Belgian Society For Swallowing Disorders

Everything you ought to know about the velum

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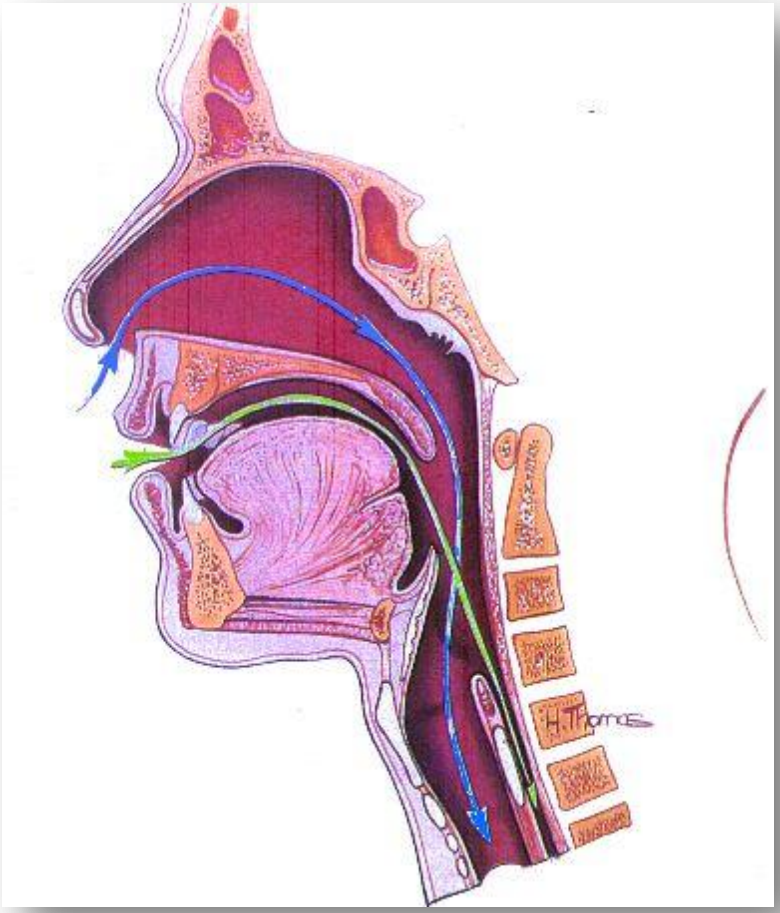
Velum is a shared structure

- Anatomically
  - Between the oral cavity, the rhinopharynx and the oropharynx
  - Close relationship with the auditive tube



