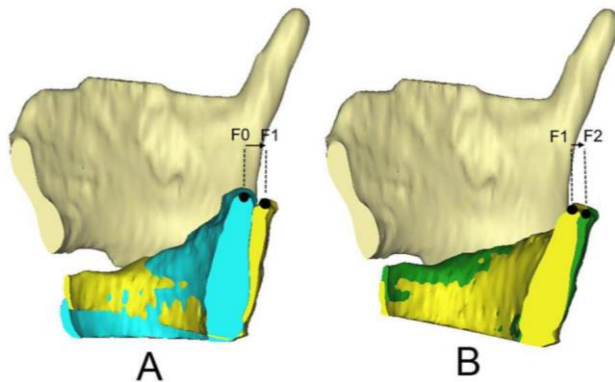
Thyro-Arytenoid Muscle

- Adduction of the vocal folds
 - (Action on the crico-arytenoid joint)
 - Action on the membranous part
- Shortening of the vocal folds
 - Rigidity of the vocal folds with co-contraction of crico-thyroid muscle



Crico-Thyroid Muscle

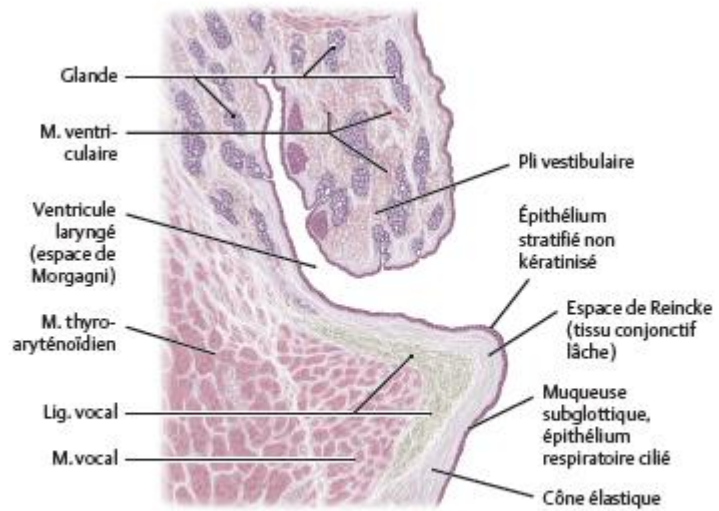
- Crico-thyroid tilt
 - Backward rotation of the cricoid in relation to the thyroid



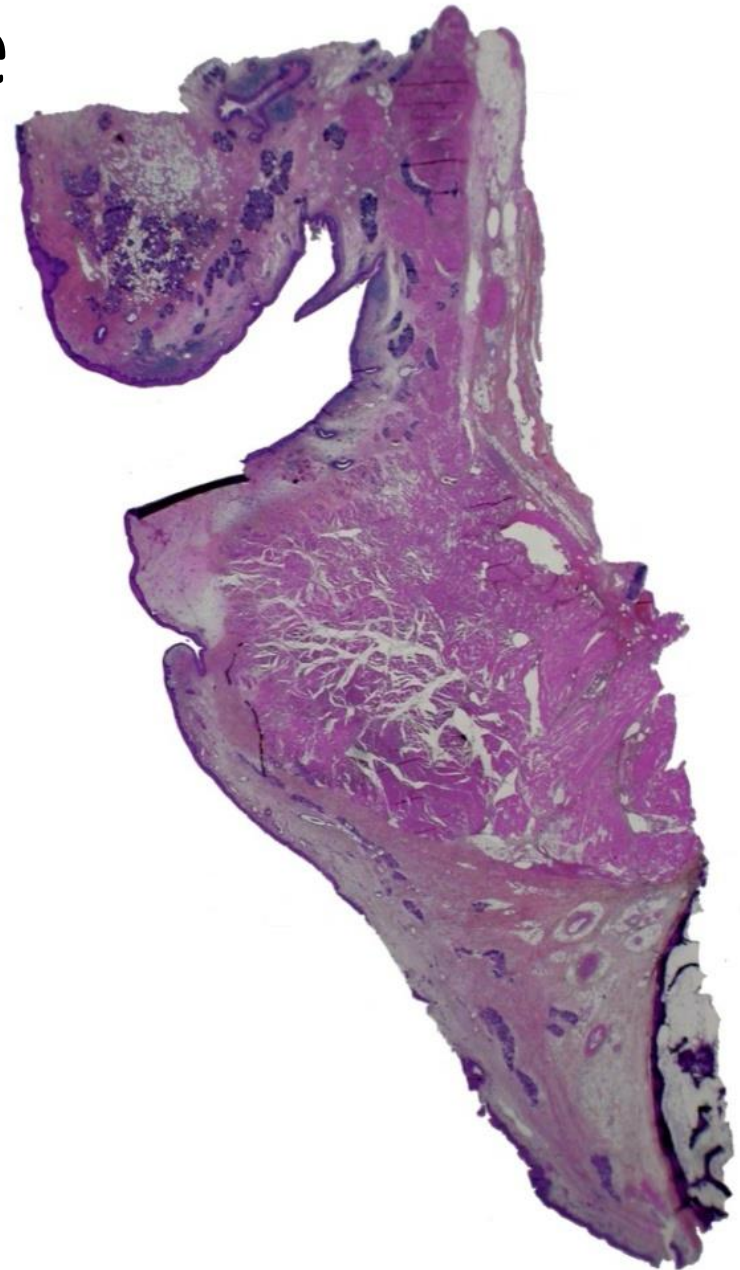
- Lengthening/tension of the vocal folds
- Adduction of the membranous part of the vocal folds

