

**AFCE 2024** 

**DU 04 AU 05 AVRIL 2024**

**VILLA GABY - MARSEILLE**

**18<sup>ème</sup> Congrès de l'Association  
Francophone de Chirurgie  
Endocrinienne**

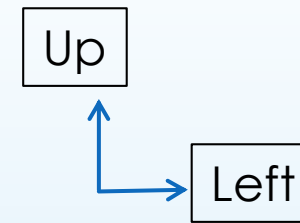
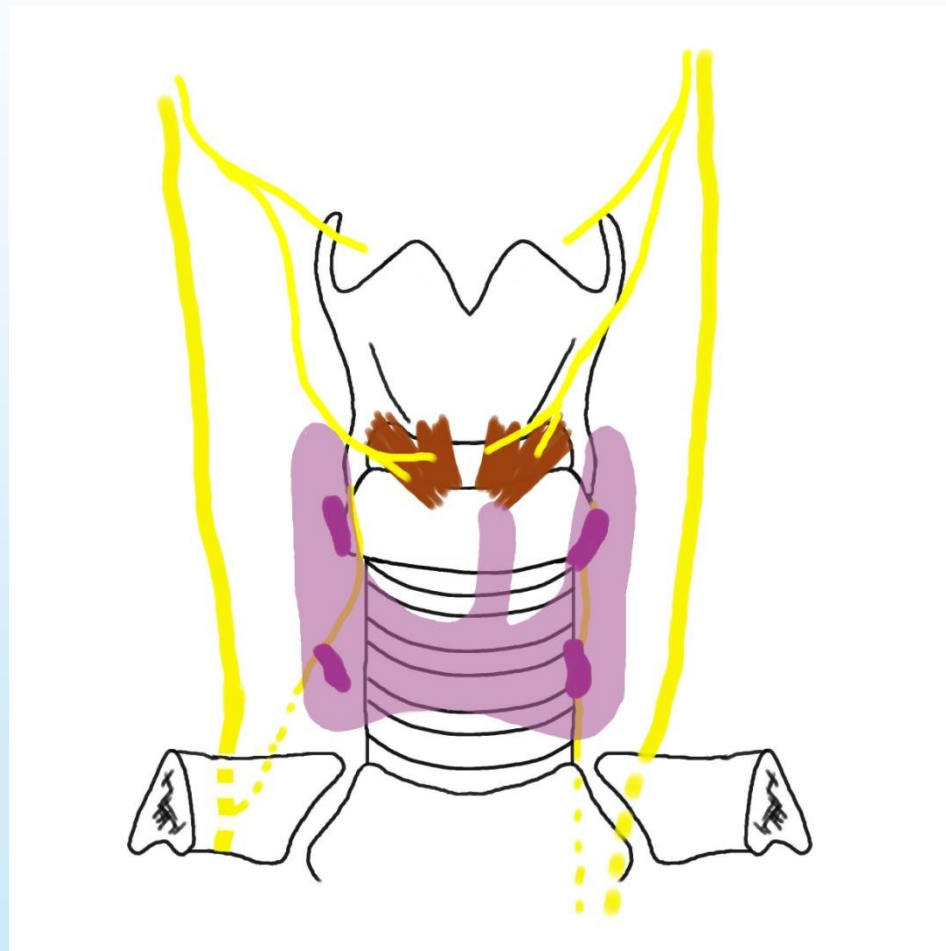
**04 AVRIL - Symposium : L'hyperparathyroïdie primaire (pHPT)**