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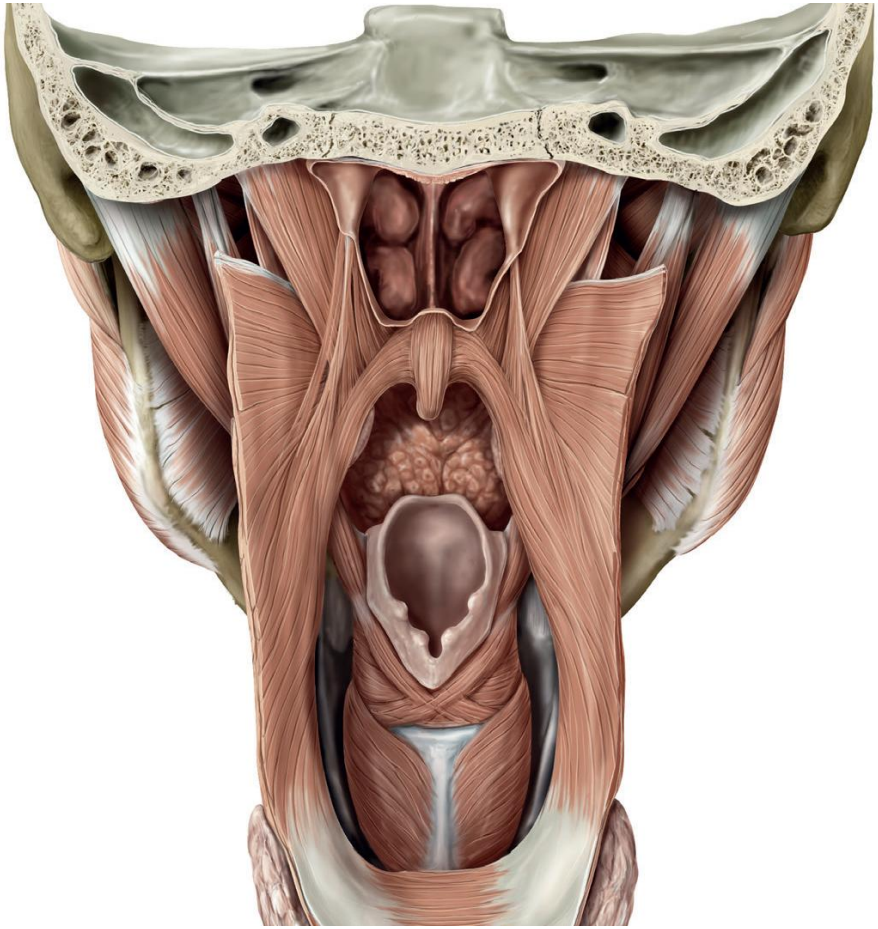
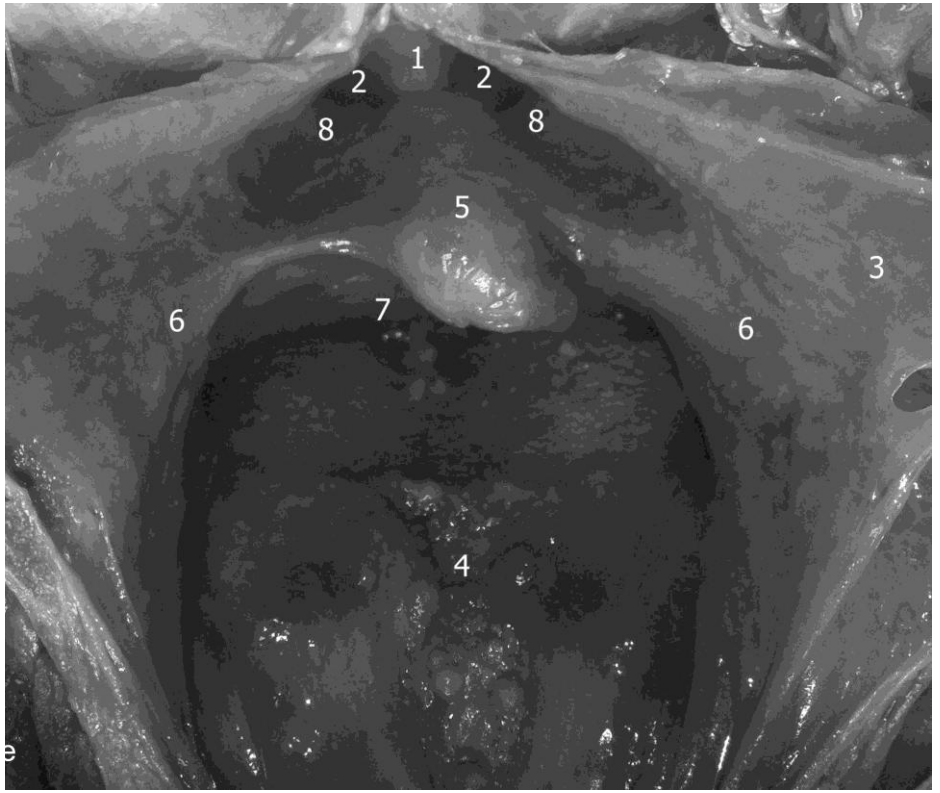
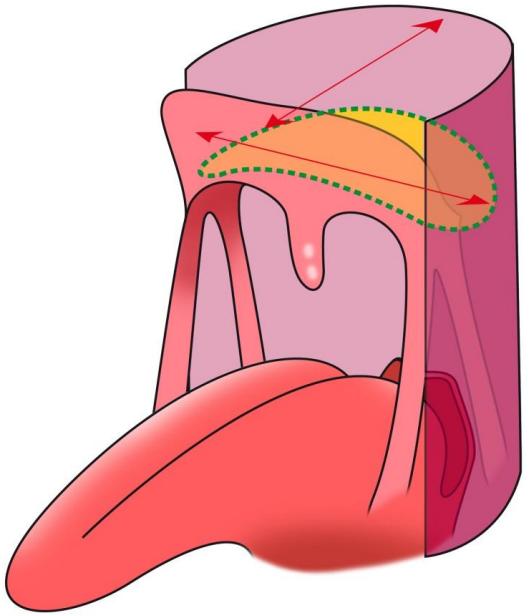
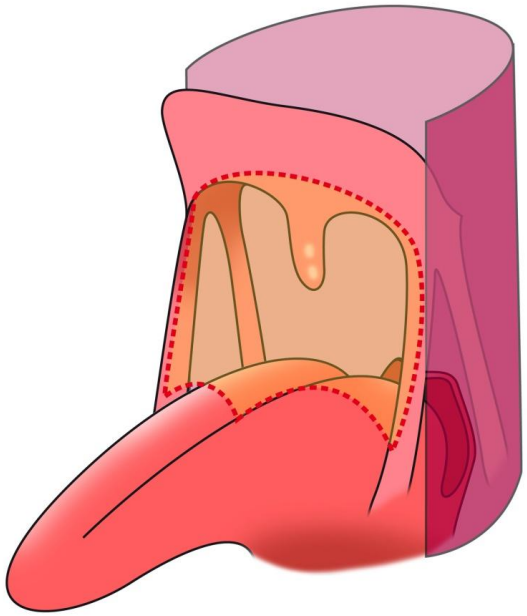




Velum is a shared structure

– Functionally
  - Belongs to the velo-pharyngeal and velo-lingual sphincters
  - So participates to the transition between oral and pharyngeal steps of the swallowing.