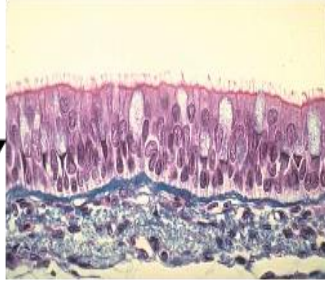
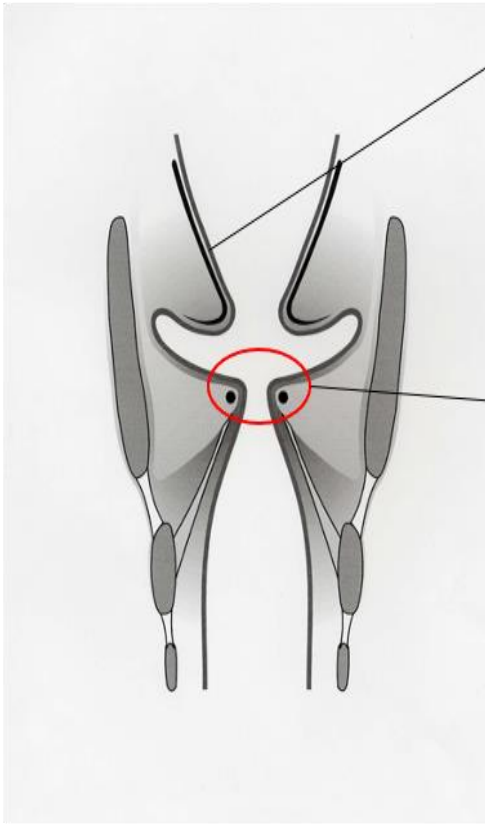


Vocal folds structure

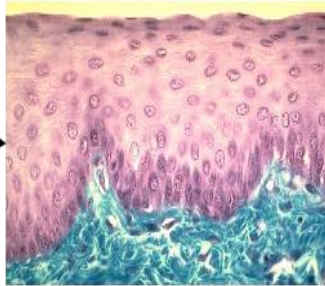


Structure d'un pli vocal, coupe histologique frontale schématique; vue postérieure

