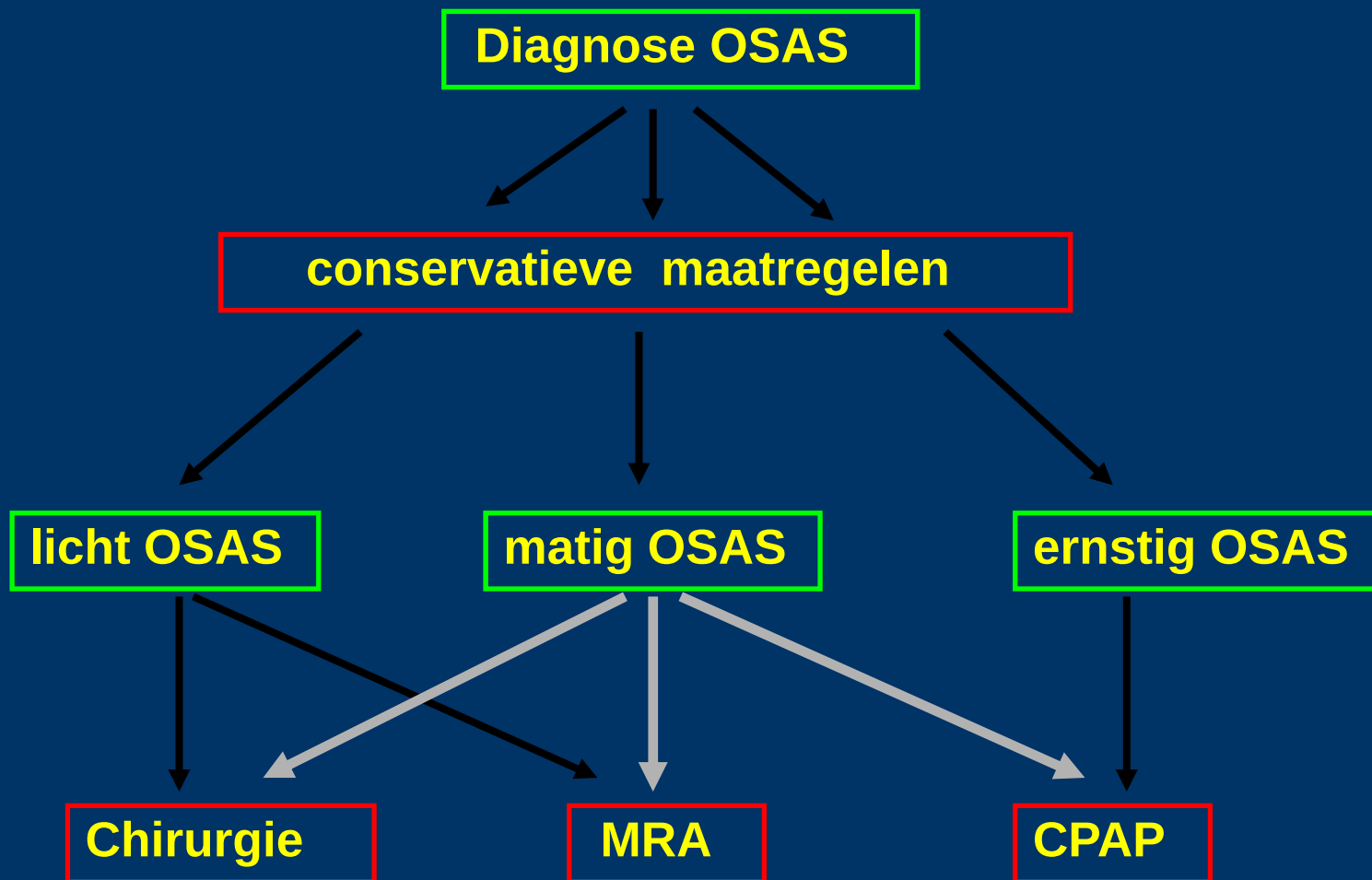


7 april 2009
OSAS

Nico de Vries



Op indicatie: Bariatrische chirurgie
 Kaakosteotomie
 Tracheostomie



First Announcement - Save the Date!

Surgery, Sleep & Breathing III An International Symposium

Update on Diagnosis and Treatment in Sleep Disordered Breathing

May 08 and 09, 2009

Amsterdam, the Netherlands

Organizing Faculty

Nico de Vries

Evert Hamans

B. Tucker Woodson

Edward M. Weaver



De ernst van OSAS wordt uitgedrukt in de Apneu
hypopneu index = AHI

AHI < 5 = sociaal onacceptabel snurken

AHI 5- 15 = licht OSAS

AHI 15-30 = matig OSAS

AHI >30 = ernstig OSAS

Hoe hoger de AHI, hoe minder effectief (bijna)
interventies zijn.

gebaseerd op:

1 ernst = AHI

2 niveaus van obstructie (palatum, tongbasis of beide)

3 algemene factoren

4 voorkeur patiënt

kan een individueel bepaald behandelplan worden
opgesteld

Goedkope “boil en bite” MRA’s zijn
minder goed dan custom made ..



Niet-titreerbare MRA's zijn ook niet
ideaal



alleen over op maat
gemaakte/afstelbare MRA's bestaat
bewijs over goed effect....



alleen over op maat
gemaakte/afstelbare MRA's bestaat
bewijs over goed effect....



alleen over op maat
gemaakte/afstelbare MRA's bestaat
bewijs over goed effect....



alleen over op maat
gemaakte/afstelbare MRA's bestaat
bewijs over goed effect....



MRA's werken vaak goed maar hebben nadelen:

's ochtends stijve kaken

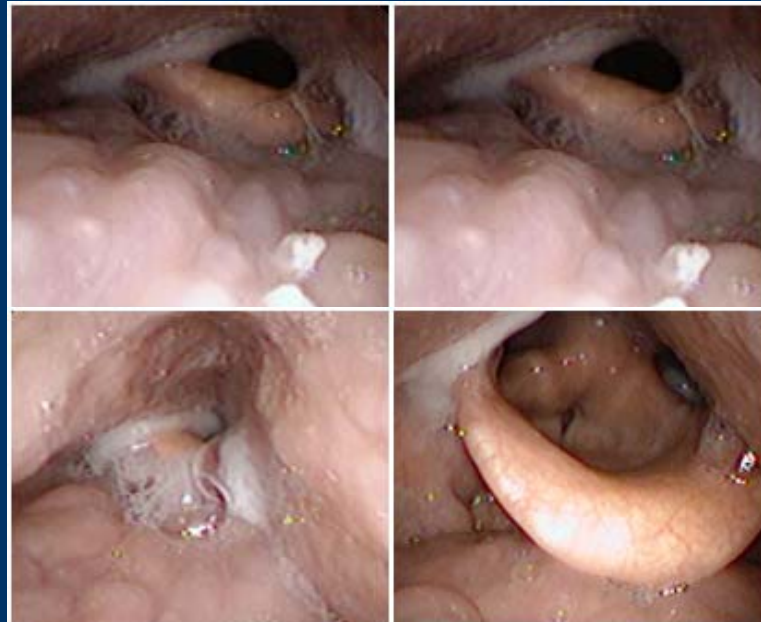
droge mond dan wel speekselvloed

op langere termijn verandert de stand van de tanden

In circa 35% bestaat een contraindicatie tegen MRA-therapie

Kan alleen worden toegepast bij een goed gebit

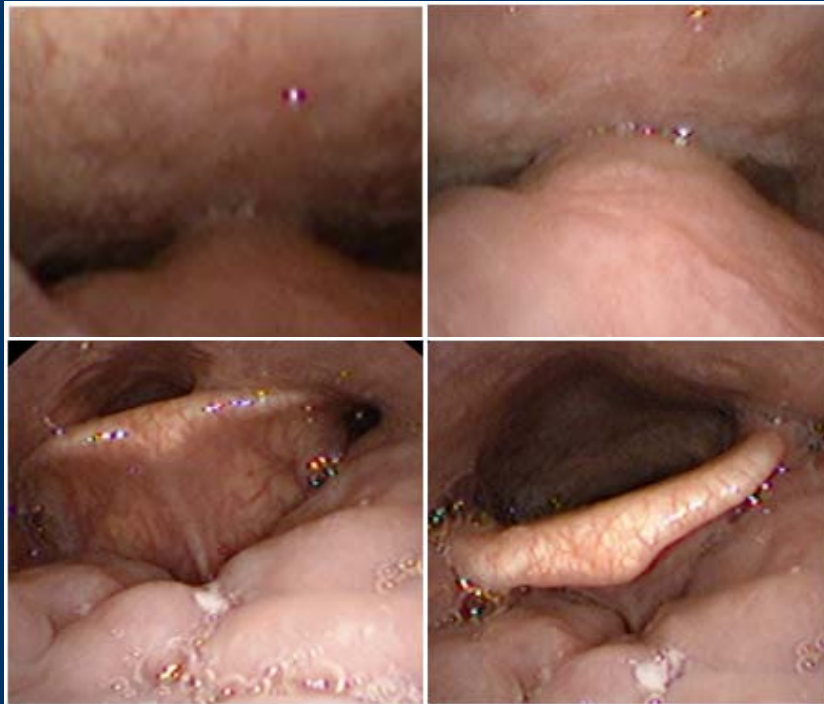
Man 42 jaar - AHI: 11.6
BMI: 27.7



Obstruction tongbasis, veel effect van liften van mandibula

ADVIES: MRA of RFTB

Man 59 jaar - AHI: 34
BMI: 27



Obstructie palatum en tongbasis, weinig effect van optillen mandibula

ADVIES: NCPAP of multilevel chirurgie

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The Patient's Perspective	Piet Heijn van Mechelen
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Multilevel and Maxillofacial Surgery