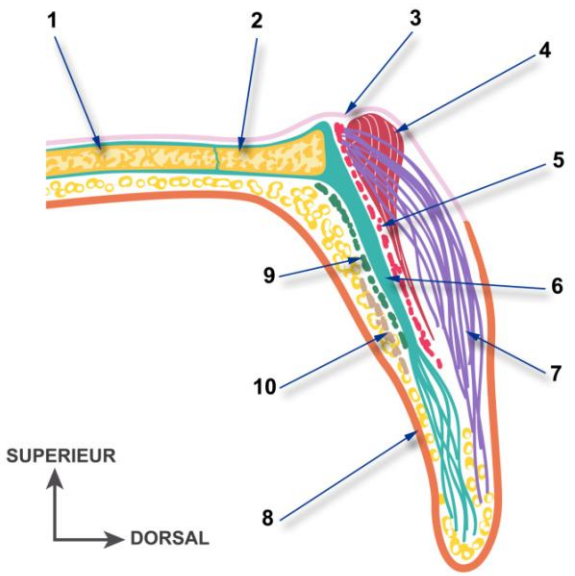


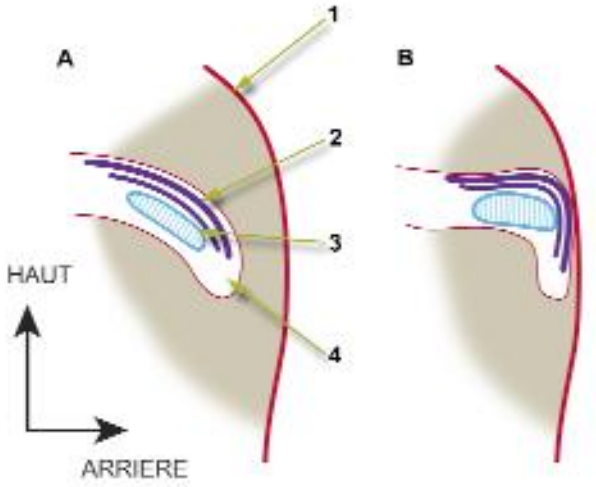
Velum is a shared structure

- Functionally
  - Belongs to the velo-pharyngeal and velo-lingual sphincters
  - Passavant's ridge can be physiologic

Velum’s constitution not so complicated

- Musculo-aponeurotic organ
- 4 extrisic muscles
  - Elevator
  - Tensor
  - Palato-glossus
  - Palato-pharyngeus
- 1 intrinsic muscle
  - Uvular





Velum’s constitution not so intricated

Velum has a shared innervation

- Sensibility:
  - Glosso-pharyngeus (IX) > vagus (X) nerve
- Motricity:
  - Glosso-pharyngeus (IX), vagus (X) >> trigeminal (V)

Velum examination

- Observation
  - Oral approach
  - Nasal endoscopic +++
  - Videofluoroscopic

Velum examination

- Functional assessement
  - Vélo-pharyngeal sphincter
    - Perceptive assessment of the nasality
      - Borel-Maisonny classification:
        - » I: norma
        - » IIb: rhinolalia but good intelligibility
        - » IIm: rhinolalia with poor intelligibility
        - » III: presence of glottal breaks
    - Acoustic assessment
      - 2 separated microphones nasal
    - Aerodynamic assessment
      - Oral and nasal airflow

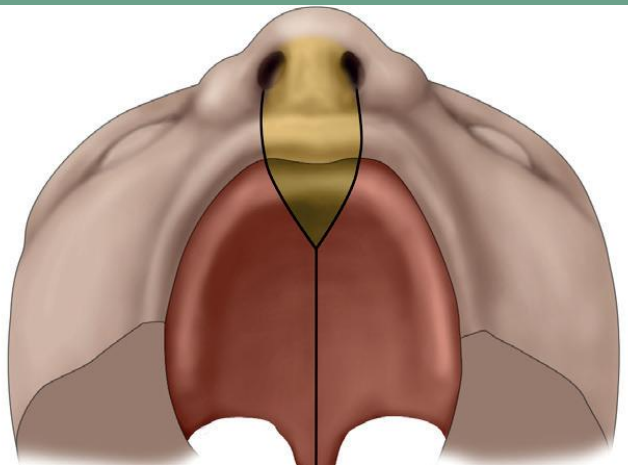
Velum examination

- Functional assessement
  - Vélo-pharyngeal sphincter
    - Oral sentence: « ta toupie va trop vite », N<7%
    - Nasal sentence: « maman a mal aux mains », N>30%

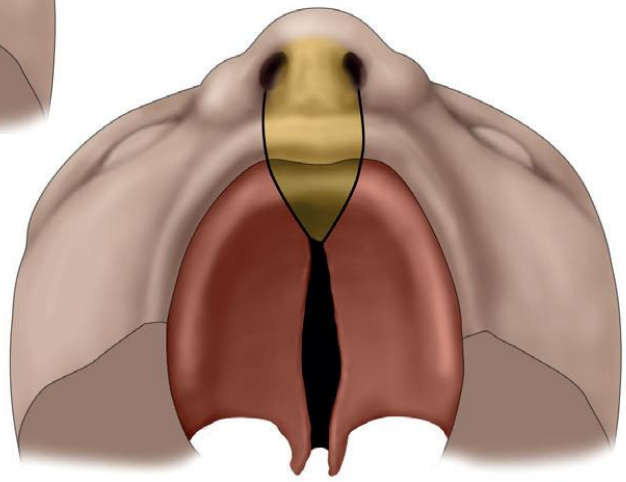
Velum examination

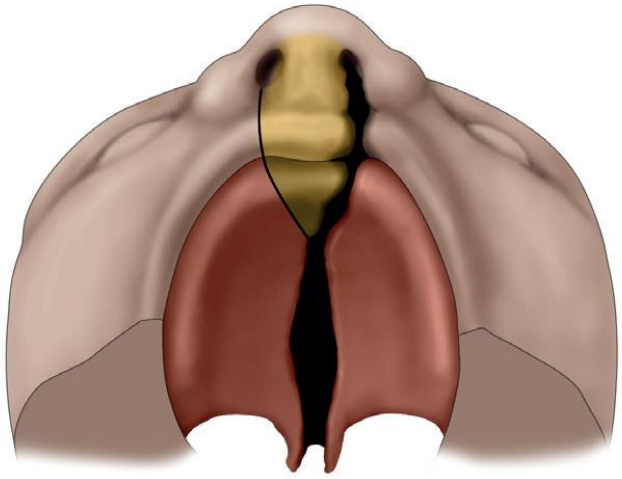
- Functional assessement
  - Vélo-lingual sphincter
    - Clinical testing:
      - « blowing the cheeks while breathing »
      - « Aspirate the cheeks while breathing »
      - Possibility to measure the intra-oral pressure
    - Praxic competence+++