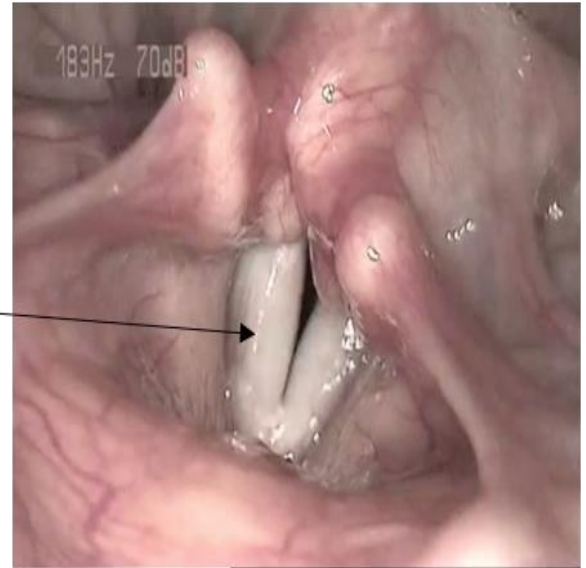




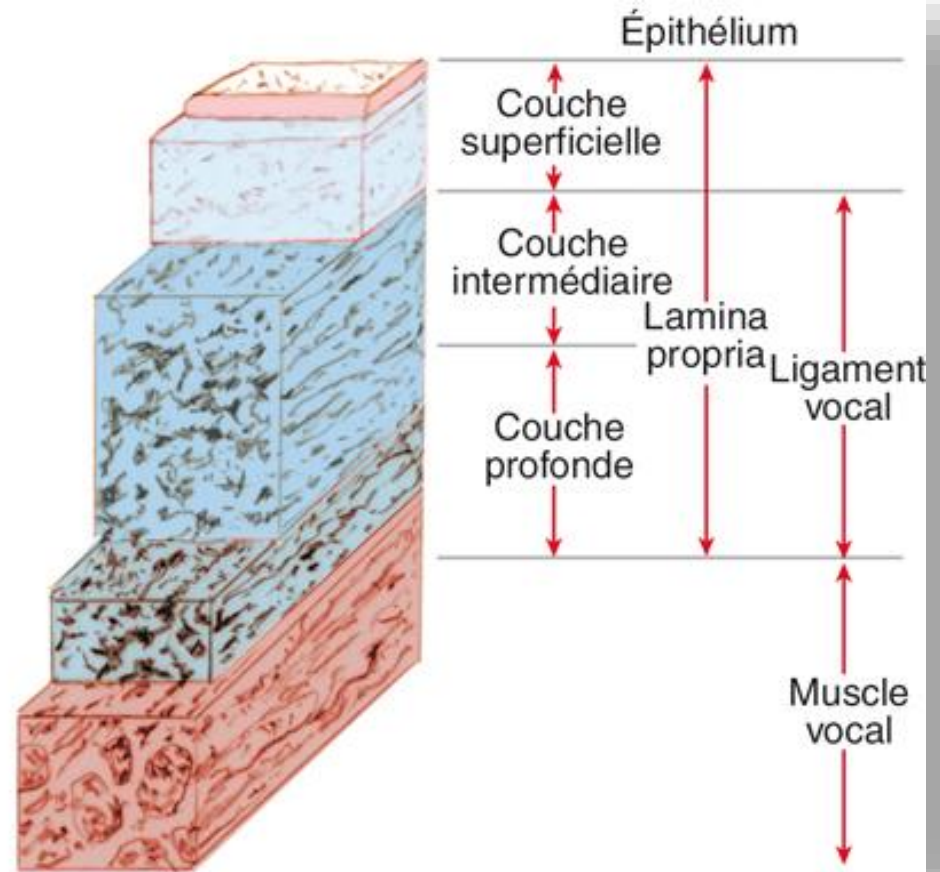
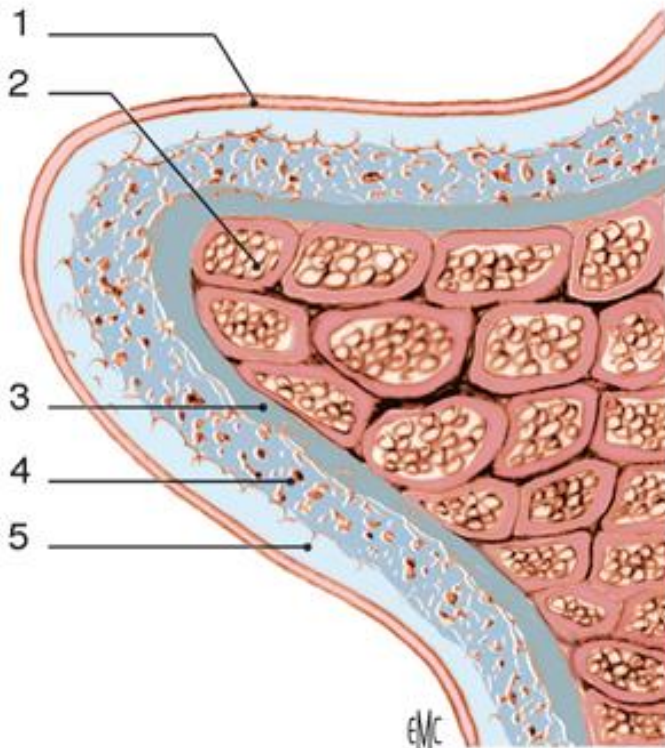
Epithelium pseudo-stratifié