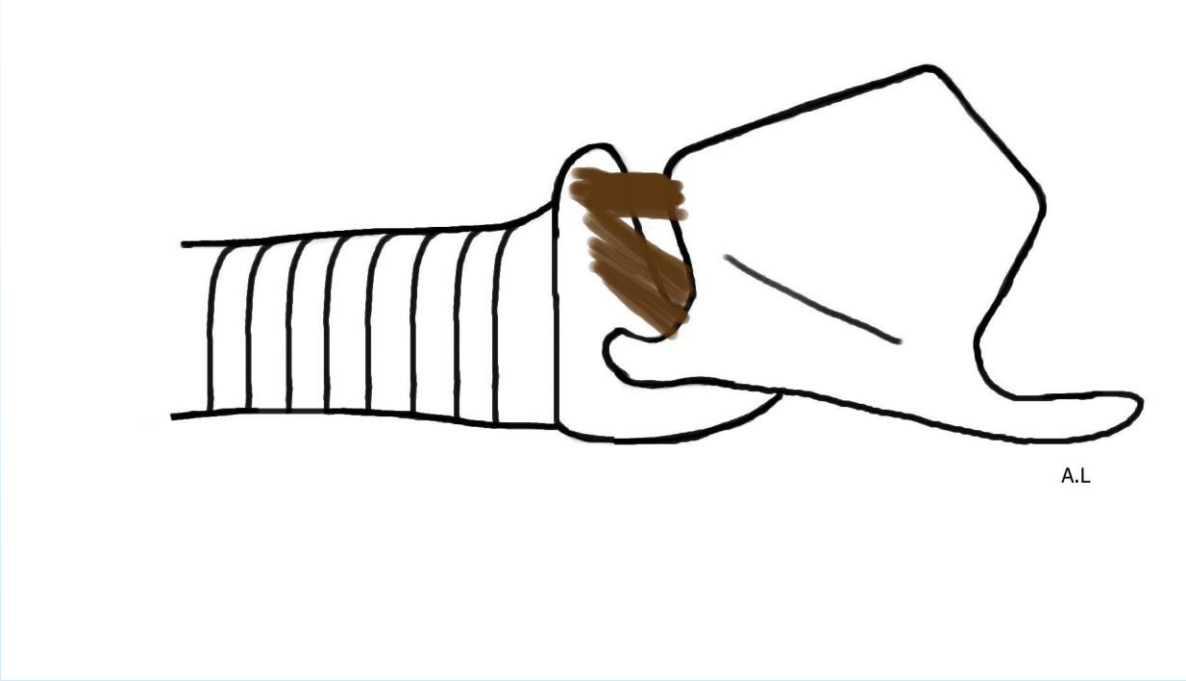


# Laryngeal nerve injuries : What's new in the management?

Aude Lagier (MD, PhD)  
CHU de Liège, Belgium

# Laryngeal nerves and Thyroid/parathyroid glands

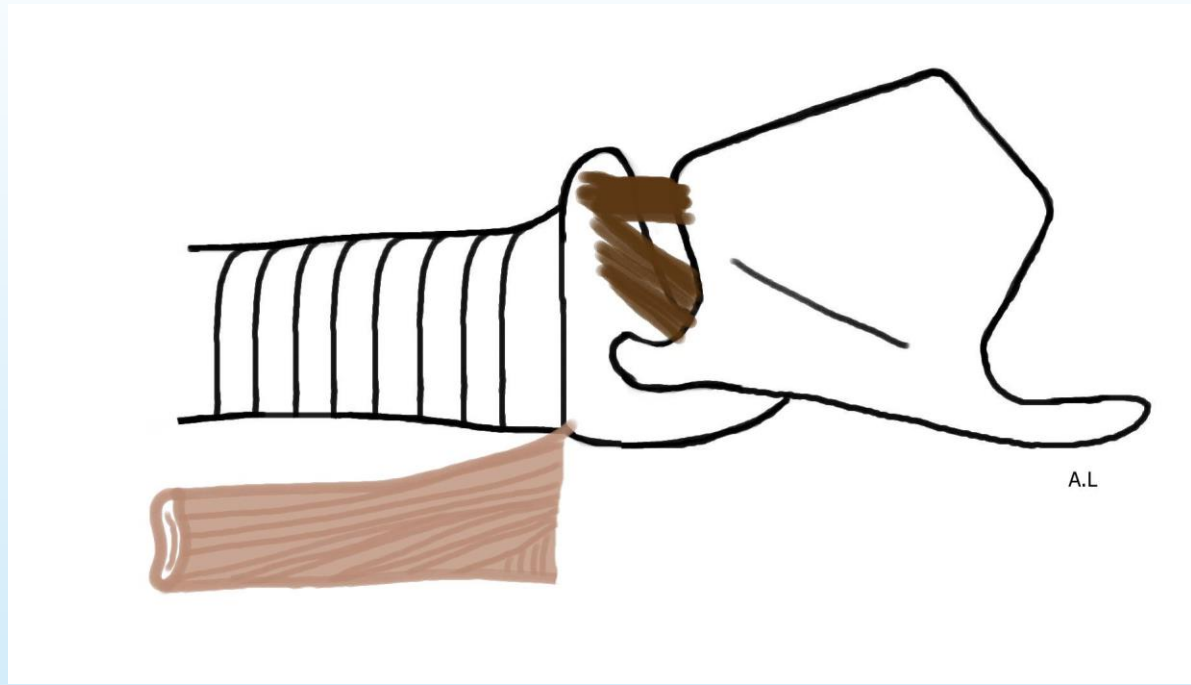




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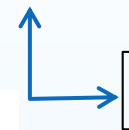
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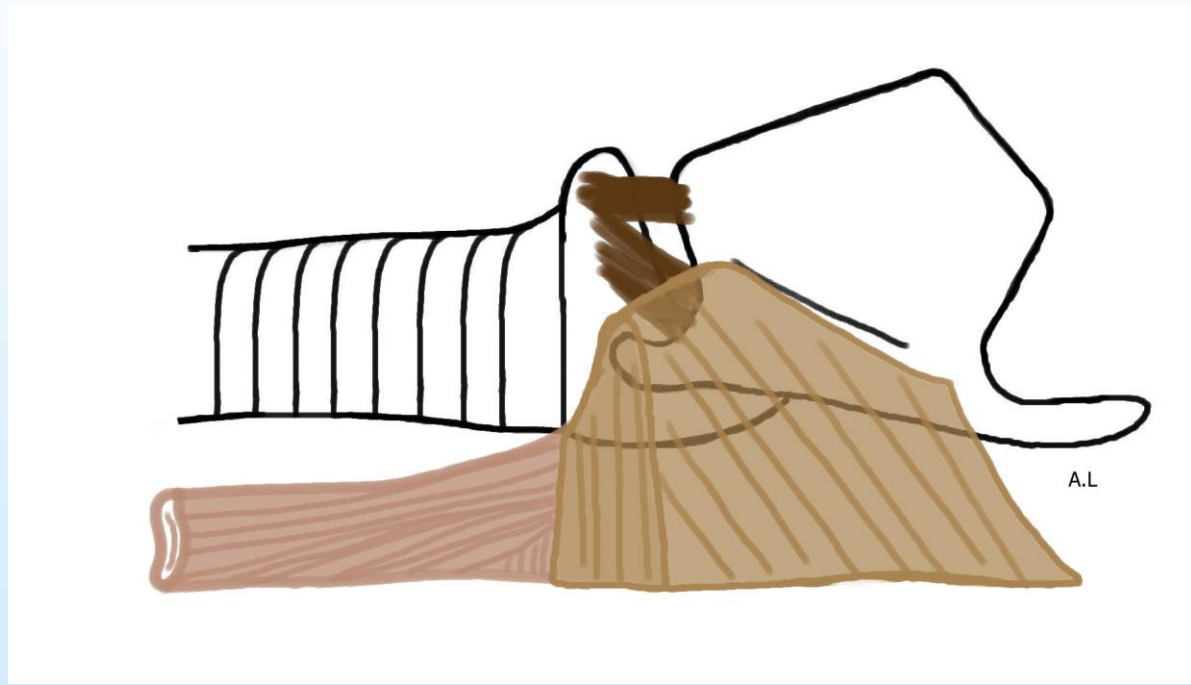




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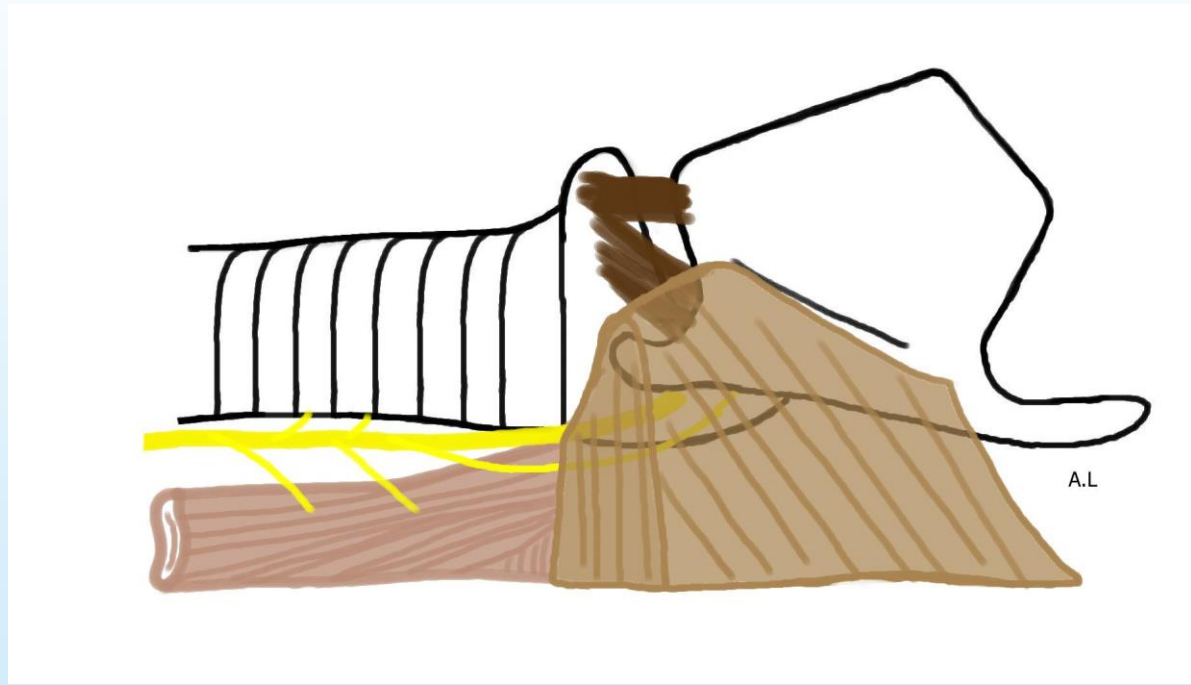




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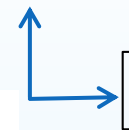
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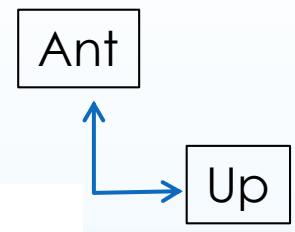
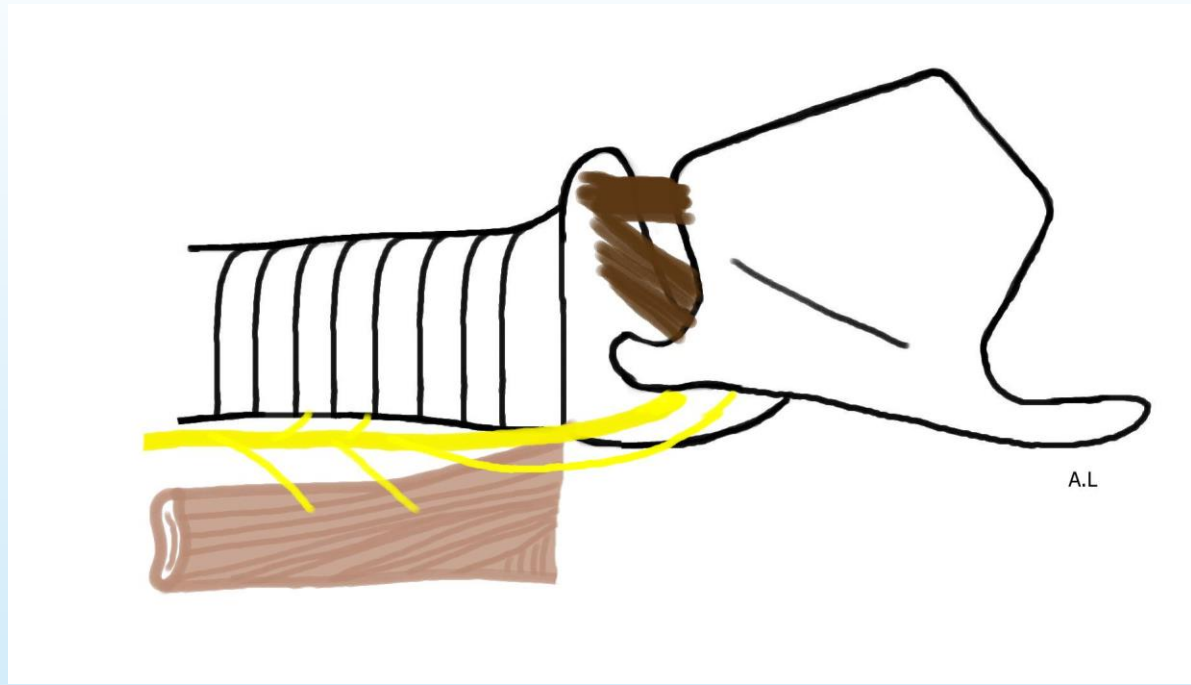