Anatomic congenital pathologies



- Cleft palate
- +/- associated with cleft lips





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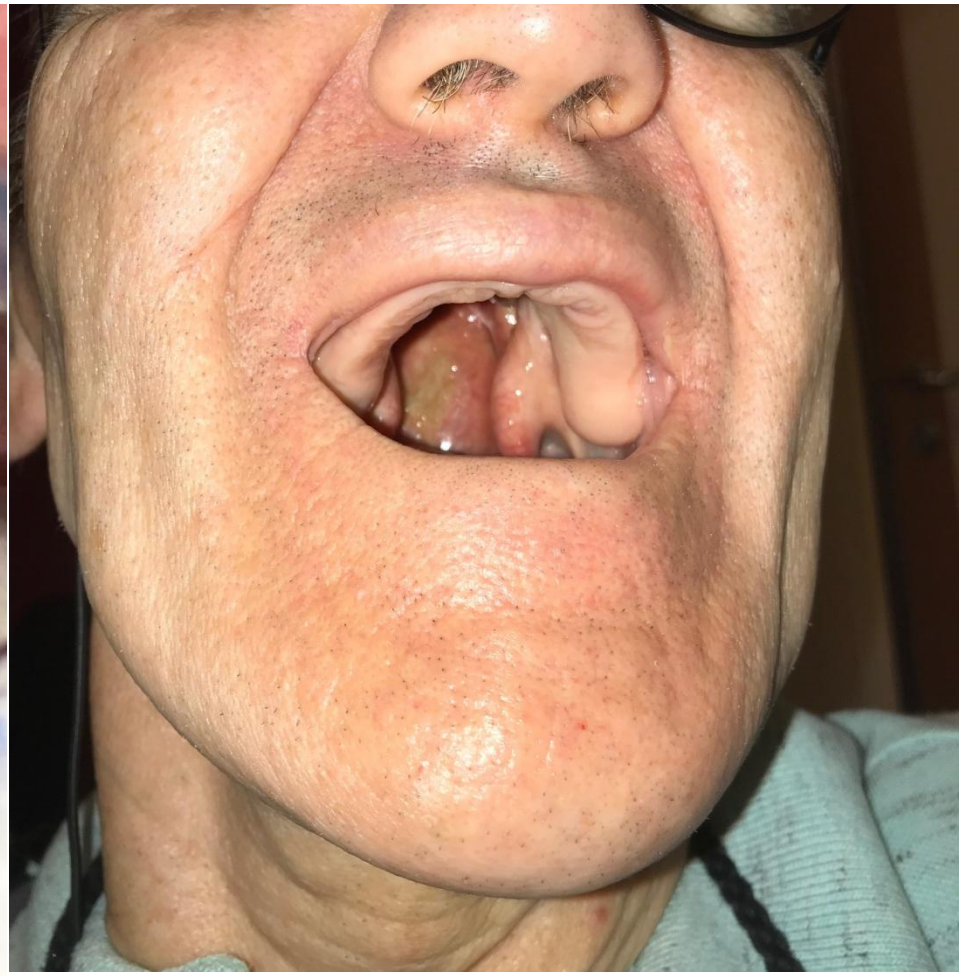
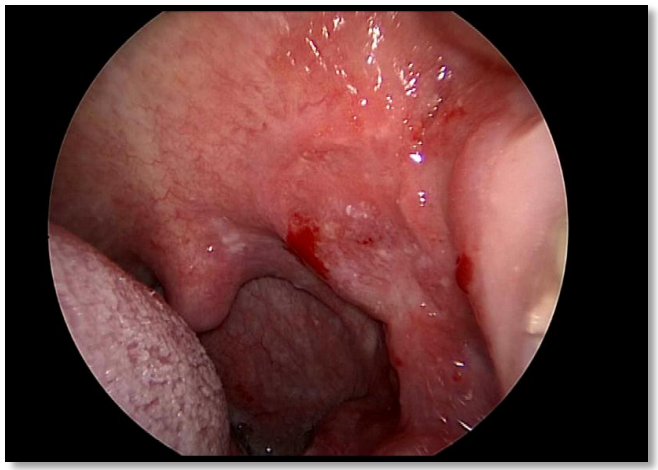
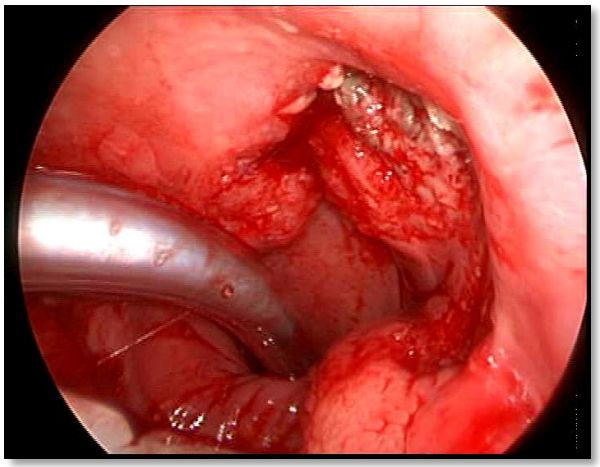