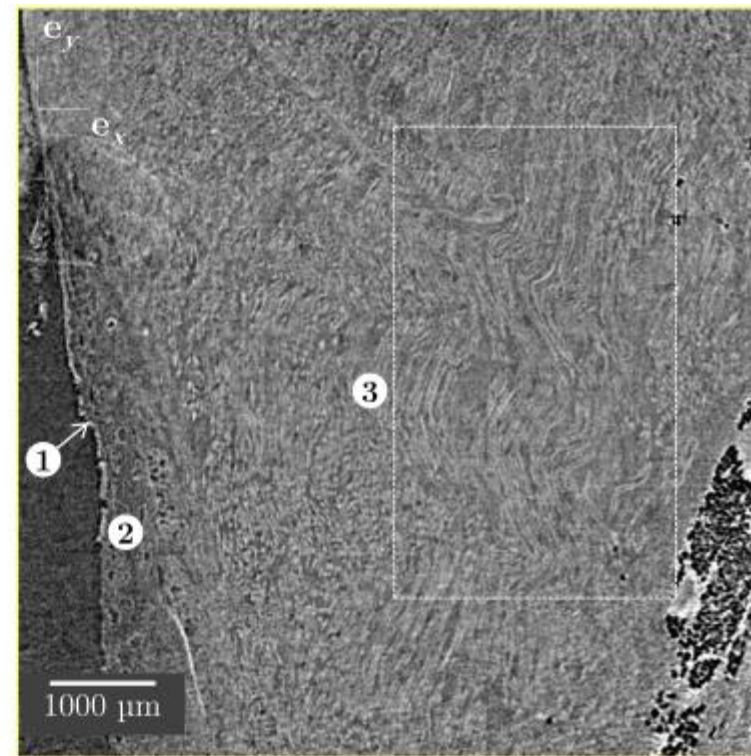
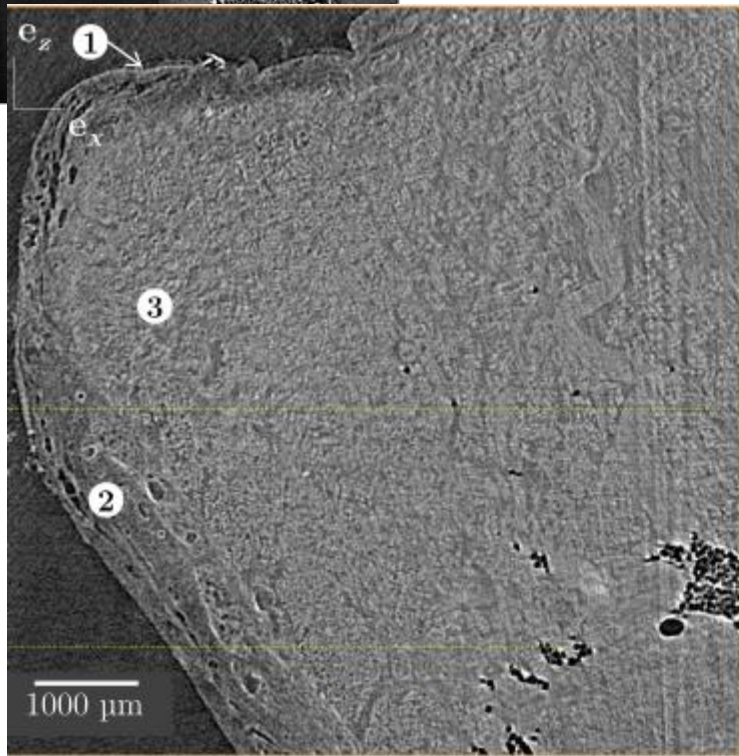
Epithelium stratifié