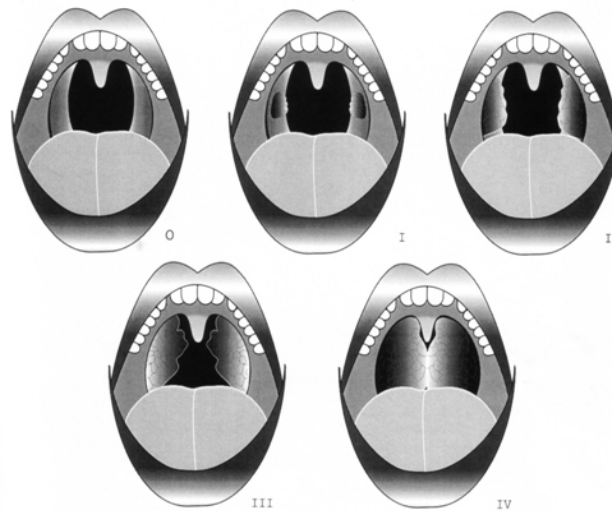
Multilevel Surgery	Thomas Verse
Review of Multilevel Surgery for Sleep Apnea	Hsin-Ching (Philip) Lin
Site Specific versus Diffuse Surgical Treatment of OSA	Kent Moore
Rapid Maxillary Expansion	Samuel Mickelson
Panel Discussion	

KNO-onderzoek

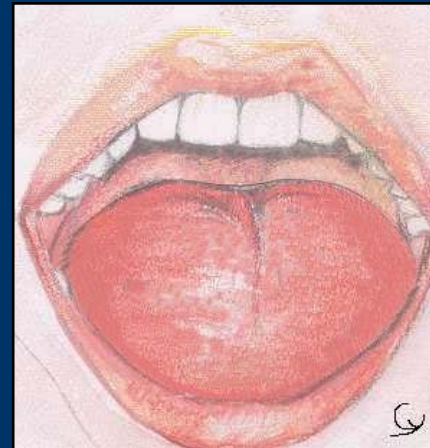
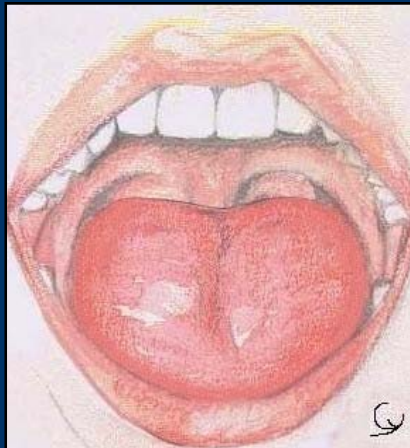
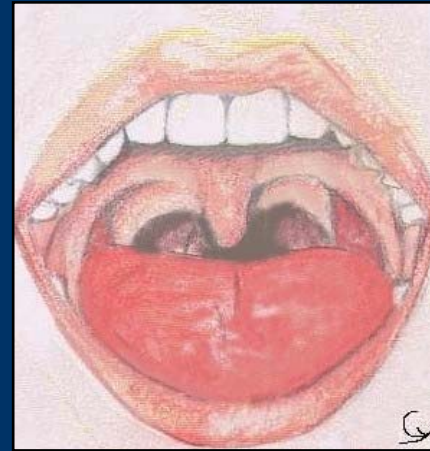
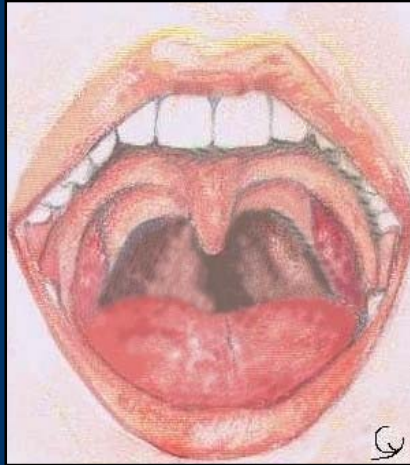
- Neus
- Mond: tonsillen, tong, palatum, huig, gebit
- Stand onderkaak, halsomtrek
- Larynx

Mallampati/Friedman

figuur 3 tonsilgrootte



Friedman/Mallampati systeem



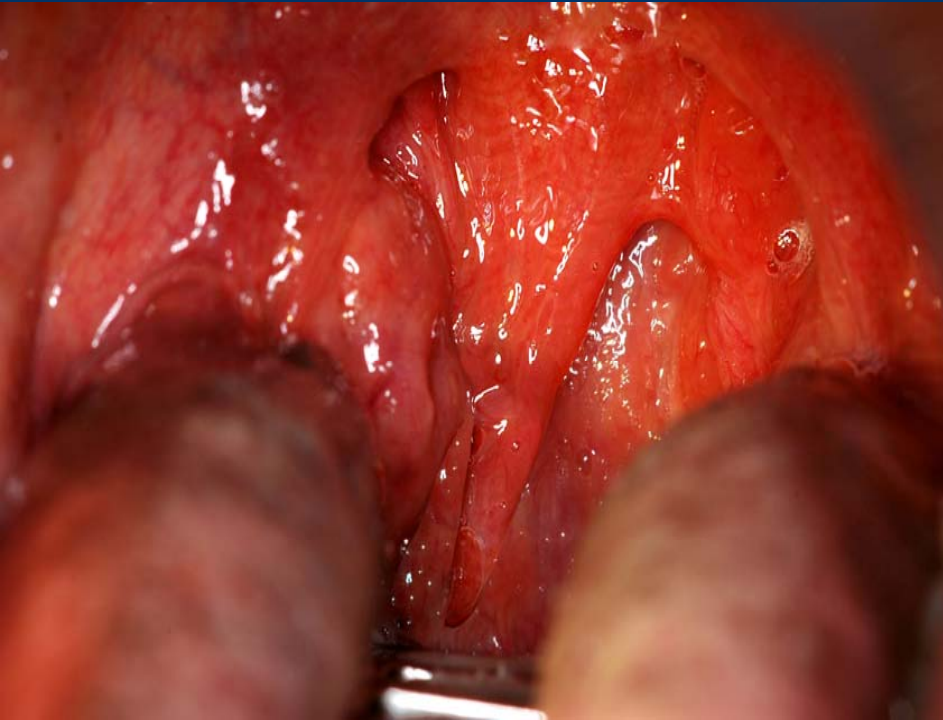
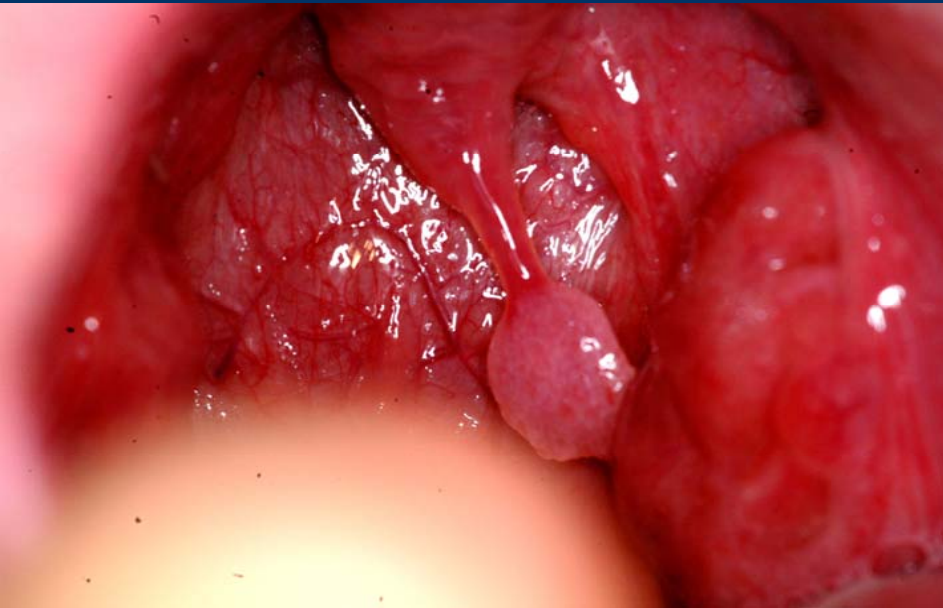
Normaal palatum en normale huig