Anatomic acquired pathologies

- Mainly post-therapeutic in cancerology





Pictures Dr L. Santini, Marseille, France

Picture Bach et al. Eur Arch Otorhinolaryngol 2015

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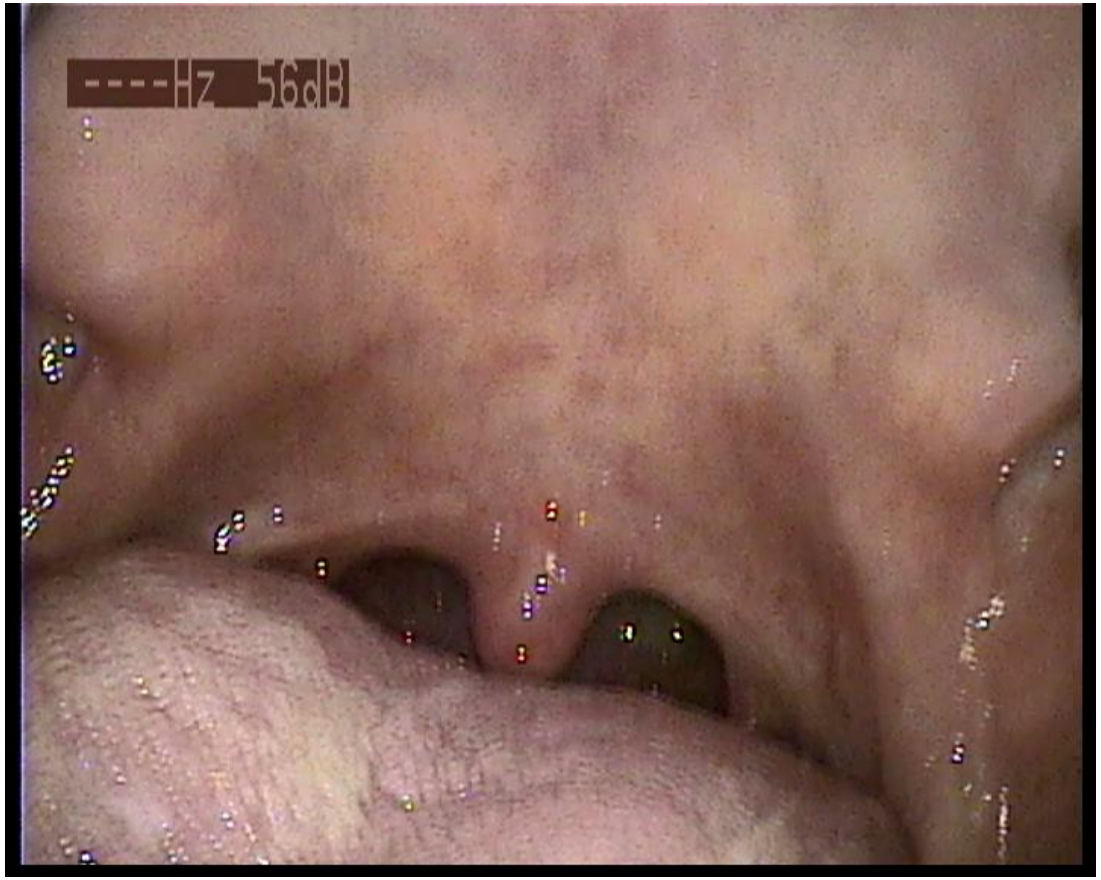


Neurologic pathologies

- Lesions of the IX and X nerves
  - Abolition of the gag reflex (IX)
    - Pathologic only if unilateral
  - Paresis of the velum and the hemi-pharynx (and hemilarynx, oesophagus etc.)

Neurologic pathologies

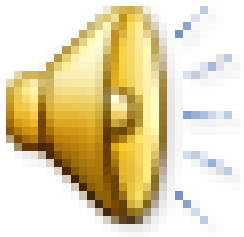
- Lesions of the IX and X nerves

Neurologic pathologies

- Bilateral hypomobility
  - Neurogenic: bilateral lesions of vagus nerves,
  - Bulbar SLA

Neurologic pathologies

- Bilateral hypomobility
  - Neurogenic: bilateral lesions of vagus nerves,
  - Bulbar SLA
  - Steinert myotonia