Vocal folds structure

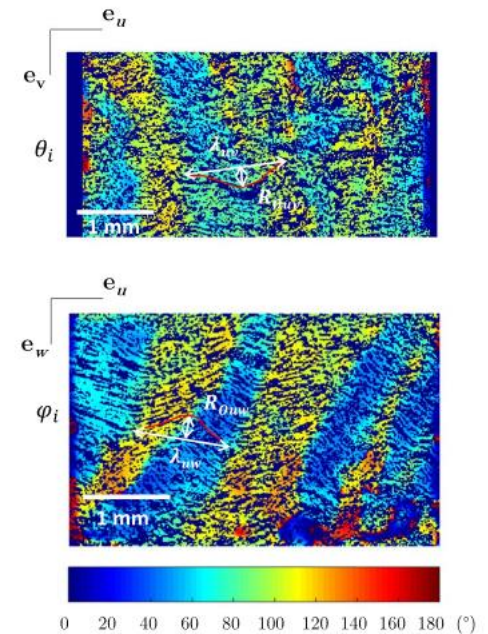
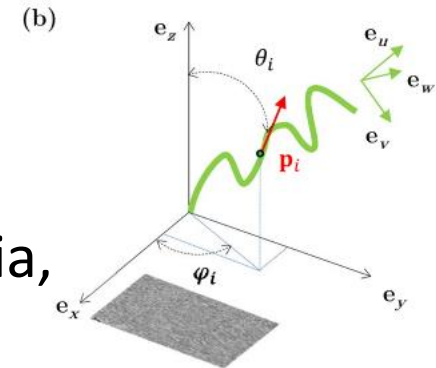
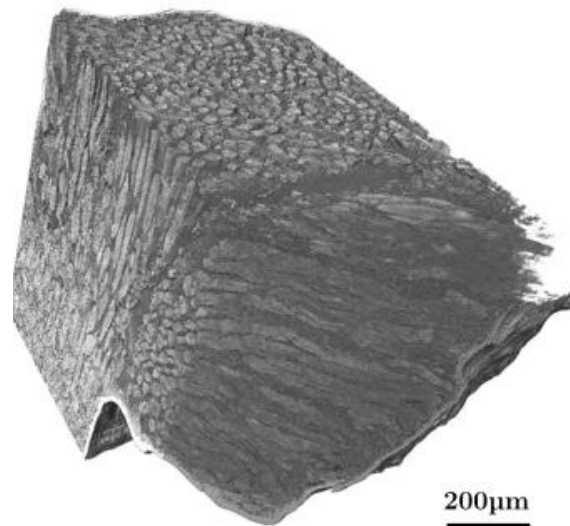
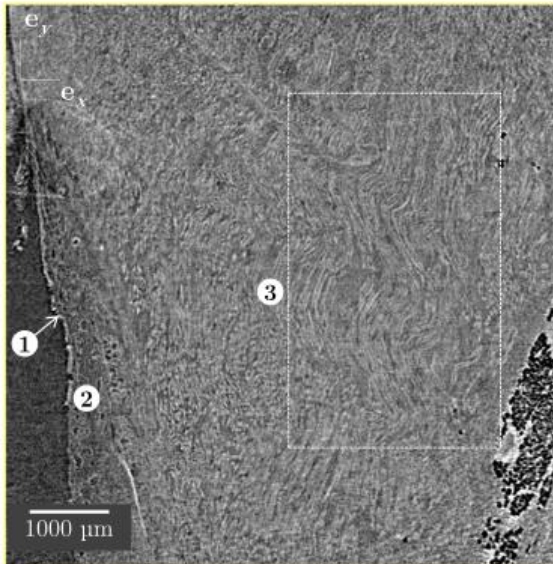