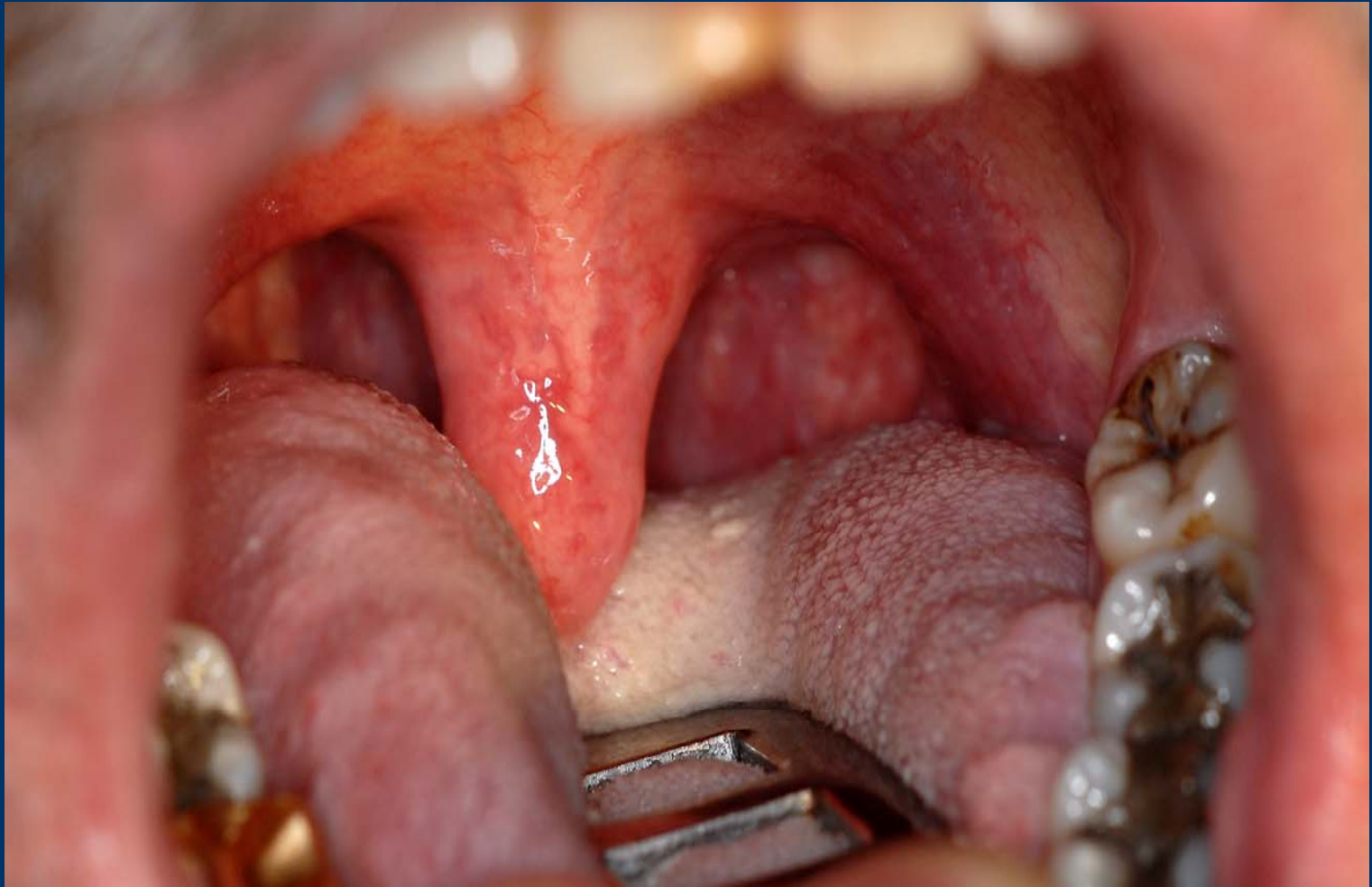
‘Webbing’