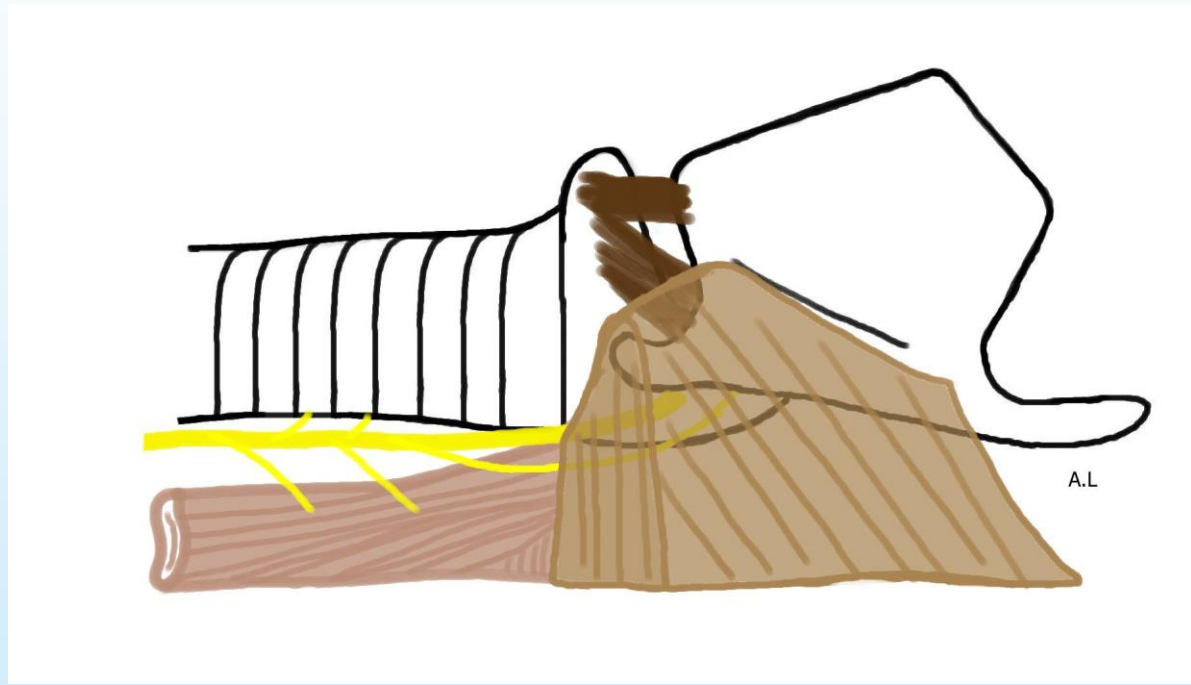


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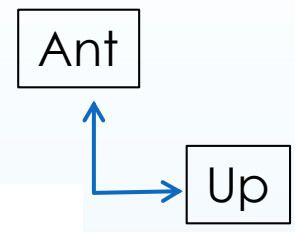
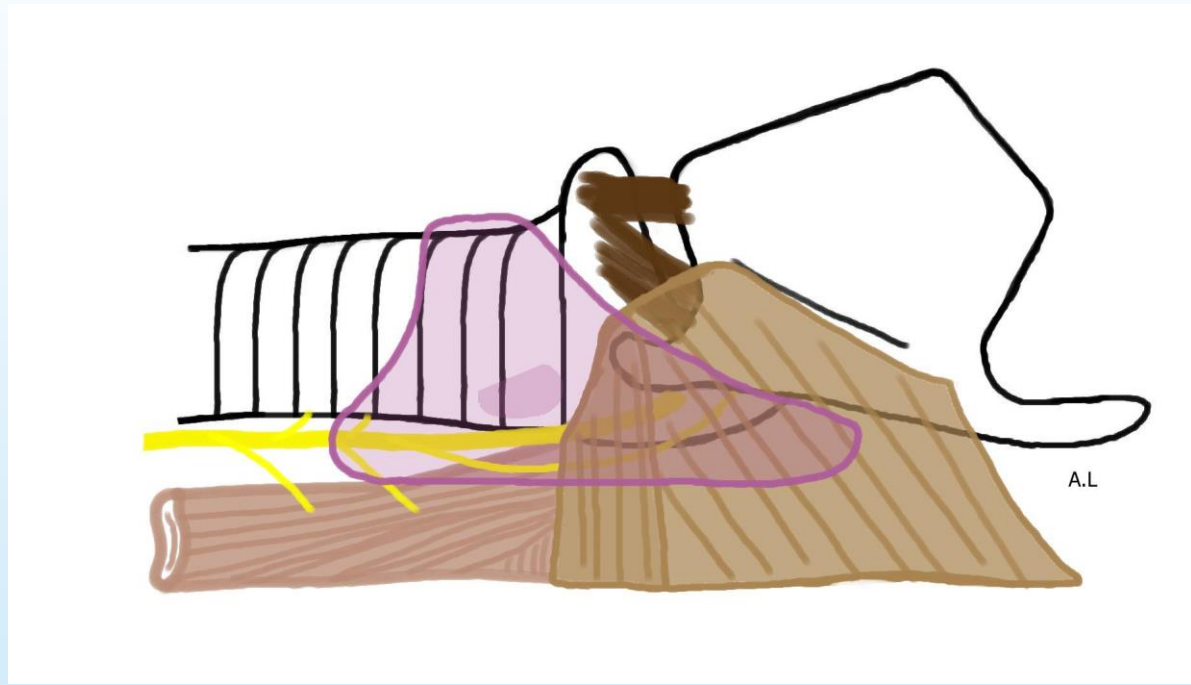


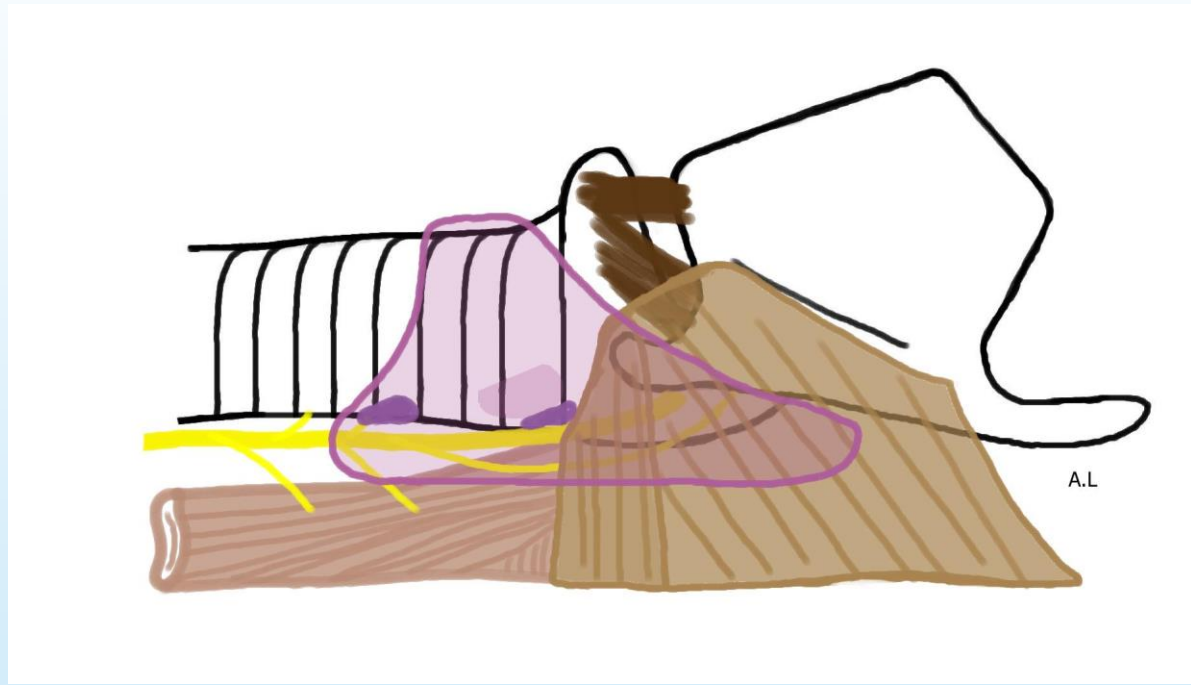
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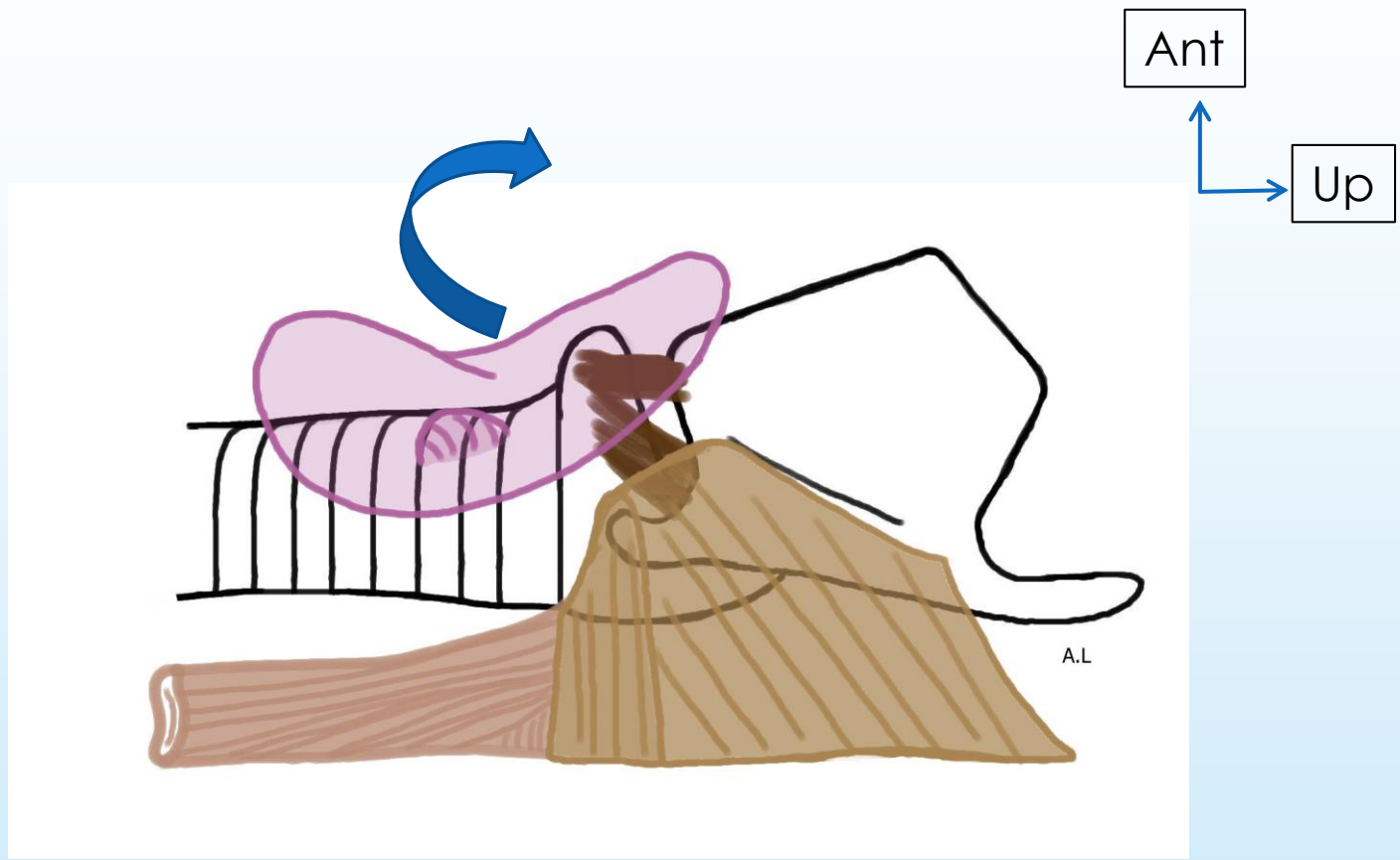