Neurologic pathologies

- Bilateral hypomobility
  - Neuro-muscular joint pathology: Myasthenia

Before mestinon

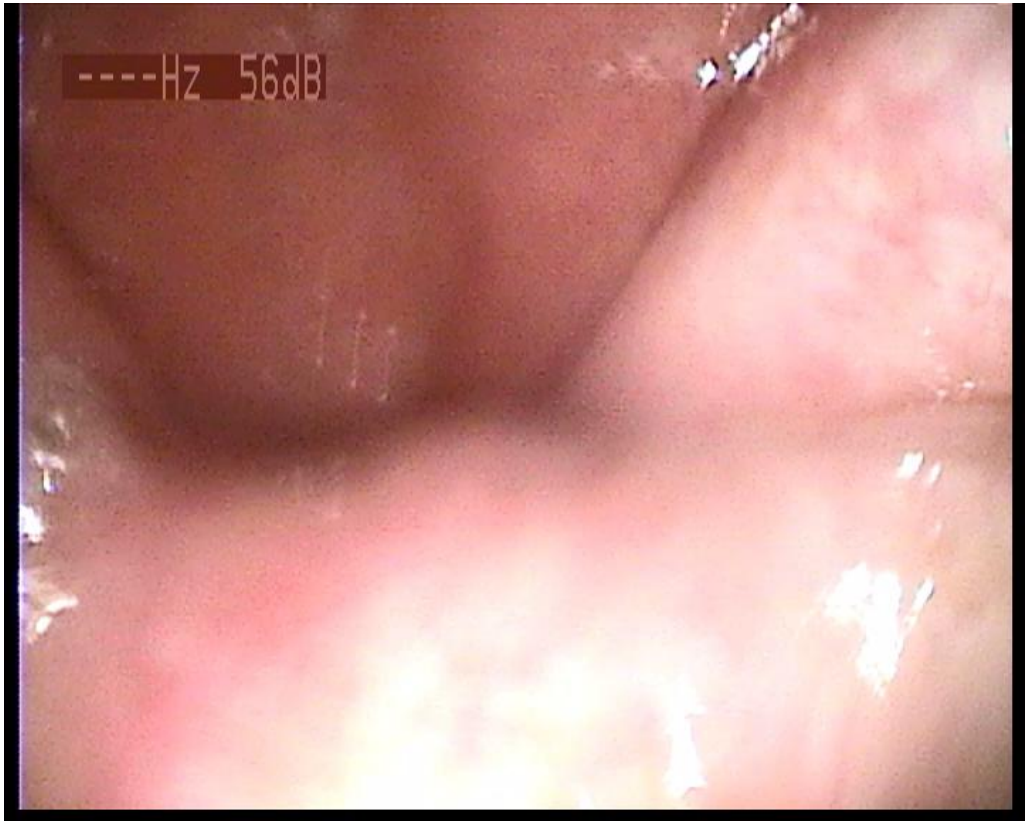
After mestinon

Neurologic pathologies

- Bilateral hypomobility
  - Muscular pathology
    - Oculo-pharyngeal muscular dystrophy
    - Myositis