Uvula elongata



Uvula: te lang en te breed



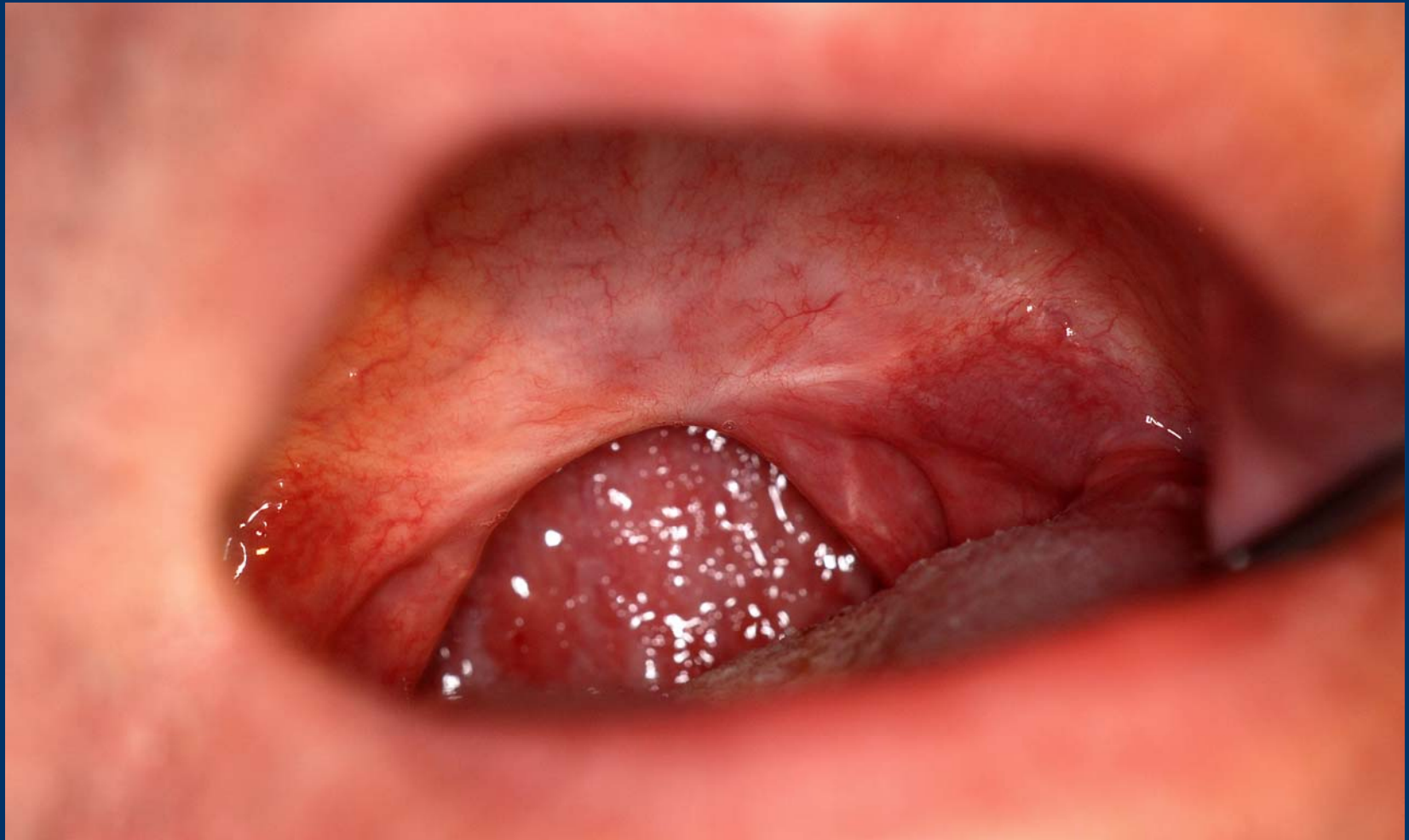
Goed resultaat van UPPP



Stenotic palate after UP3, without TE



Stenotic palate after UP3, without TE



Stenotic palate after UP3, without TE



Stenotic palate after modified UP3



Stenotisch palatum na UP3, als gevolg van rituele uvulectomie in Eritrea



Stenotisch palatum na rituele uvulectomie in Marokko



Stenotisch palatum na rituele uvulectomie in Marokko

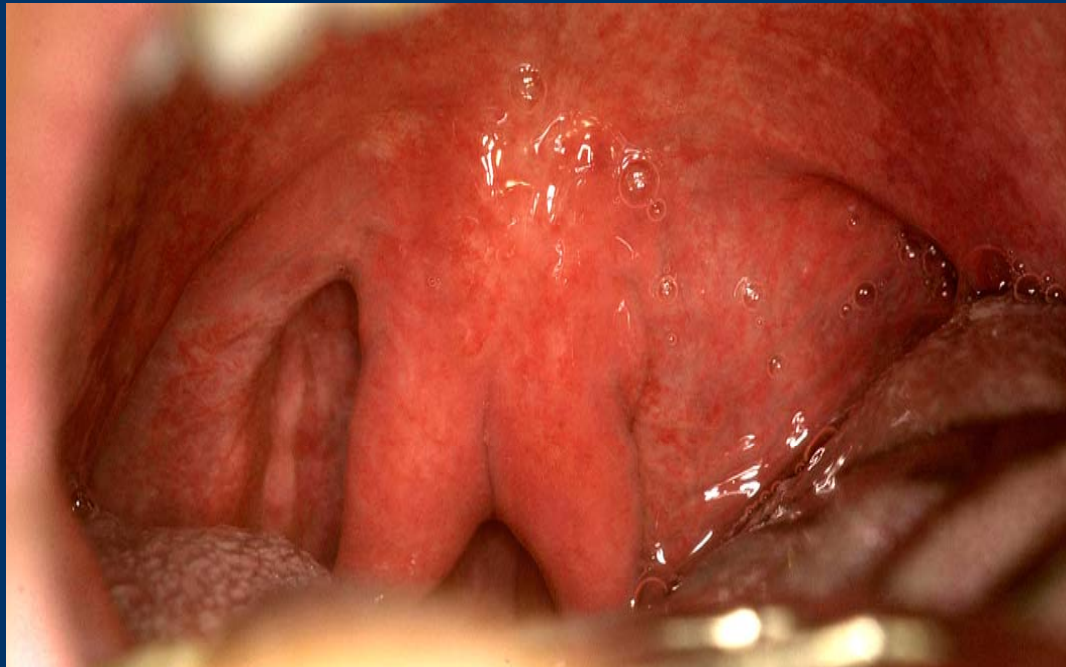


Uvula bifida



UPPP

man uit Zuid-America, die
zelf zijn rechter tonsil
verwijderde

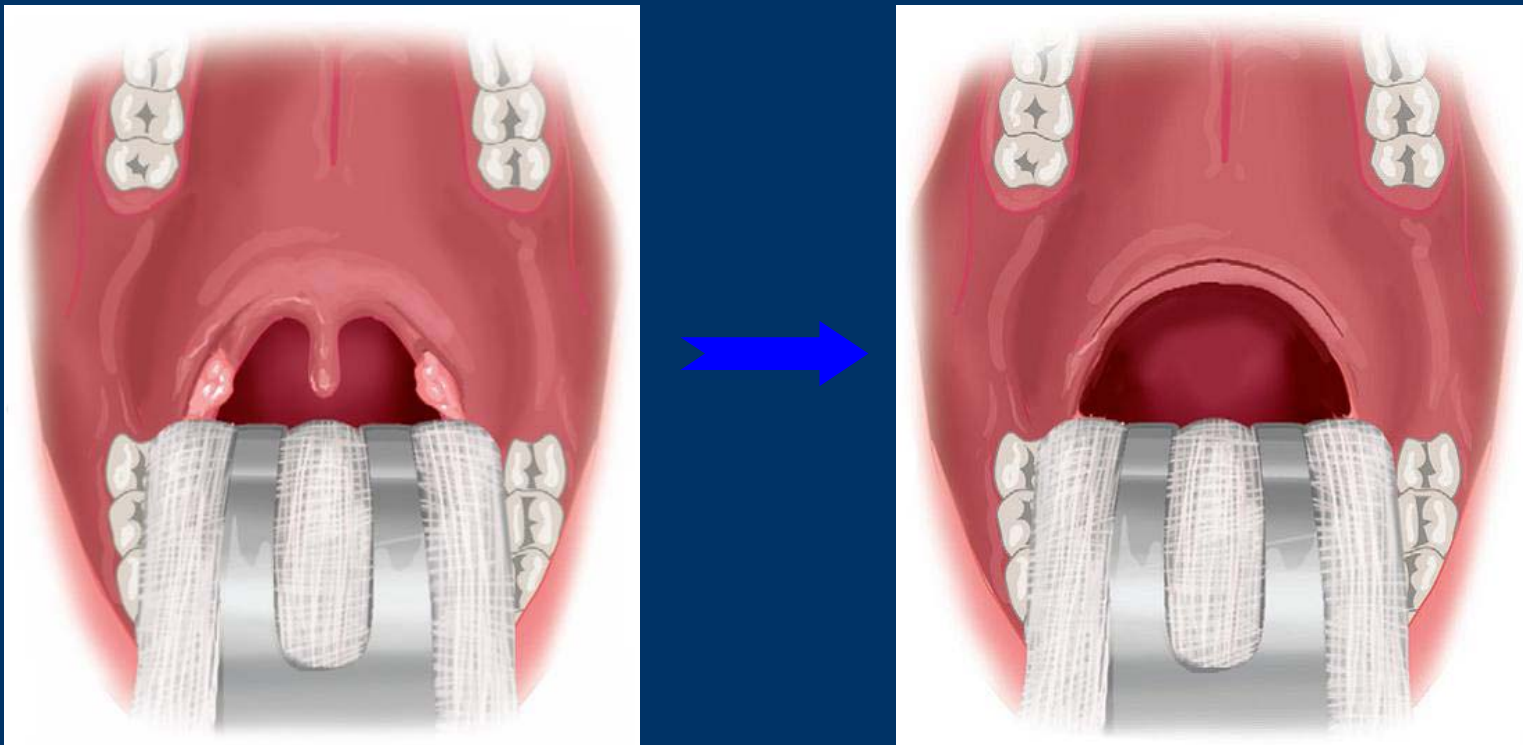


Kissing tonsils:
->Tonsillectomie, evt (zonder
UPPP)



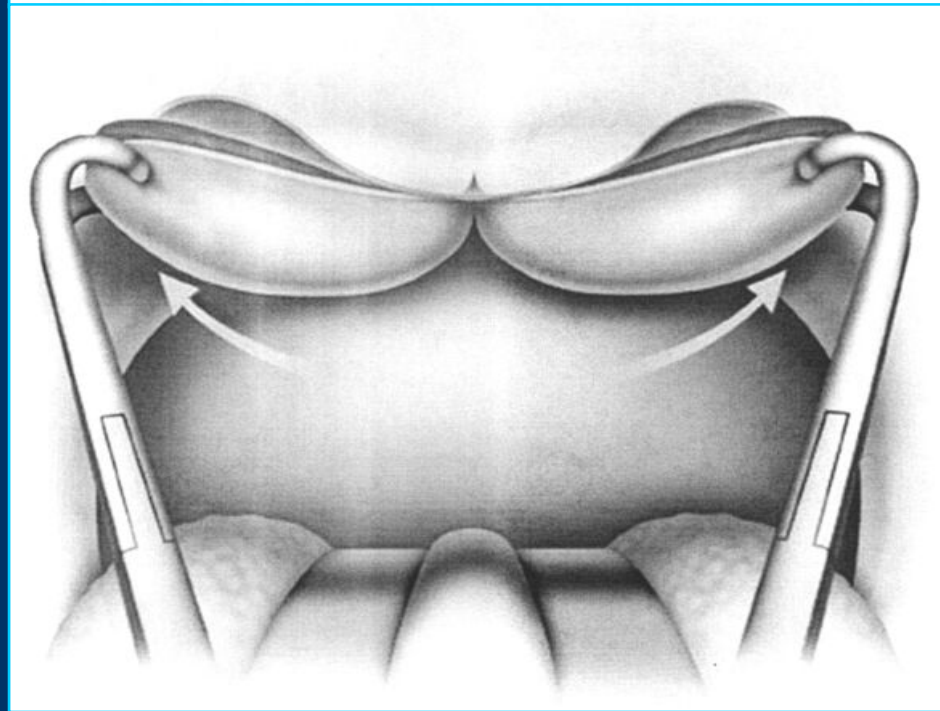
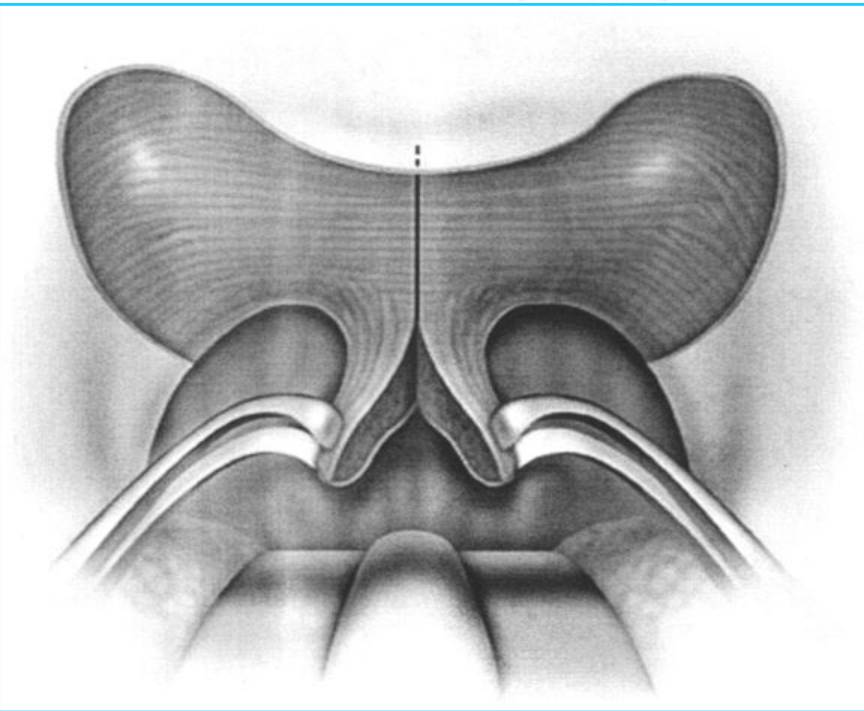
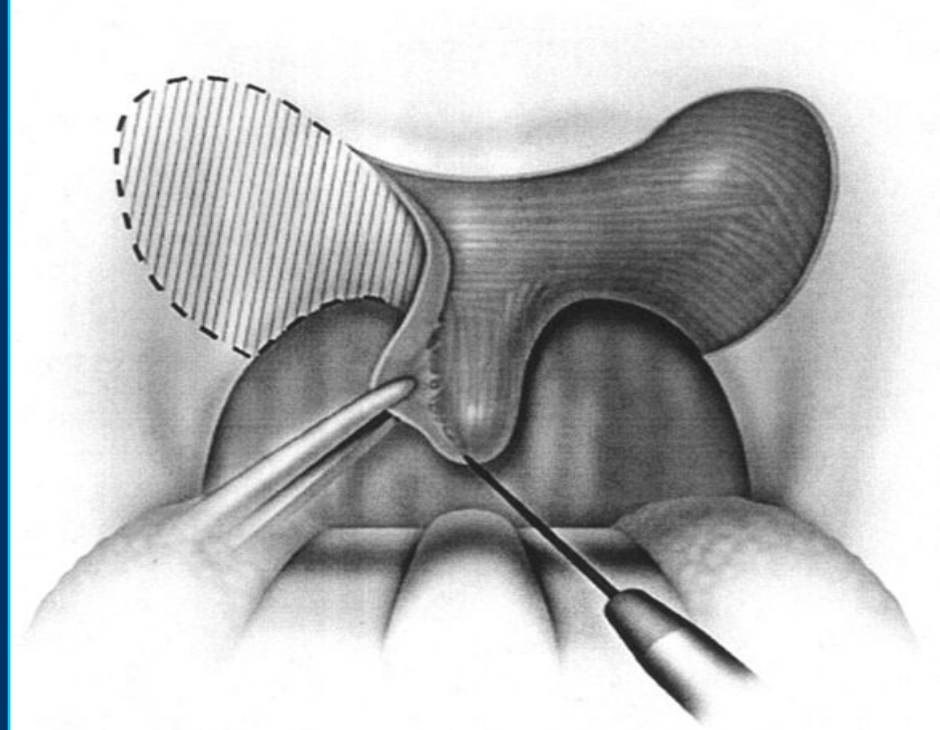
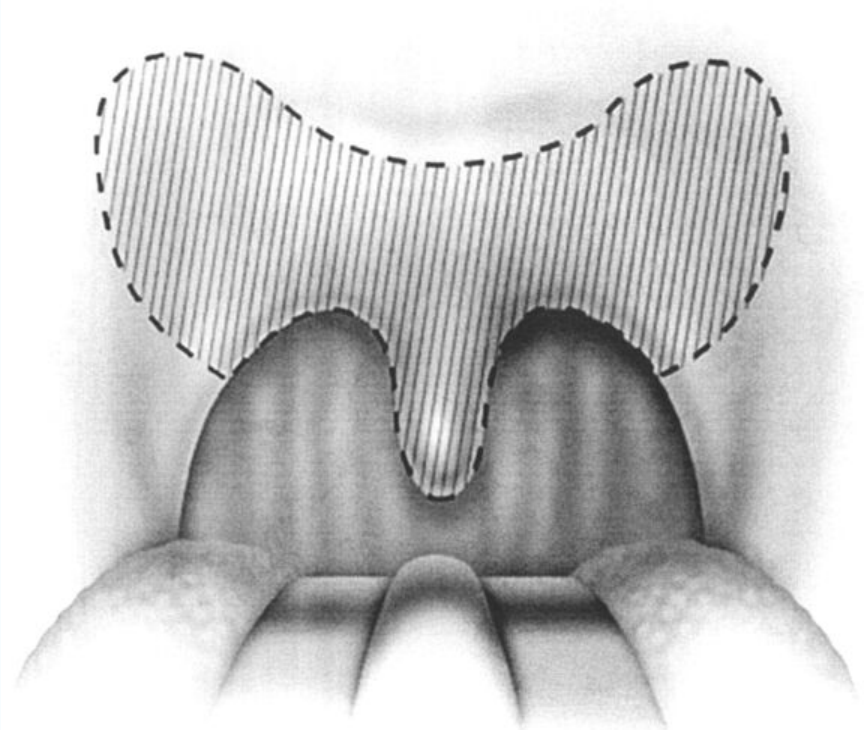
Uvulopalatopharyngoplastiek