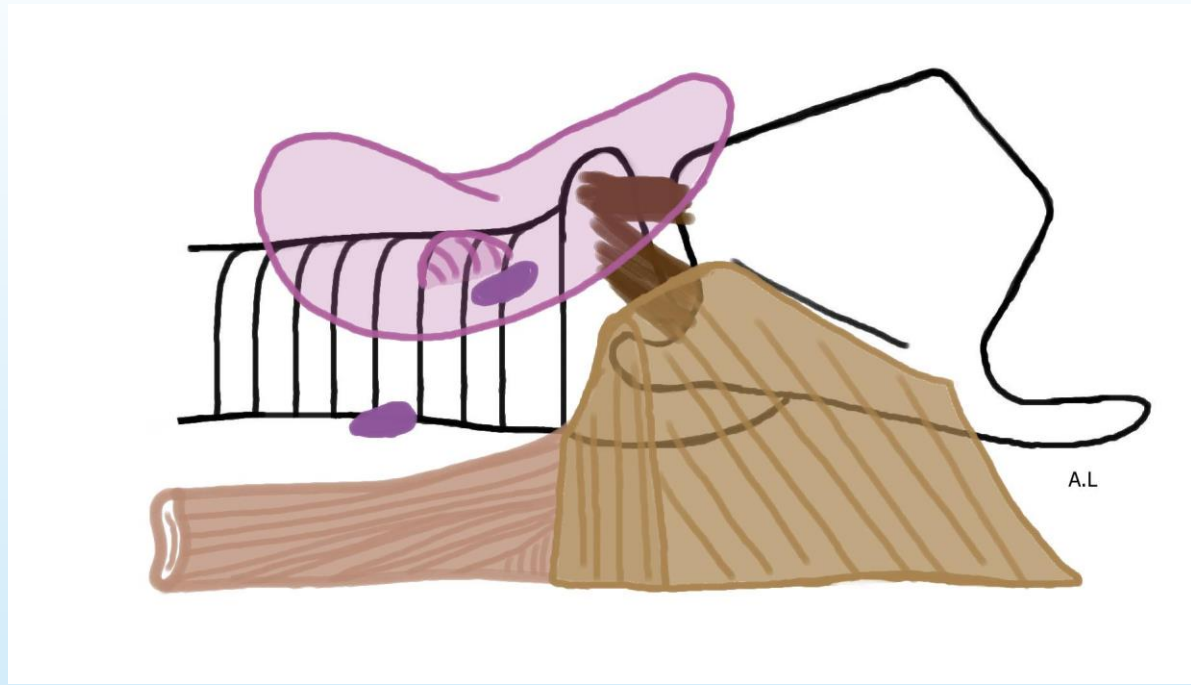


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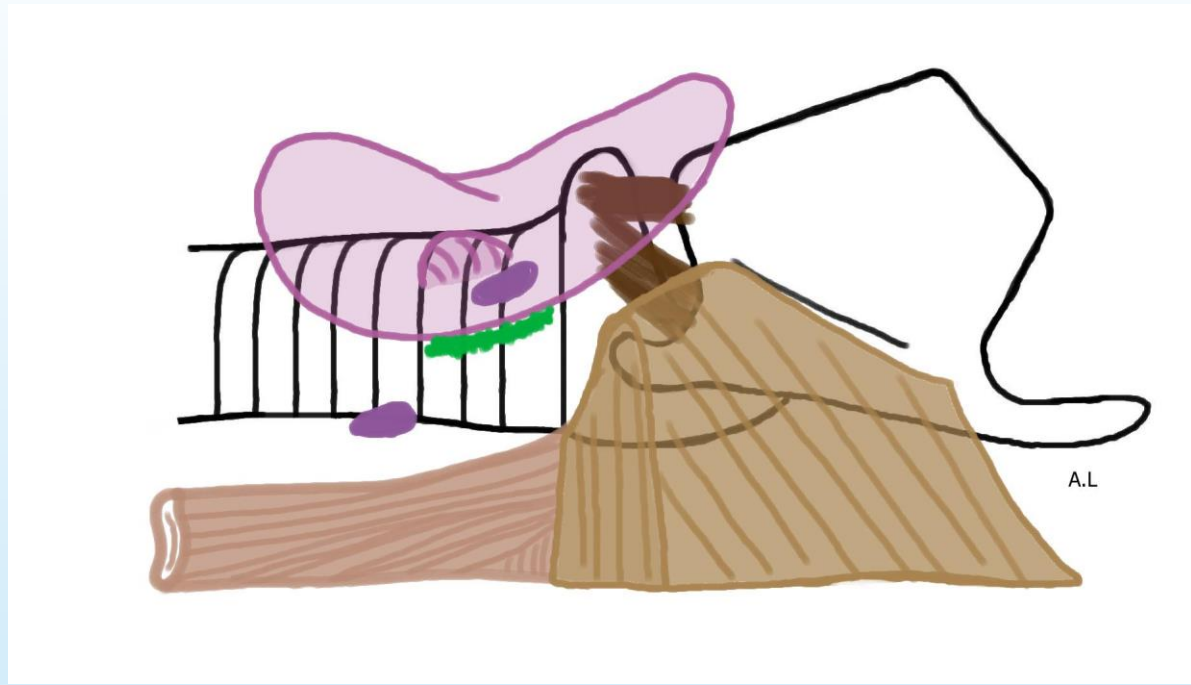




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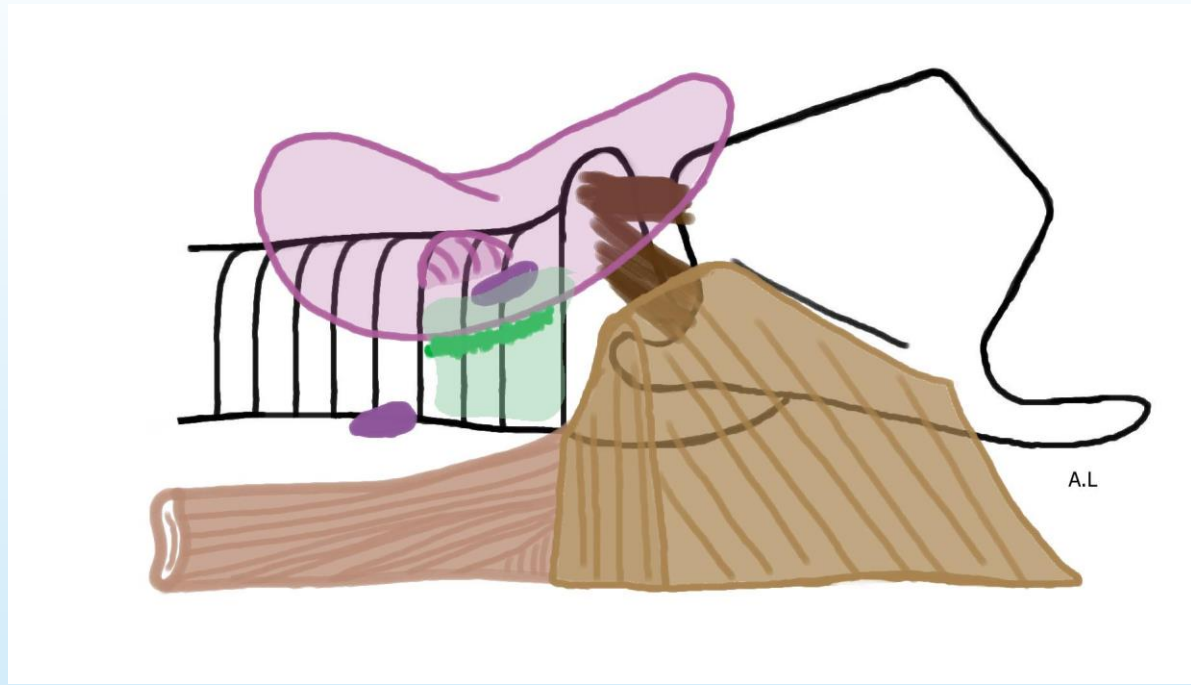