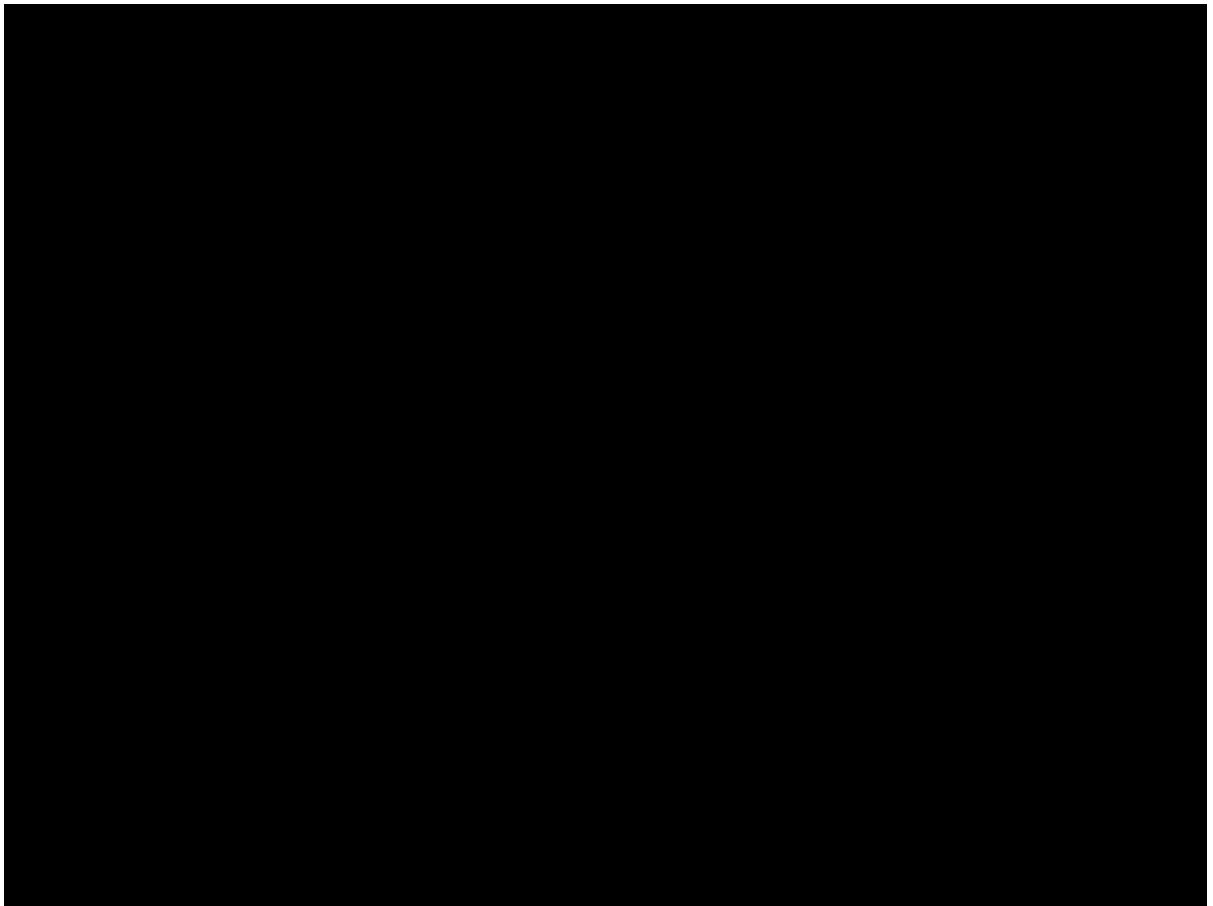
Neurologic pathologies

- Bilateral pseudo-hypomobility
  - Pseudo-bulbar syndrom



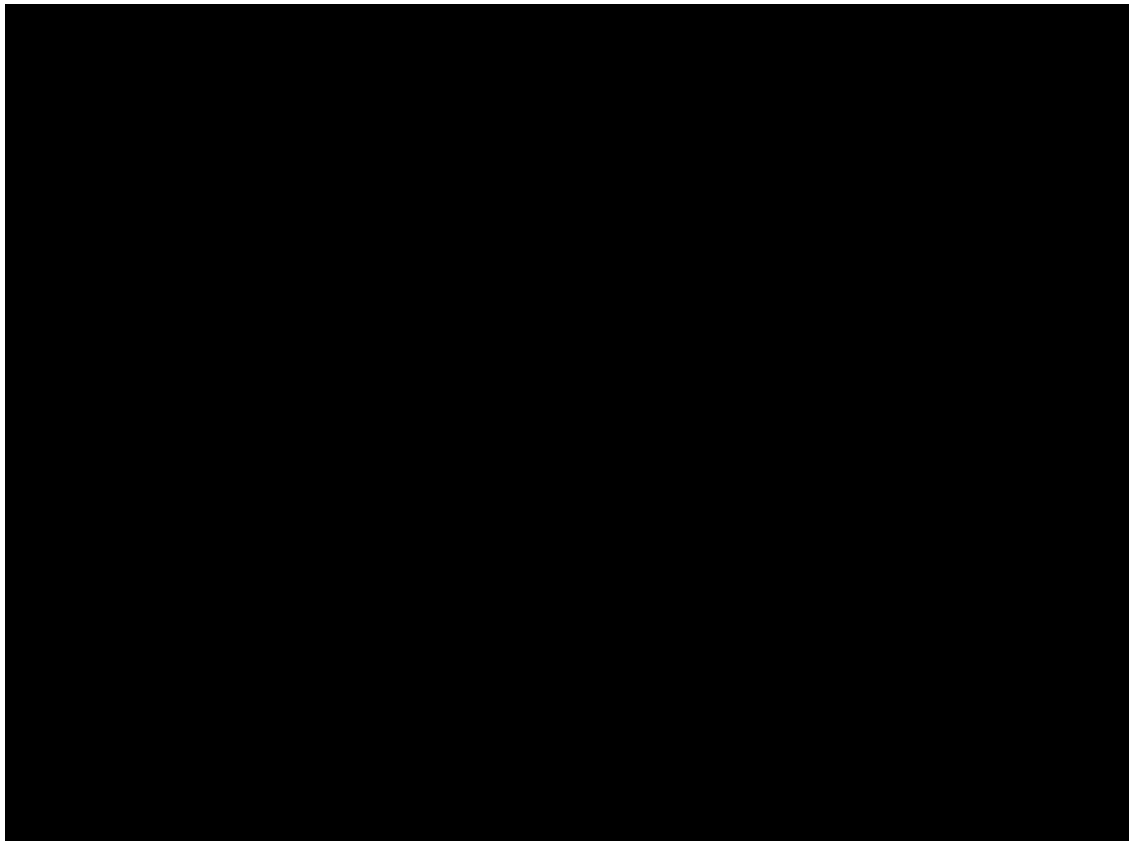
Neurologic pathologies

- Anormal movements
  - Uni-lateral (tumor, neuro-vascular conflict of ponto-cérébellar fossa



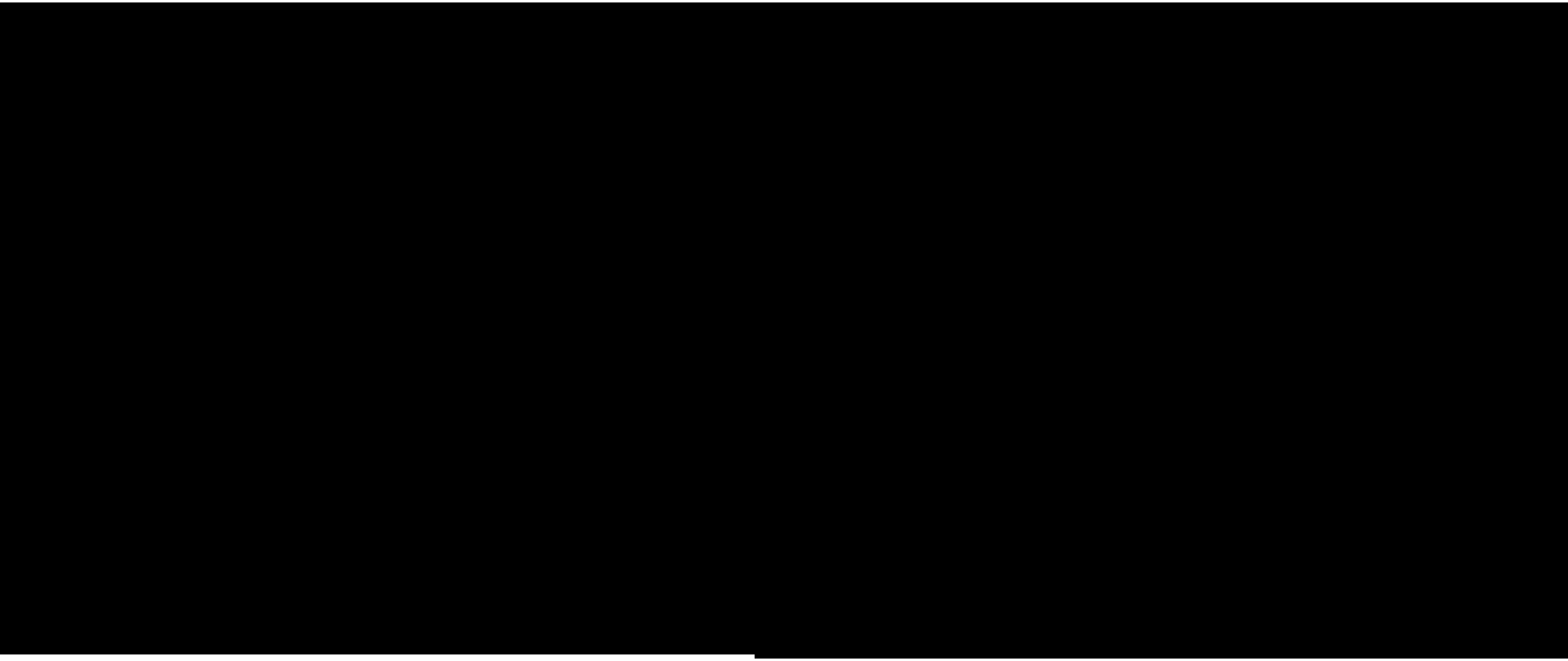
Neurologic pathologies

- Anormal movements
  - Bilateral, rythmic, associated to movements of other organs (cerebellar myoclonias)