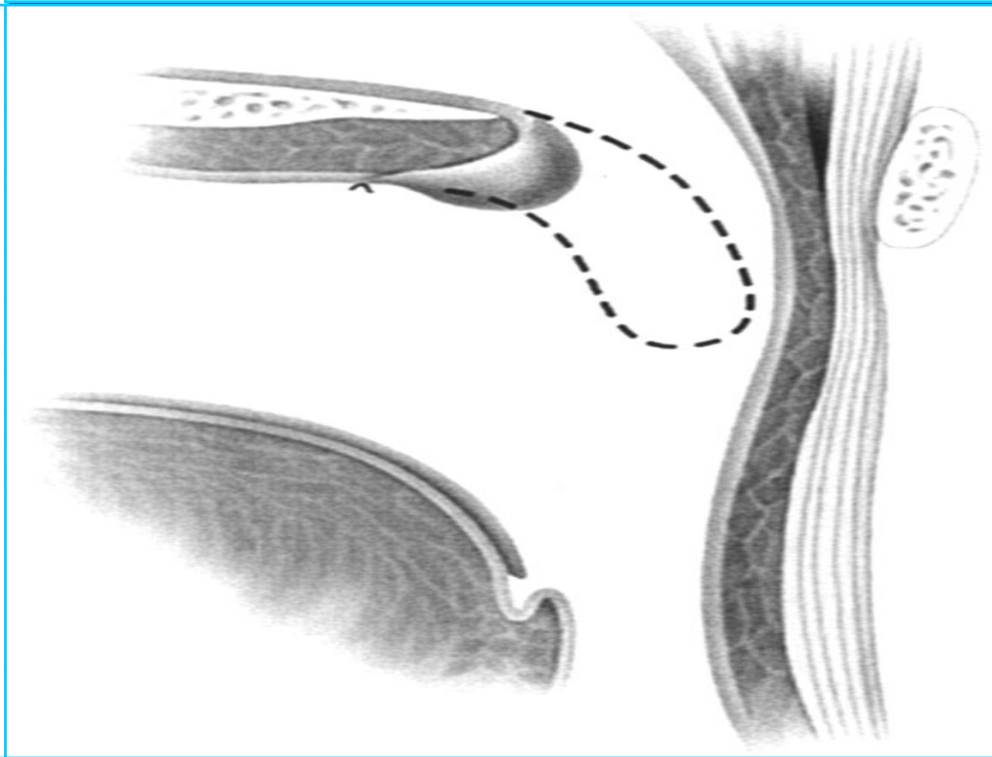
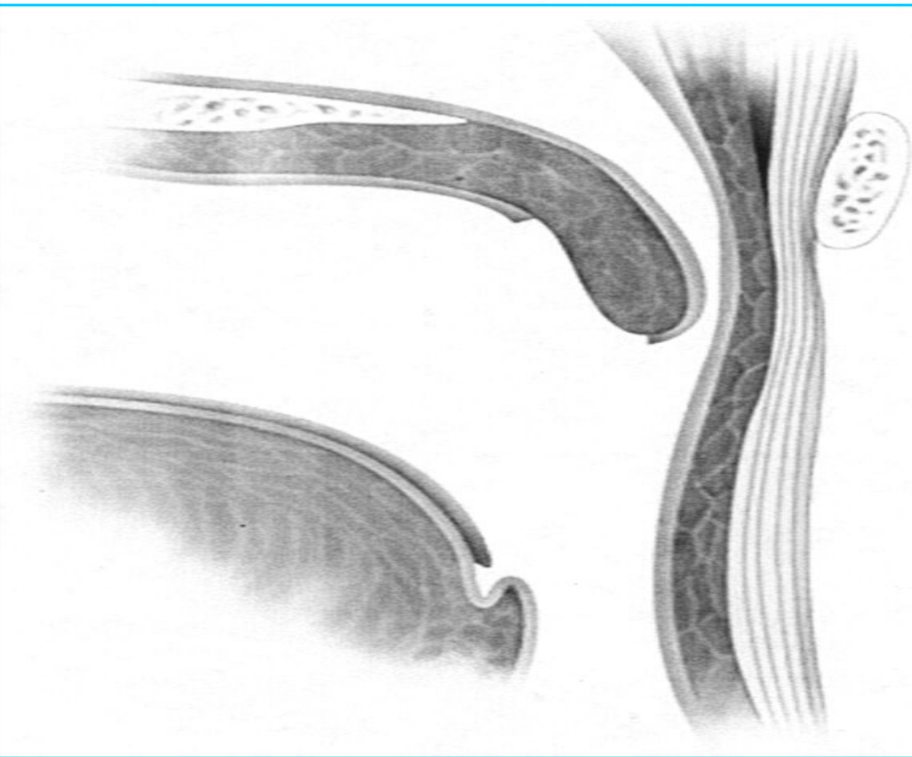
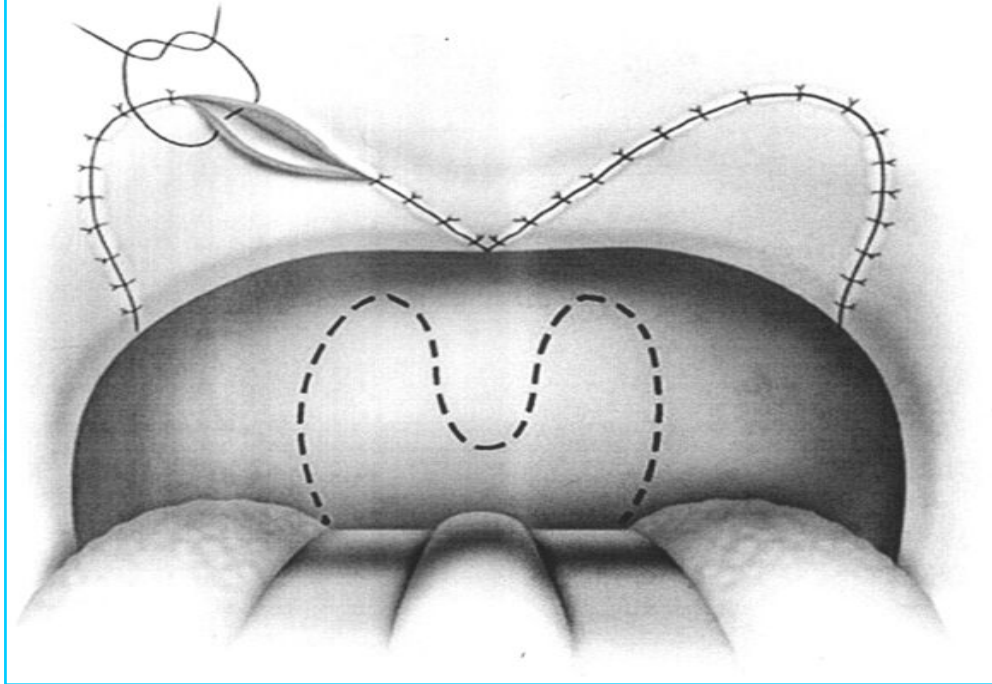
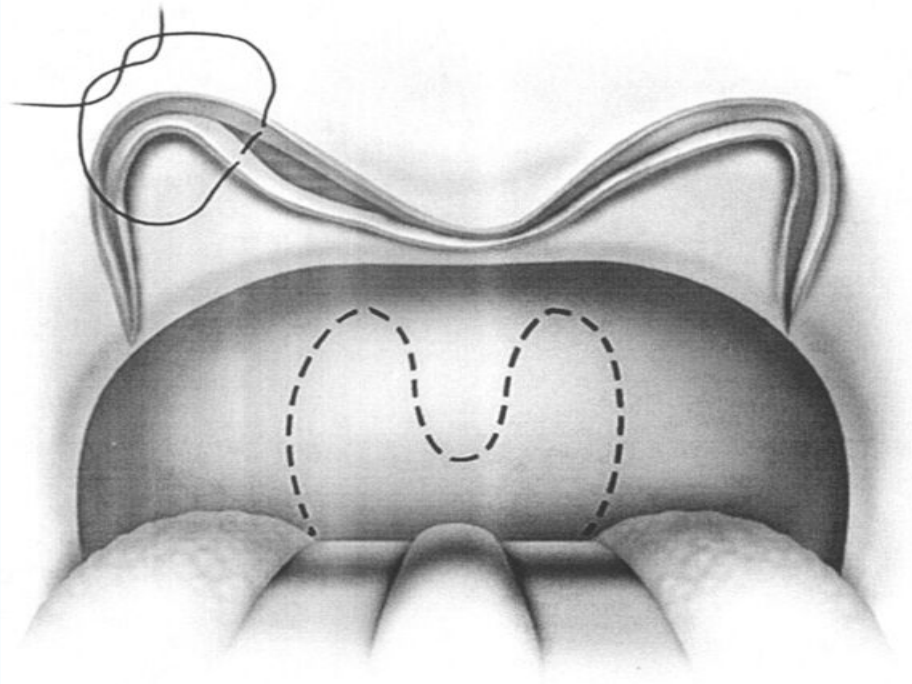
- Meest uitgevoerde ingreep bij OSAS
- Met tonsillectomie