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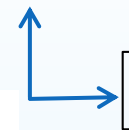
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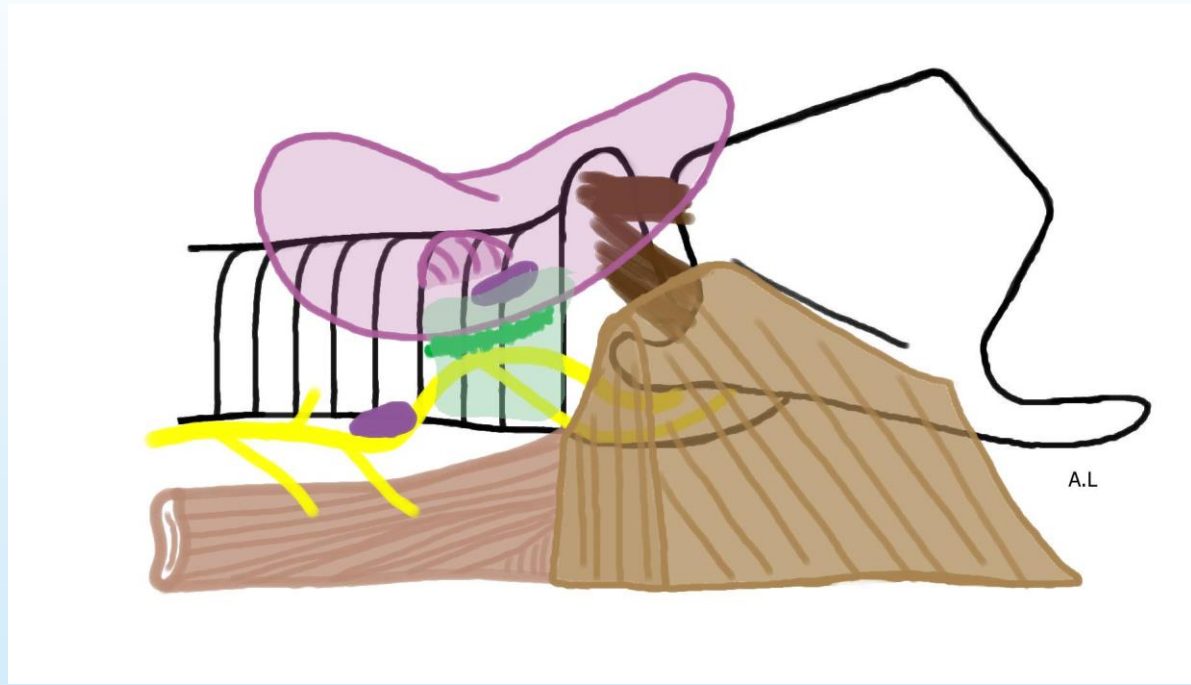




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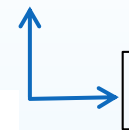
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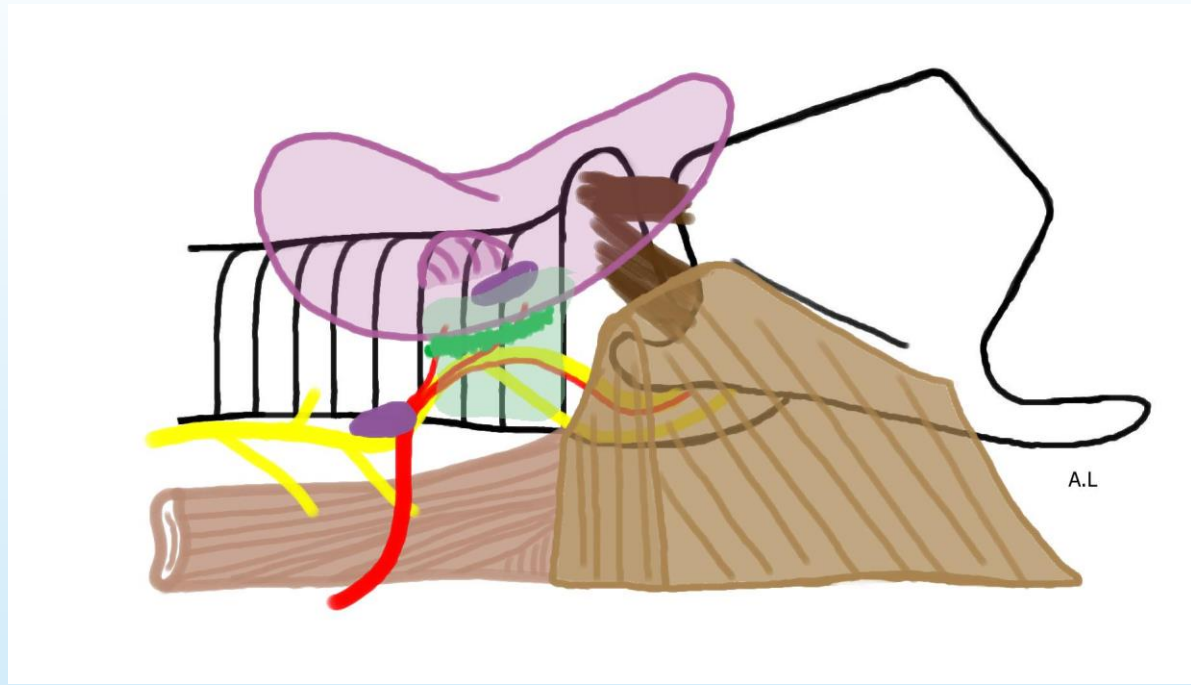




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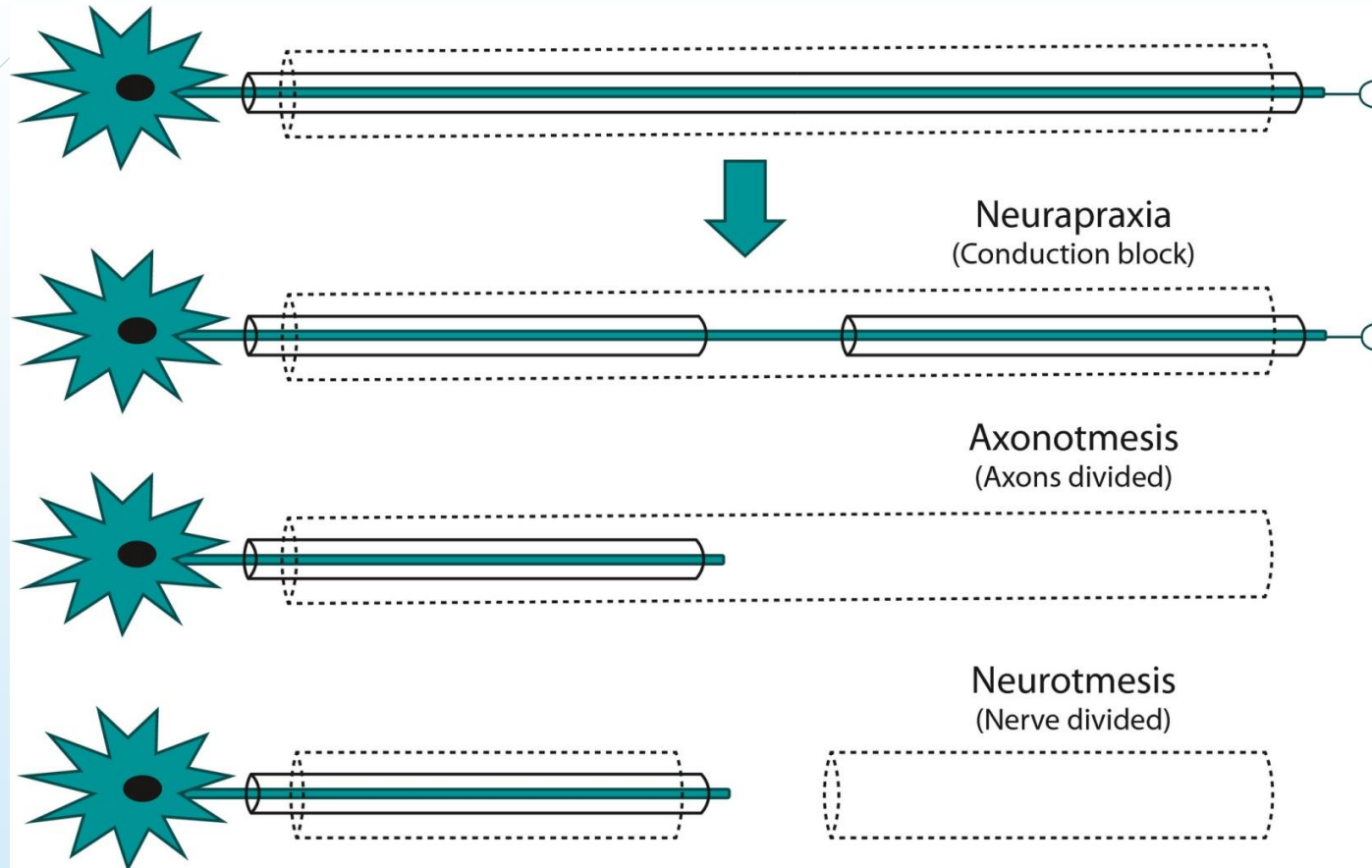
# Recurrent laryngeal nerves injuries