Neurologic pathologies

- Anormal movements
  - Bilateral, rythmic, isolated (idiopathic myoclonia)



Neurologic pathologies

- Anormal movements
  - Bilateral, non rythmic but dystonic

Treatments of velar pathologies

- Medical, etiological treatment
- Botulinum toxine
- Surgery
  - Velo-pharyngoplasty
  - Filling of the pharynx
    - Fat tissue
    - Exogenous substances (calcium hydroxyapatite)

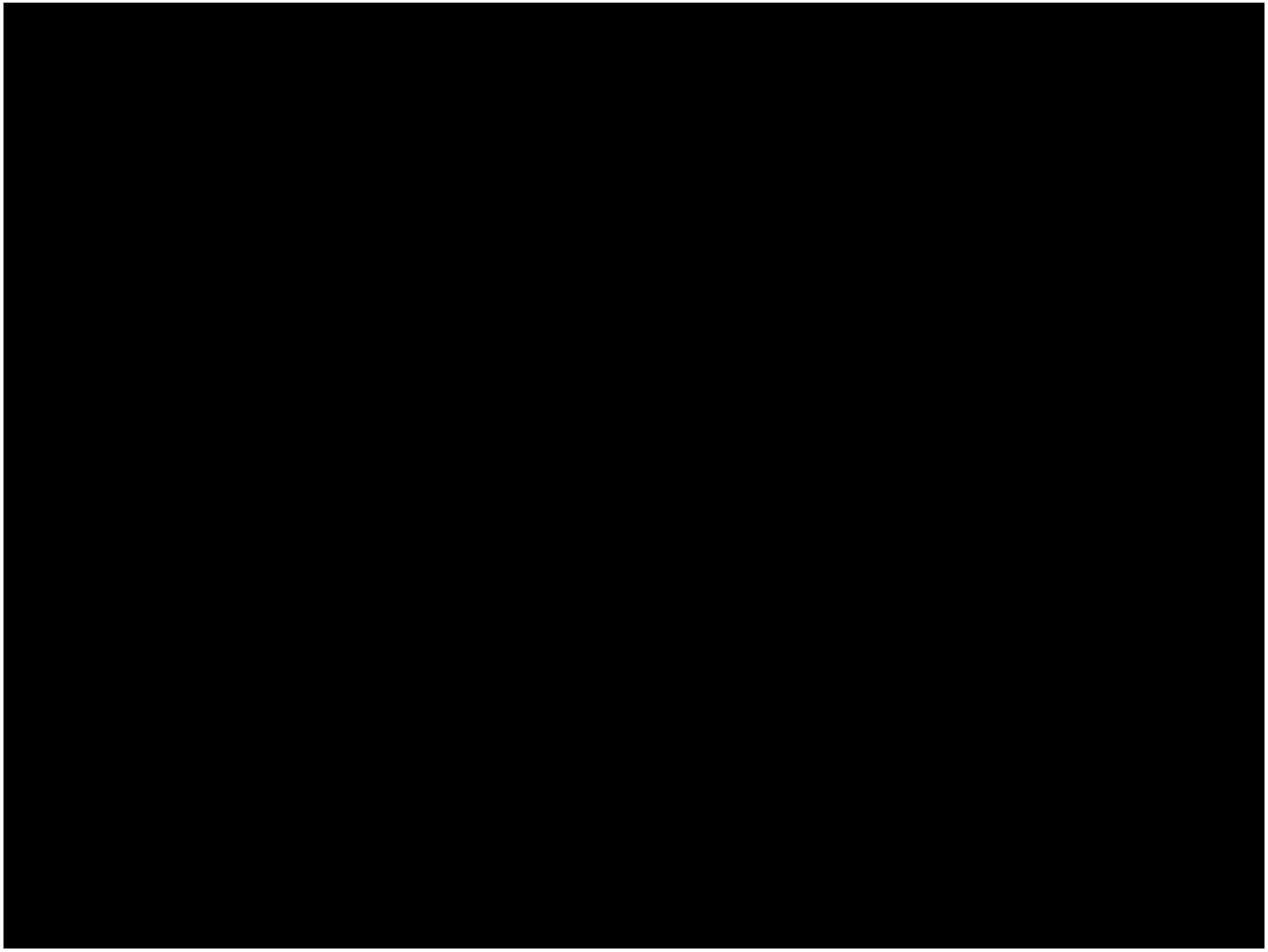
Treatments of velar pathologies

- Speech therapy
  - Precision exercises:
    - Articulationof posterior consonants
    - Oral sentences, nasal sentences,
    - Alternative oral/nasal phonems
  - Strenght exercises
    - Velo-pharyngeal sphincter:
      - Straw blowing, various diameters,
      - straw aspiration with various viscosity, lenghts and diameter of the straw
      - blowing instruments of music,
      - High pitch singing
    - Velo-lingual:
      - Blowing with closed lips while breathing
      - Aspirating with close lips while breathing
      - Keep some liquids in oral cavity several seconds

Conclusions

- Importance of the velum examination in dysphagic patients
  - Etiologic orientation
    - Accurate etiologic treatment
    - Accurate symptomatic treatment
- Multi-modal assessment of the function
- Comprehensive treatment of velar dysfunctions

Thanks for attention



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