UPPP variaties

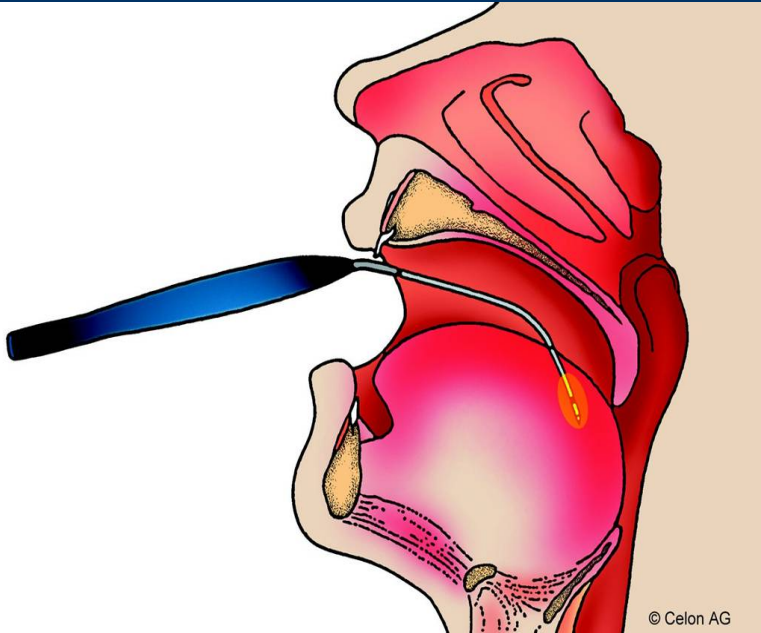
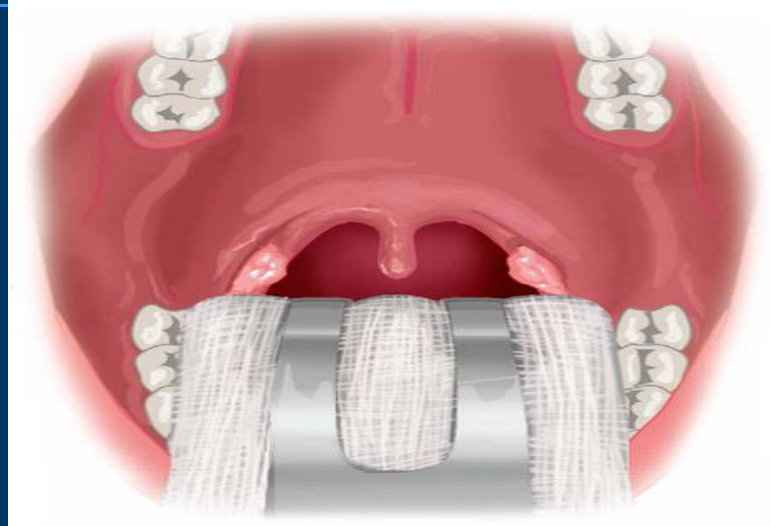
- Laser assisted UPPP
 - Celon Procut (radiofrequentie)
 - Uvulaflap (Mannheim groep)
 - ZPP (Z-plasty, voor status na TE)
 - Thermotherapie en andere verstijvingsprocedures (bij webbing)
 - Pillars
 - Expansion pharyngoplasty
 - Palatal advancement
 - Partiële uvulectomie (uvula elongata)
-
- Dit alles kan eventueel in combinatie met RFTB





Consider UPPP + RFTB

In case of Fujita II
(Retropalatal and
Retrolingual
Obstruction)