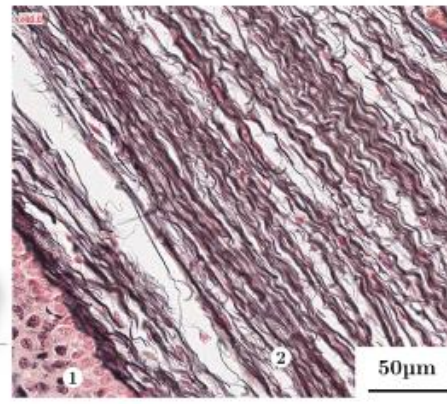
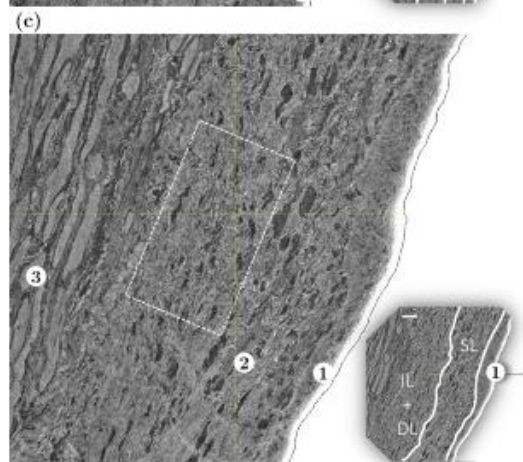
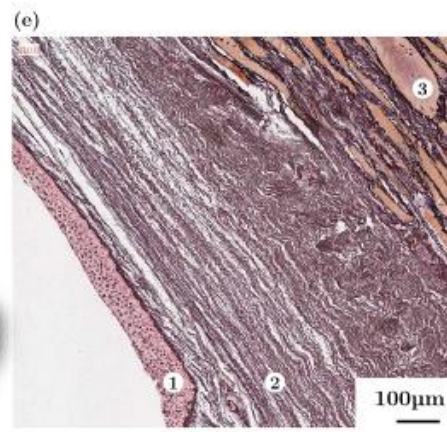
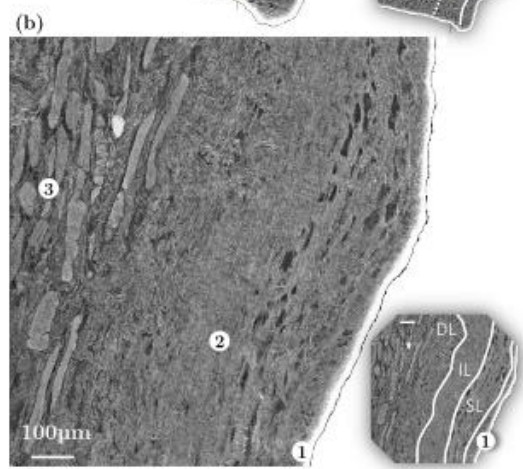
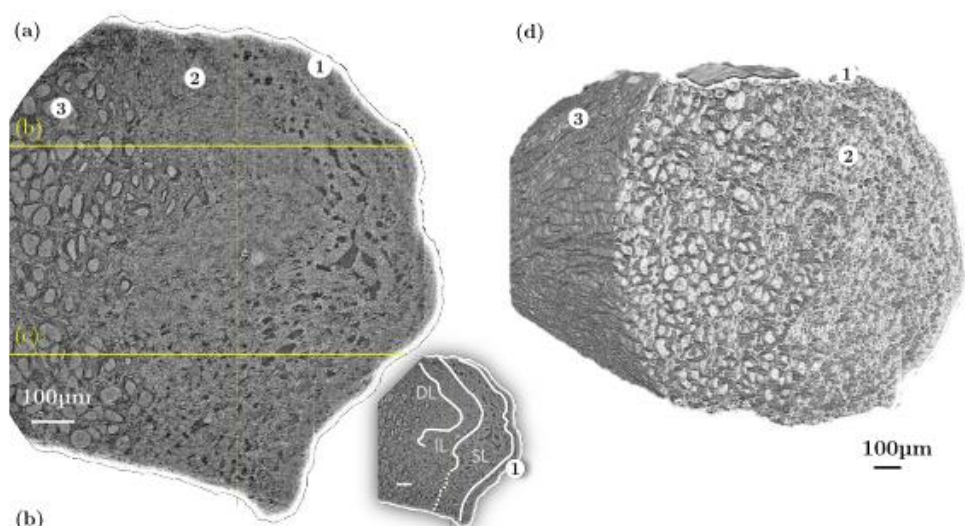
Research of Lucie Bailly (Grenoble):
3D multiscale imaging of human vocal folds using
synchrotron X-ray microtomography in phase retrieval mode.
Bailly L, Cochereau T, Orgéas L, Henrich Bernardoni N,
Rolland du Roscoat S, McLeer-Florin A, Robert Y, Laval X,
Laurencin T, Chaffanjon P, Fayard B, Boller E.
Sci Rep. 2018 Sep 18;8(1):14003. doi: 10.1038/s41598-018-
31849-w.