- ▶ Prevalence: 3,8-21,8%
- ▶ Controversies about IONM
  - ▶ VFP are not eradicated



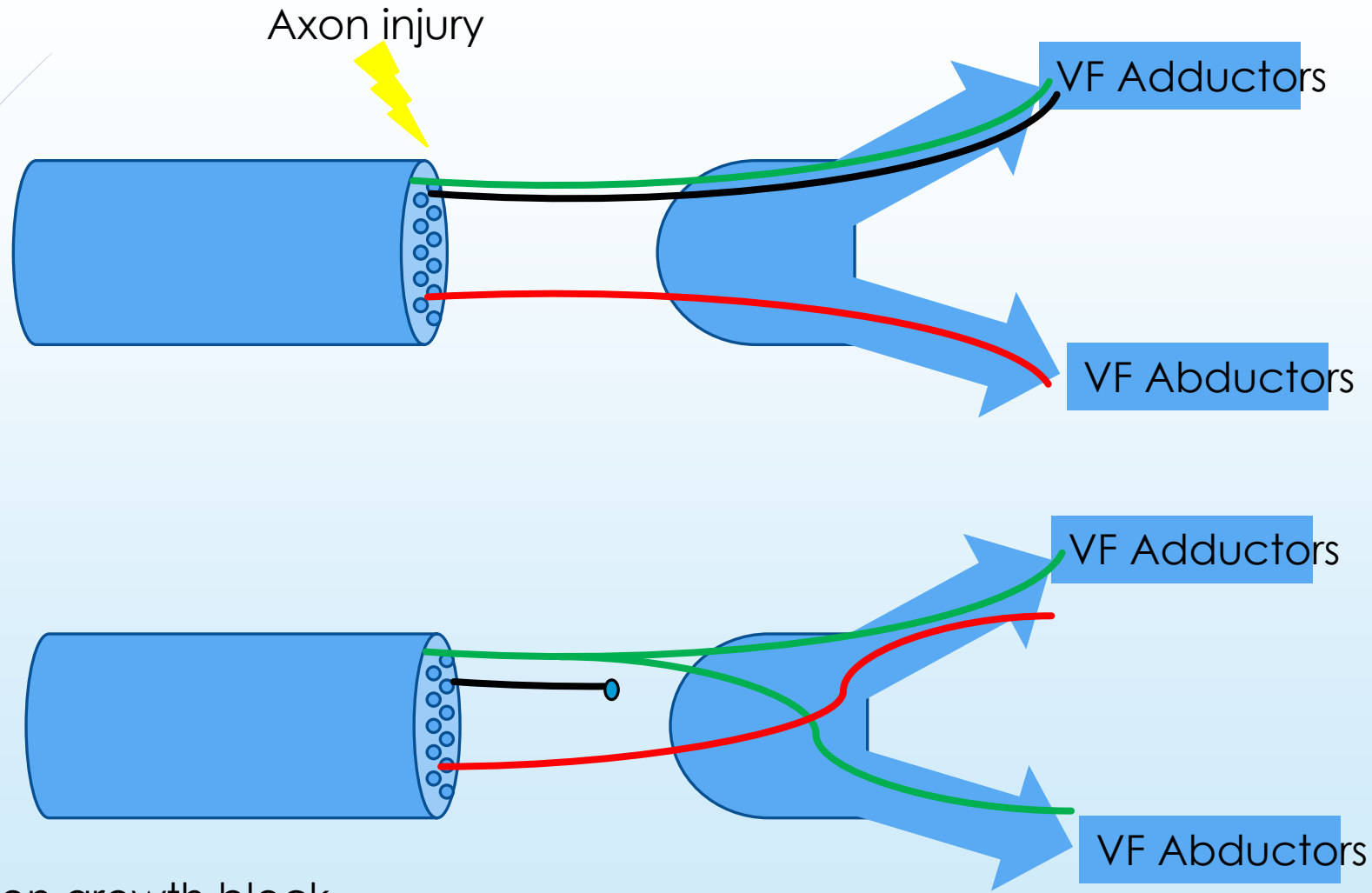
- Lifante J-C, Payet C, Ménégaux F, et al. Can we consider immediate complications after thyroidectomy as a quality metric of operation? *Surgery* 2017;161:156—65, <http://dx.doi.org/10.1016/j.surg.2016.04.049>.
- Wojtczak B, Marciniak D, Kaliszewski K, et al. [Proving the Superiority of Intraoperative Recurrent Laryngeal Nerve Monitoring over Visualization Alone during Thyroidectomy](#). *Biomedicines*. 2023 Mar 13;11(3):880. doi: 10.3390/biomedicines11030880.
- Donatini G, Van Slycke S, Bizard JP, Triponez F, Sebag F. [Place of laryngoscopy and neuromonitoring in thyroid surgery. Recommendations of the AFCE \(Association francophone de chirurgie endocrinienne\) with the SFE \(Société française d'endocrinologie\) and the SFMN \(Société française de médecine nucléaire\)](#). *Najah H, J Visc Surg*. 2023 Jun;160(3S):S88-S94. doi: 10.1016/j.jviscsurg.2023.04.004.

# Severity of nerve injuries



Milder injury -> faster and more physiologic recovery

# Nerve recovery after axonal injury: basis of synkinesis



- Axon growth block — blue line
- Axon sprouting — green line
- Axon misdirection — red line

# Laryngeal synkinesis

- ▶ Voice recovery is not mobility recovery
  - ▶ Laryngeal synkinesis (R. Crumley)
    - ▶ Type I: good voice
    - ▶ Type II: involuntary twitches and poor voice
    - ▶ Type III: adduction during inspiration
    - ▶ Type IV: abduction during phonation
- ▶ EMG synkinesis rate is lower in TA than in PCA,
- ▶ EMG synkinesis rate highest (TA and PCA) in Crumley type I

[Crumley's Classification of Laryngeal Synkinesis: A Comparison of Laryngoscopy and Electromyography.](#) Foerster G, Podema R, Guntinas-Lichius O, Crumley RL, Mueller AH.

Laryngoscope. 2020 Nov 21. doi: 10.1002/lary.29275

[Laryngeal synkinesis revisited.](#) **Crumley RL.** Ann Otol Rhinol Laryngol. 2000 Apr;109(4):365-71. doi: 10.1177/000348940010900405

# Iatrogenic UVFP and timeline

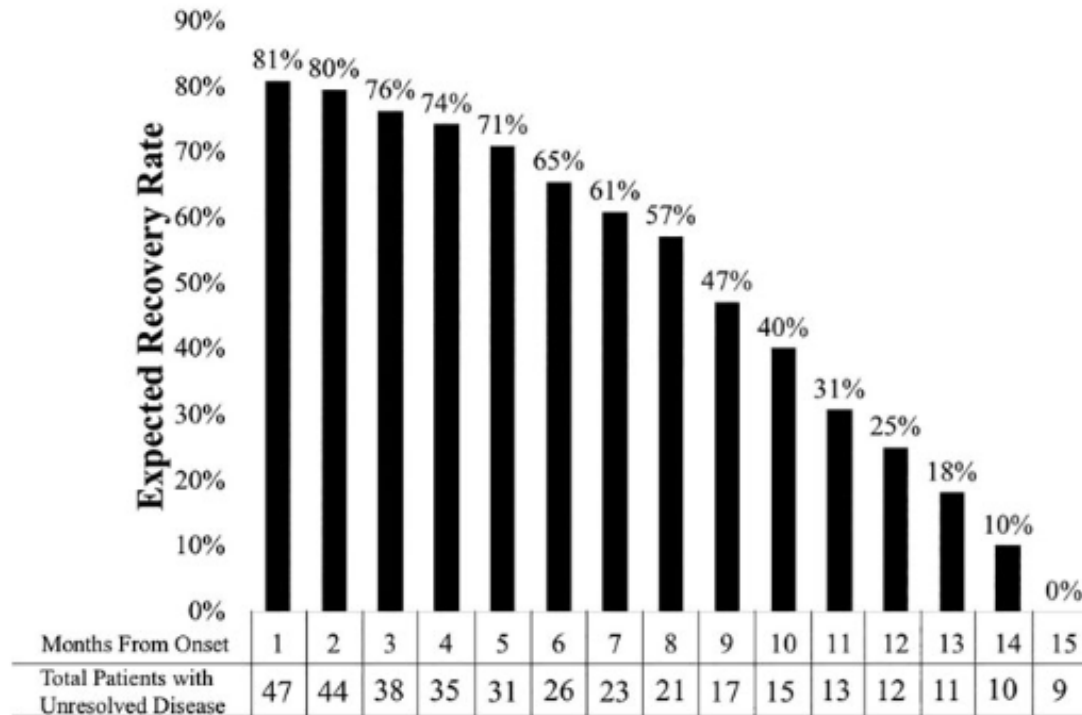


Fig. 4. Proportion of iatrogenic vocal fold paralysis patients who will recover, according to month from onset, shown as a percentage of the total number of patients who still have not recovered at X number of months. The total number of patients with unresolved disease decreases each month as patients who recover are eliminated from the pool. This number is shown below the graph. The percentages shown reflect the patients who will eventually recover but have not yet over the total number of patients still with unresolved disease at that time point.