Snoring and OSAS

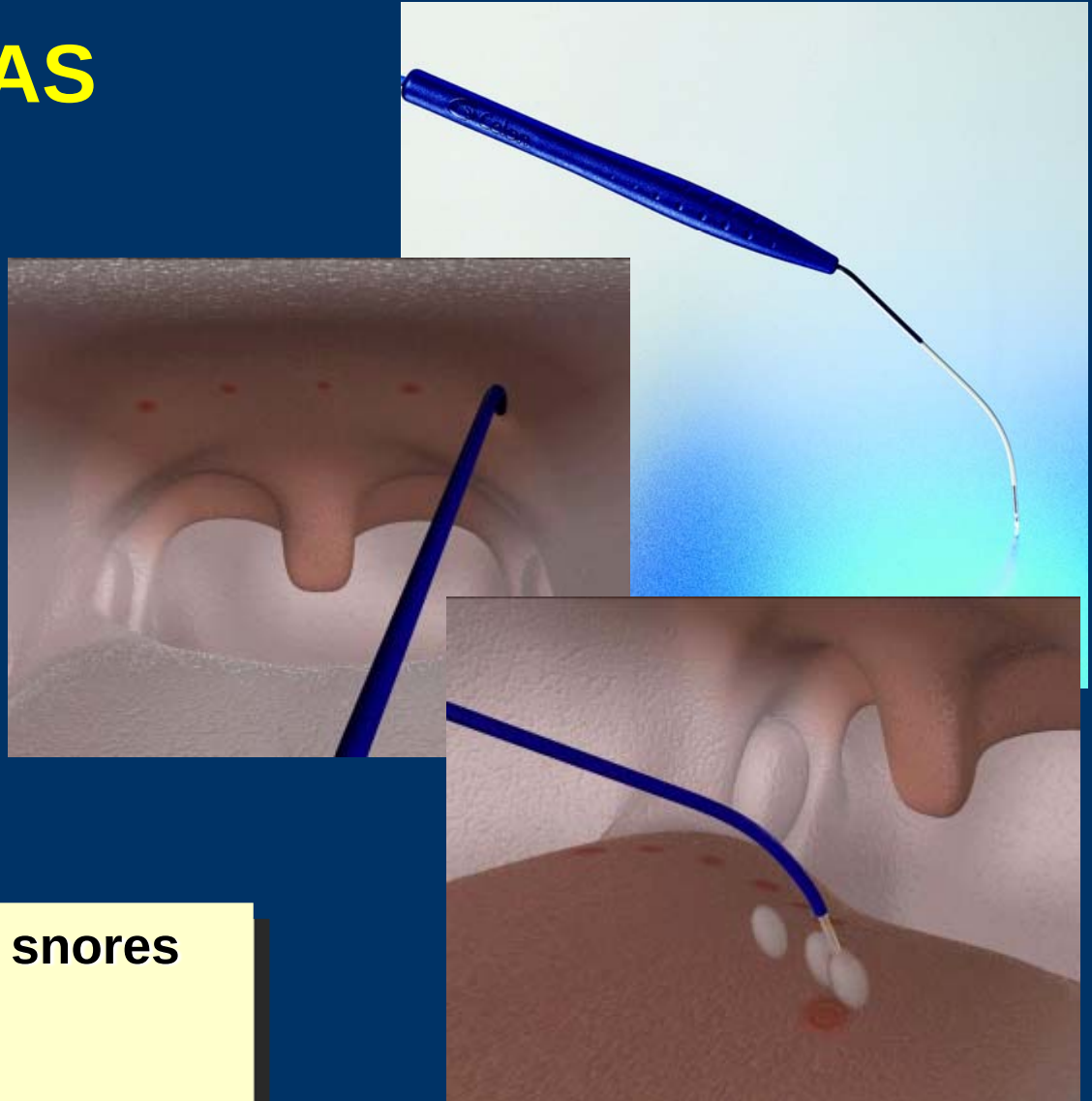
CelonProSleep

plus
Bipolar RFapplicator
for snoring
and mild OSAS

combined treatment
of soft palate
and tongue base

One third of the population snores

Patient selection crucial



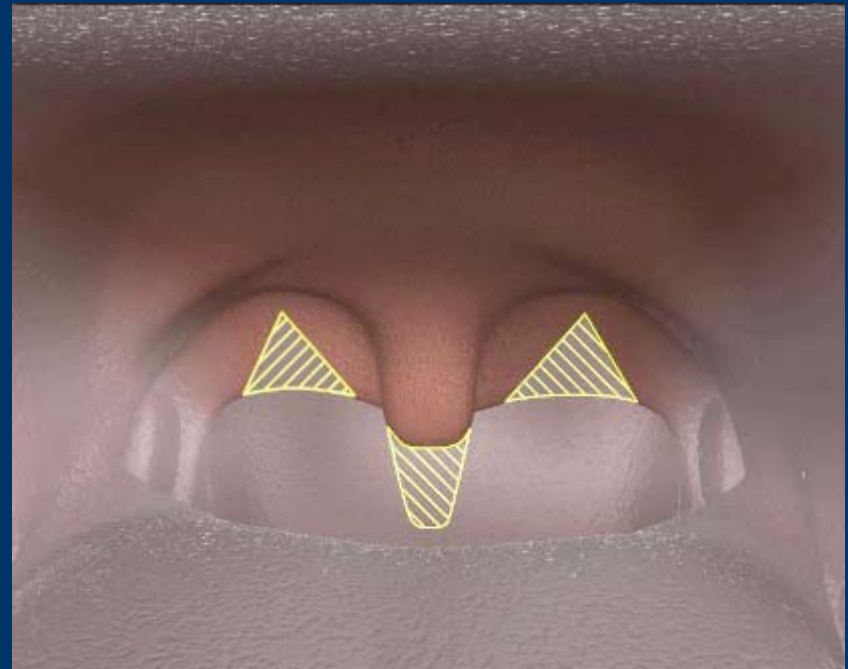
Indications RF soft palate

1. Socially Unacceptable Snoring & mild OSAS (AHI < 20)
2. Mild 'webbing', short uvula
4. No, or small tonsils



Snoring

Removal of webbing and shortening of elongated uvula



Combination of RF-UPP and soft palate treatment:

Promising results in habitual snoring

‘Webbing’ is indication for RFITT: Celon pro Cut

- 1. Long uvula and extreme ‘webbing’ of the soft palate**
- 2. AHI < 25**
- 3. +/- indications
LAUP**



UPPP variaties

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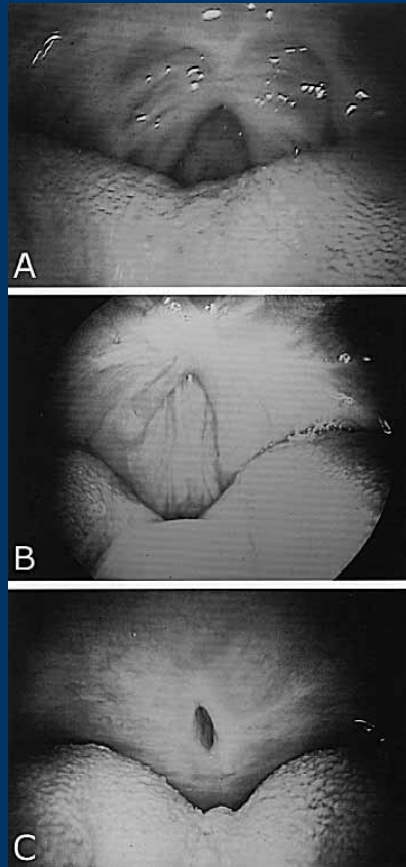
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3 types nasofaryngeale stenose



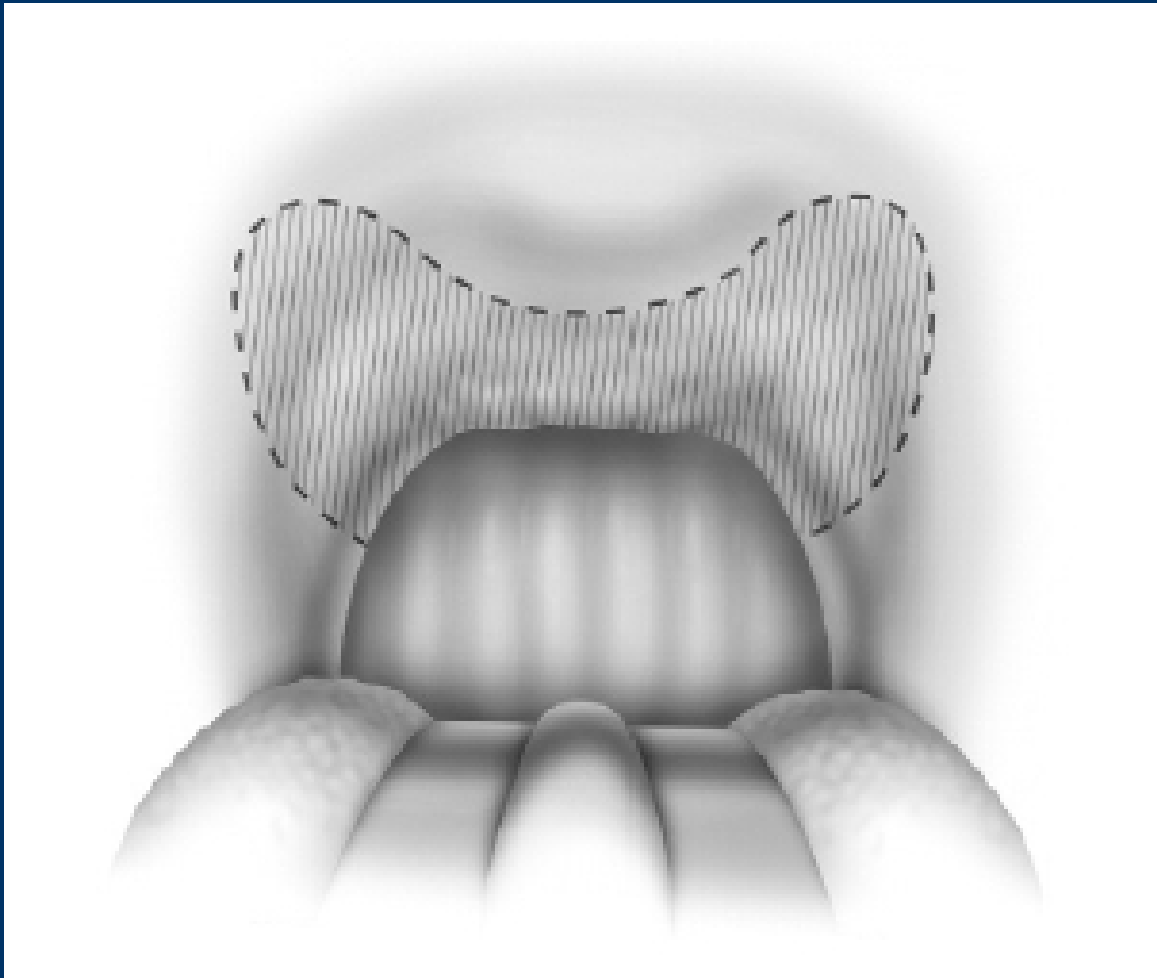
Type 1 stenose (na UP3, zonder TE)