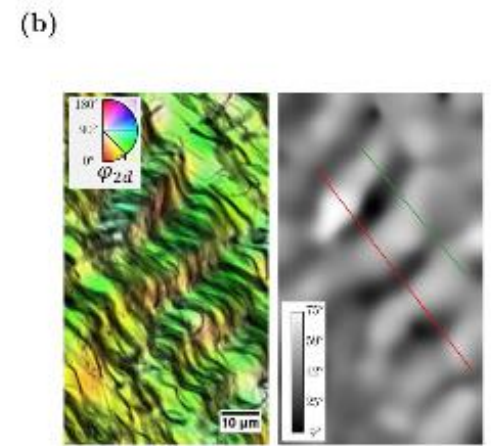
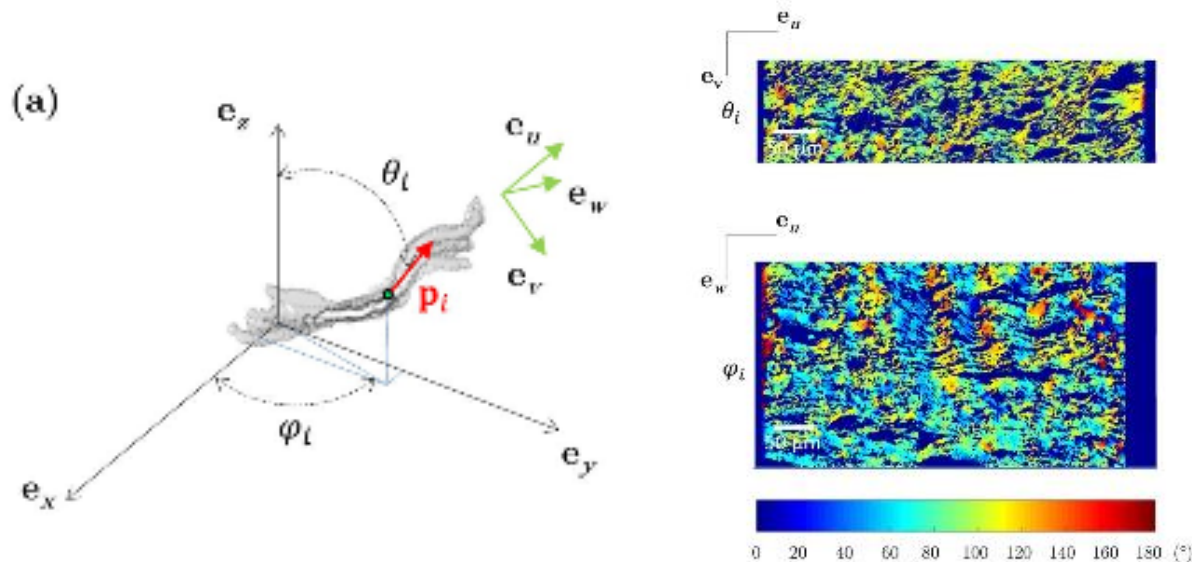
- Vocal muscle:

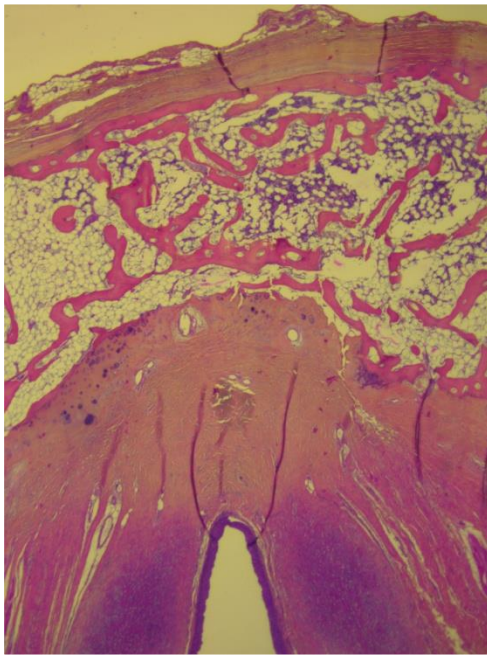
- Close to the lamina propria,
 - Fibers orientated longitudinally
- 1 mm and more from the lamina propria,
 - Some fibers orientated orthogonally
 - Transition between vocalis and LCA





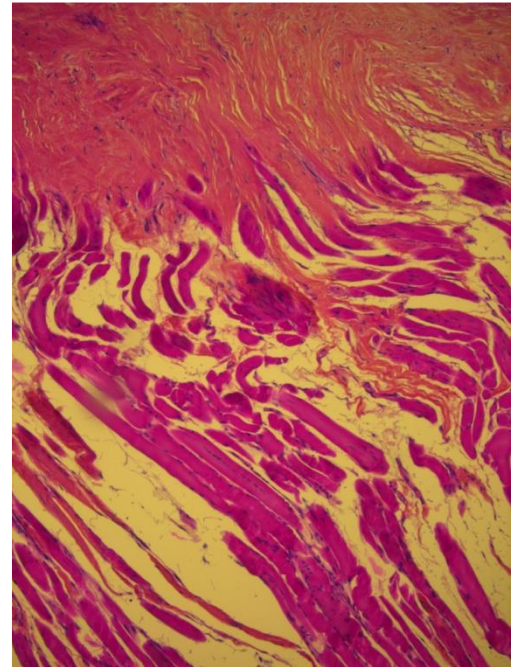
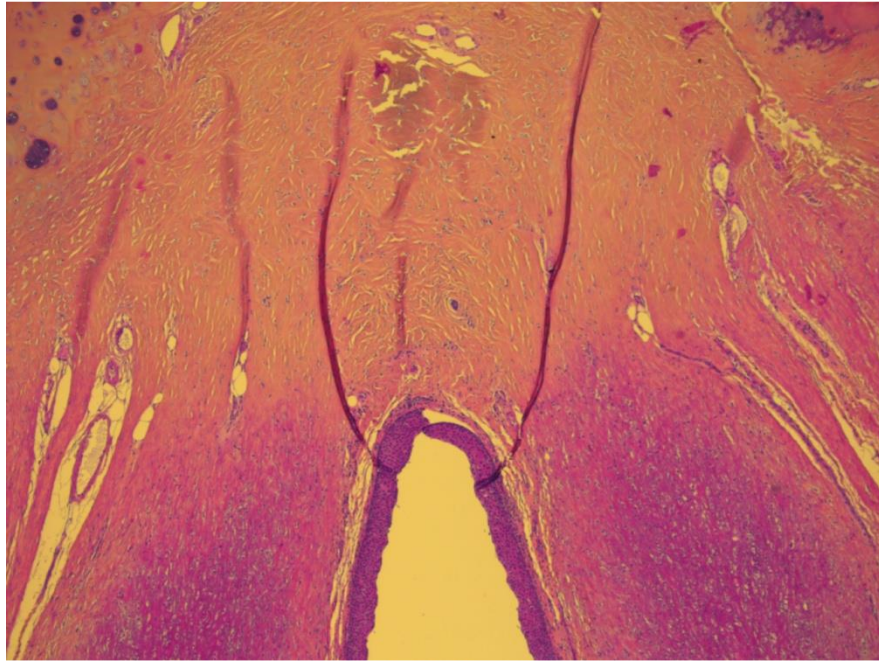
- Orientation of the fibers (collagen) in the LP
 - Longitudinal, slightly oblique with antéro-postérieur and médio-latéral orientation
 - Wavy
 - Diameter $50\mu\text{m}$, length: $400\mu\text{m}$





Anterior Commissure

- Maculae flavae
- Absence of périchondrium



Thank you for your attention!