- ▶ Percentages of voice recovery as function of time since the onset

## Time Course of Recovery of Iatrogenic Vocal Fold Paralysis.

Husain S, Sadoughi B, Mor N, Sulica L. *Laryngoscope*. 2019 May;129(5):1159-1163. doi: 10.1002/lary.27572.



# Aims of the treatment-UVFP

- ▶ Improve the voice of patients
    - ▶ And liquids swallowing safety
  - ▶ Adapted to the expected evolution of voice
  - ▶ Adapted to the patient's expected survival
  - ▶ Adapted to the patient's health condition at the moment of the treatment
- 

A diagram illustrating the timeline and surgical approach for recurrent laryngeal nerve (RLN) injury. A large blue arrow on the left points right towards a vertical blue bar. At the top of the bar, a yellow lightning bolt labeled 'Injury' strikes. A horizontal orange line extends from the lightning bolt to the text 'Immediate nerve suture !!!!'. Further down the bar, a horizontal orange line is labeled '6-12 months'. At the bottom of the bar, a dashed line indicates a surgical approach. The background features a stylized blue and white graphic of a larynx and trachea on the left side.

Injury

## Immediate nerve suture !!!!

- Suture RLN to RLN
  - When enough length
  - End to end suture
  - Epi-peri-neural stitches
  - Under microscope or surgical loops
  - 9/0 thread
- Suture Ansa cervicalis (branch)-RLN
  - In case of RLN resection

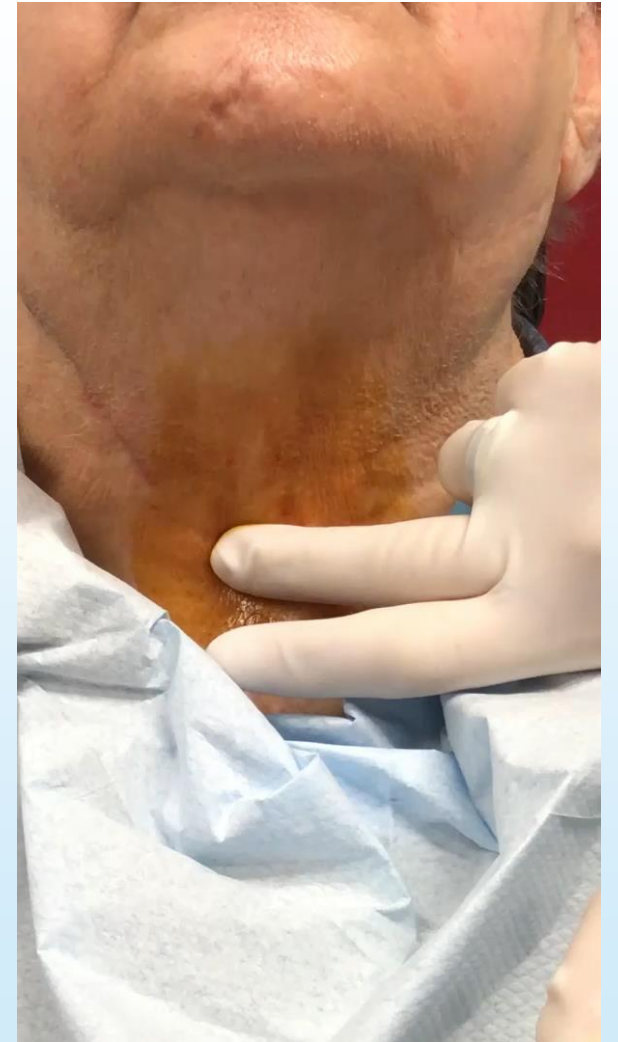
- Sanuki T, Yumoto E, Minoda R, Kodama N. [The role of immediate recurrent laryngeal nerve reconstruction for thyroid cancer surgery](#). Journal of oncology. 2010;2010:846235
- Hong JW, Roh TS, Yoo HS, et al.. [Outcome with immediate direct anastomosis of recurrent laryngeal nerves injured during thyroidectomy](#). Laryngoscope. 2014 Jun;124(6):1402-8. doi: 10.1002/lary.24450.

# Patient with good survival expectation and good health condition

Injury

6-12  
months

+/- Speech therapy  
Vocal fold augmentation with injection  
Resorbable device: hyaluronic acid  
Local anesthesia





# Patient with good survival expectation and good health condition

Injury

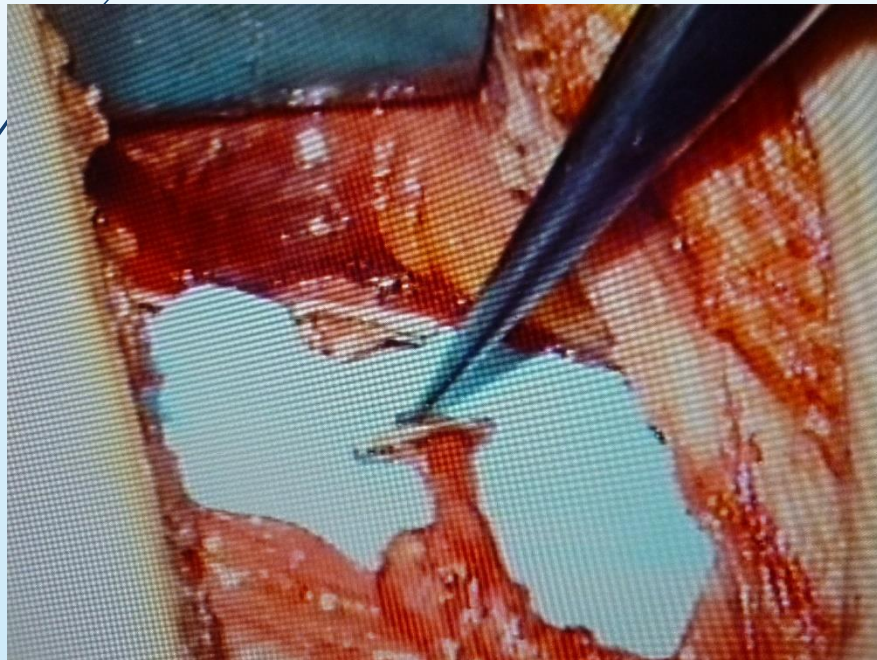
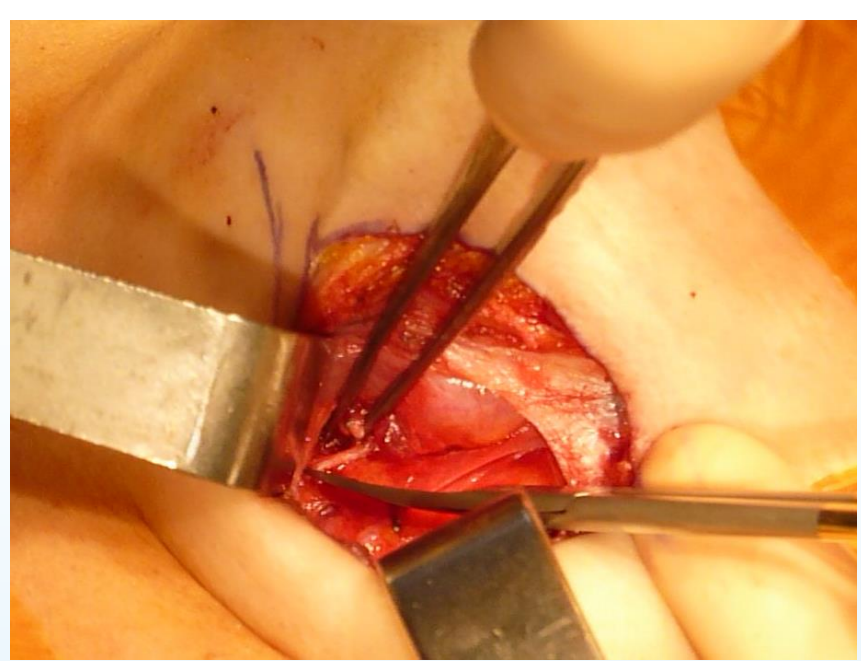
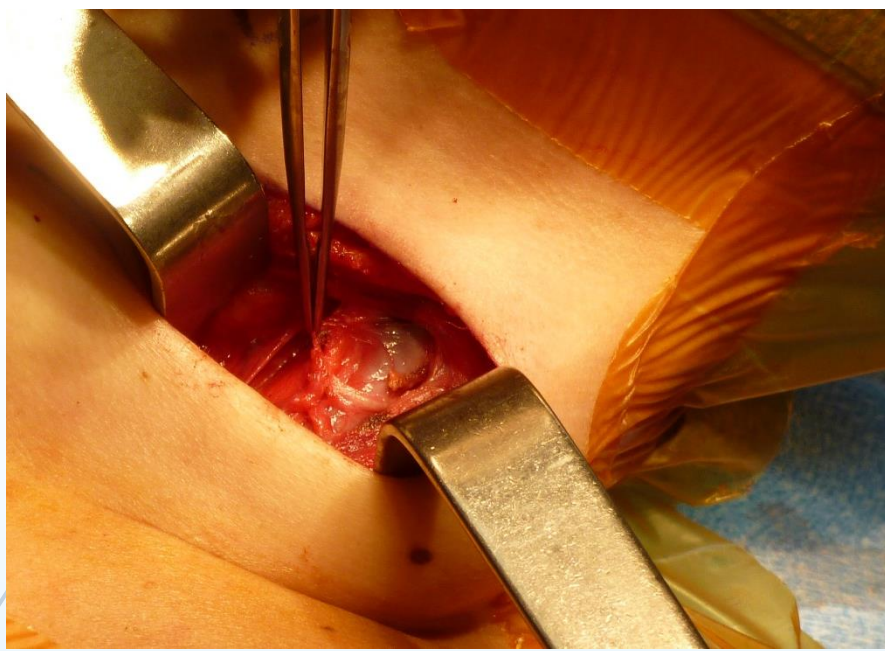
6-12 months

Vocal fold augmentation with injection  
Resorbable device: hyaluronic acid  
Local anesthesia

Definitive treatment:

Young patients (<60 years old)  
Unilateral laryngeal reinnervation

Nonselective Reinnervation as a Primary or Salvage Treatment of Unilateral Vocal Fold Palsy. **Marie JP**, Hansen K, Brami P, Marronnier A, Bon-Mardion N. Laryngoscope. 2020 Jul;130(7):1756-1763. doi: 10.1002/lary.28324.



# Patient with good survival expectation and good health condition

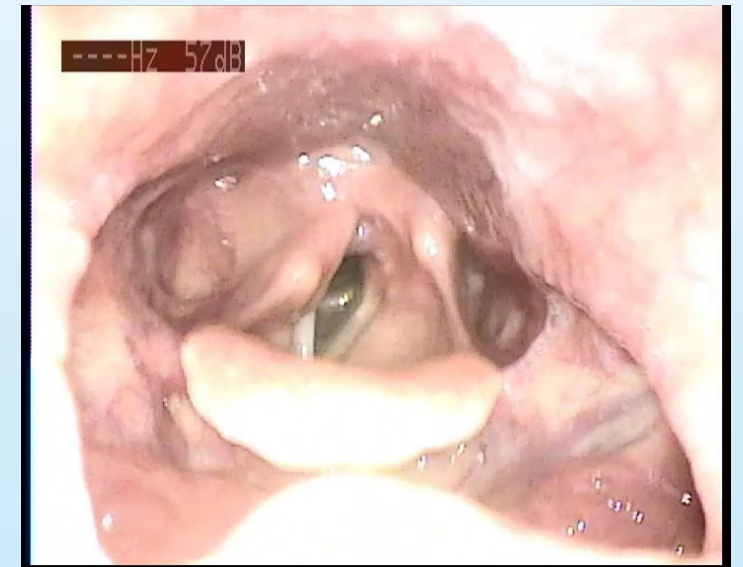
Injury

6-12 months

Vocal fold augmentation with injection  
Resorbable device: hyaluronic acid  
Local anesthesia

Definitive treatment:

Young patients (<60 years old)  
Unilateral laryngeal reinnervation



# Patient with good survival expectation and good health condition

Injury

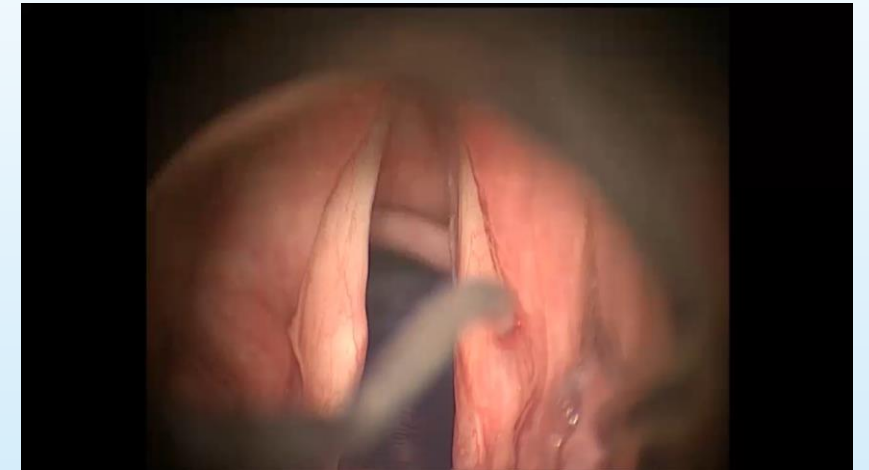
6-12 months

Vocal fold augmentation with injection  
Resorbable device: hyaluronic acid  
Local anesthesia

Definitive treatment:

Young patients (<60 years old)  
Unilateral laryngeal reinnervation

>60 year-old-patients  
Fat injection



# Patient with good survival expectation and good health condition

Injury

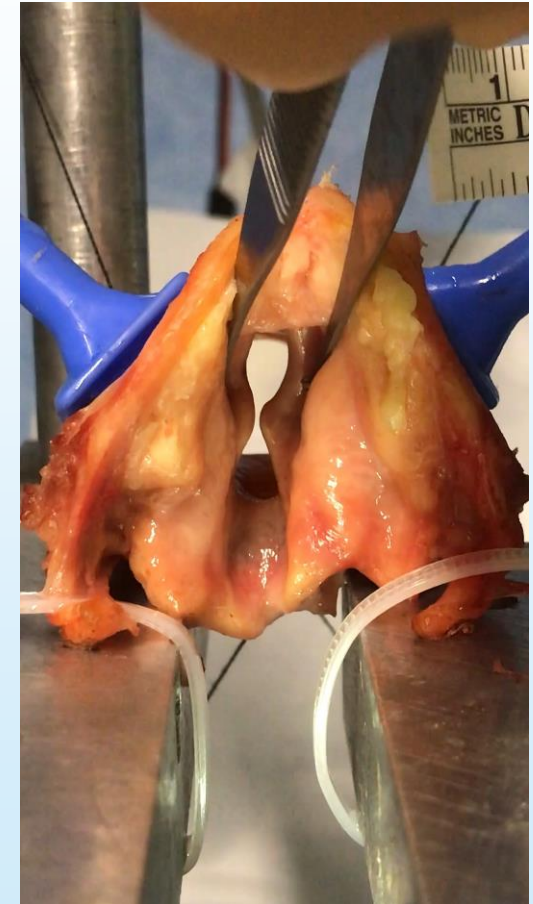
6-12  
months

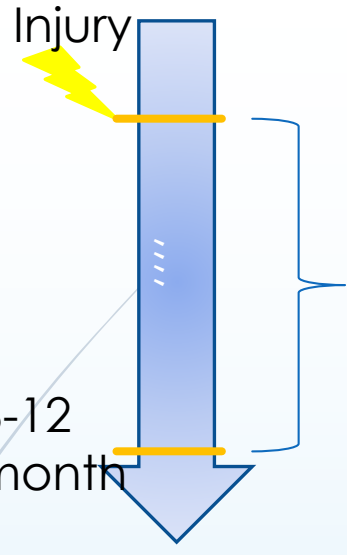
Vocal fold augmentation with injection  
Resorbable device: hyaluronic acid  
Local anesthesia

Definitive treatment:

Young patients (<60 years old)  
Unilateral laryngeal reinnervation

>60 year-old-patients  
Fat injection  
Thyroplasty





# Patient with poor survival expectation (<2 years)

## Definitive treatment

Good health condition

- General anesthesia:  
Autologous fat injection
- Local +/-sedation  
Thyroplasty

Poor health condition/  
contra-indication to general  
anesthesia:

- Fiberscope guided  
injection  
Hyaluronic acid  
(juvederm®),  
Calcium hydroxyapatite  
(Renu Voice®)
- Thyroplasty

Very poor health condition:

- Fiberscope guiding  
injection  
Hyaluronic acid  
(juvederm®),  
Calcium hydroxyapatite  
(Renu Voice®)



# Conclusions: what's new

- ▶ Importance of synkinesis and nervous growth after injury
  - ▶ Denervation is a rare condition
- ▶ Early treatments
  - ▶ Per-op nerve sutures
  - ▶ Local, in-office VF medialization
- ▶ Definitive treatments
  - ▶ Suited for each patient and each time of the course of the UVFP
  - ▶ Sophisticated for healthy patients
  - ▶ Mini-invasive for frail patients



Thank you for your attention

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