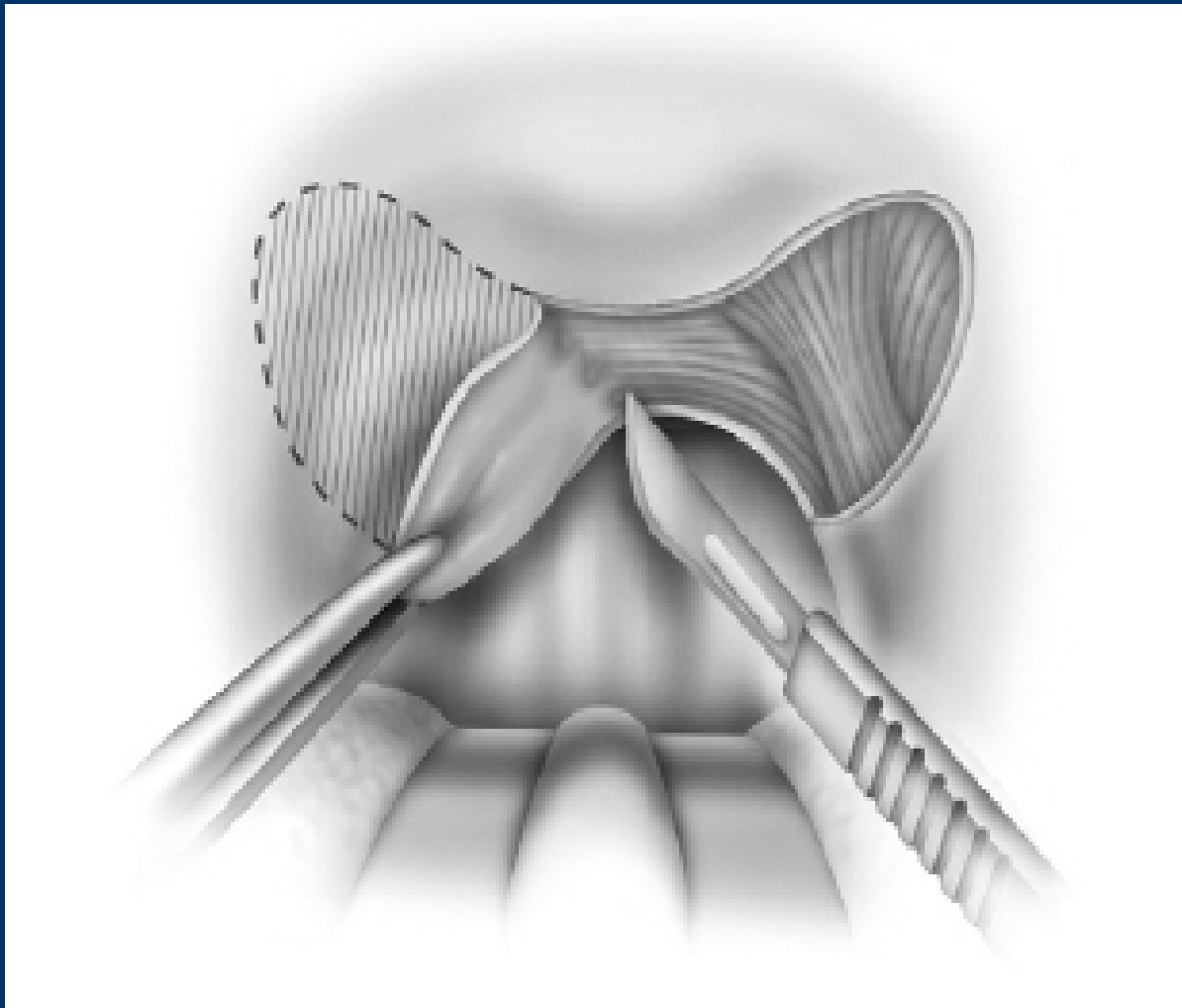
Type 2, stenose na UP3



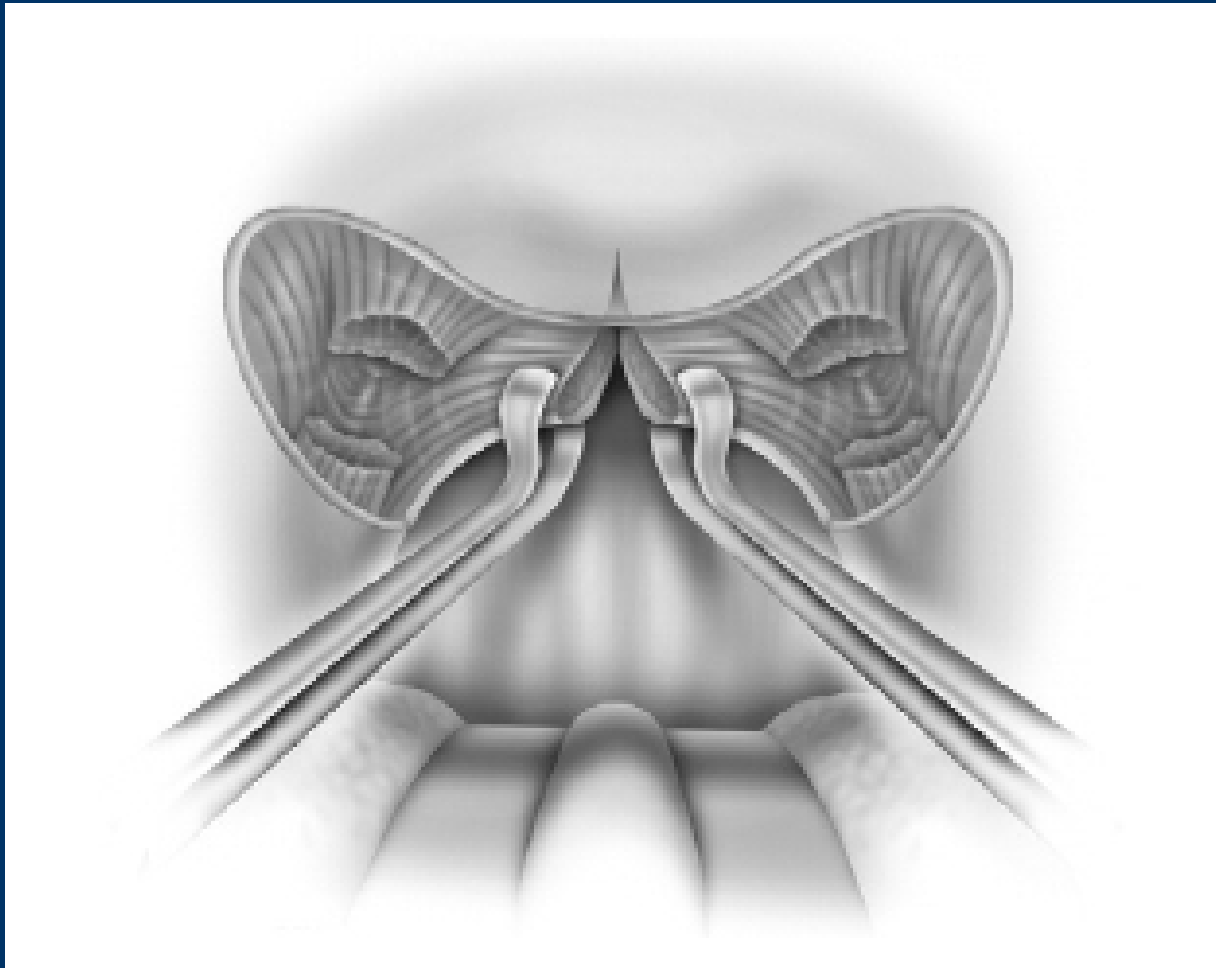
Bij een beperkte stenose: ZPP



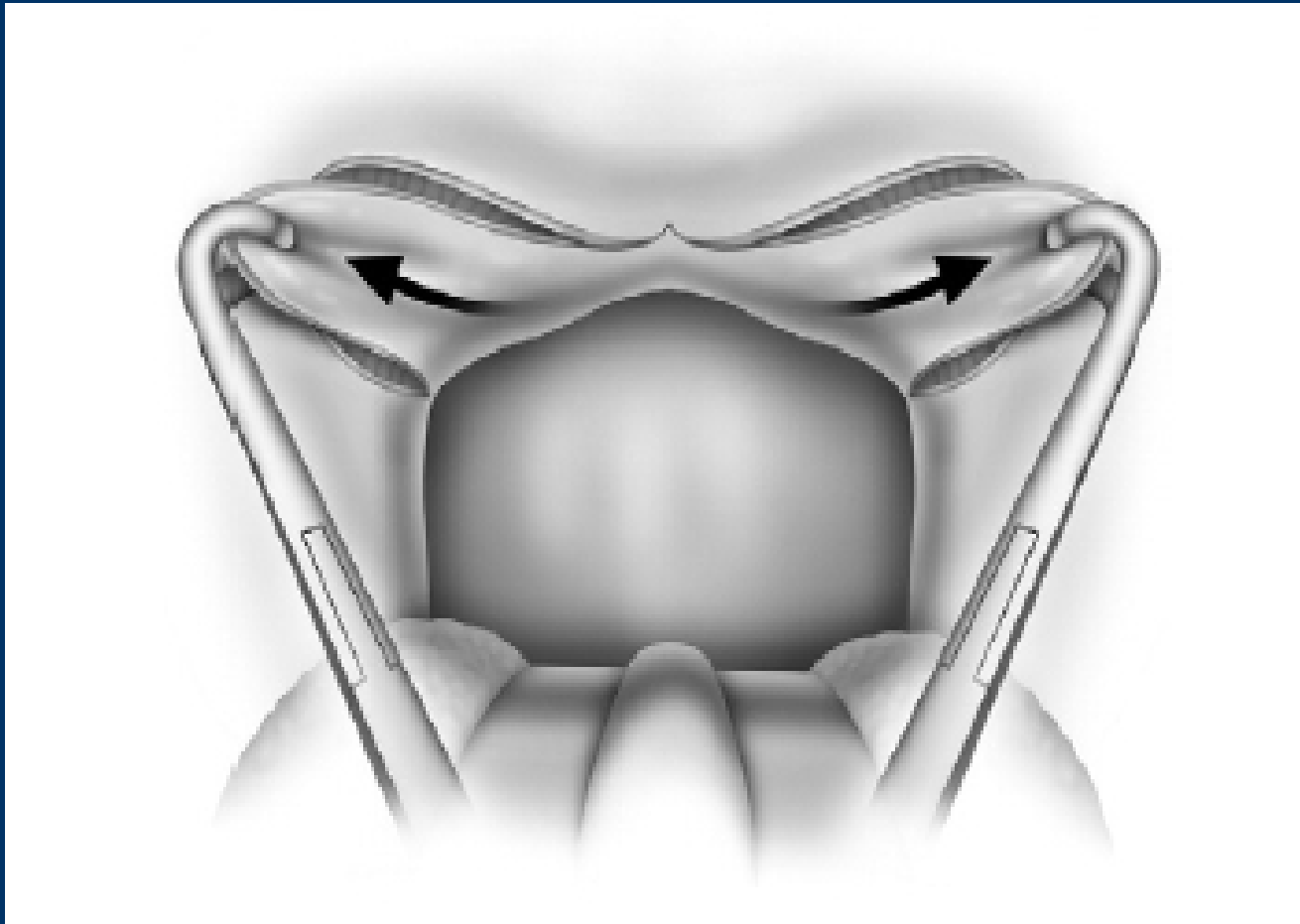
ZPP



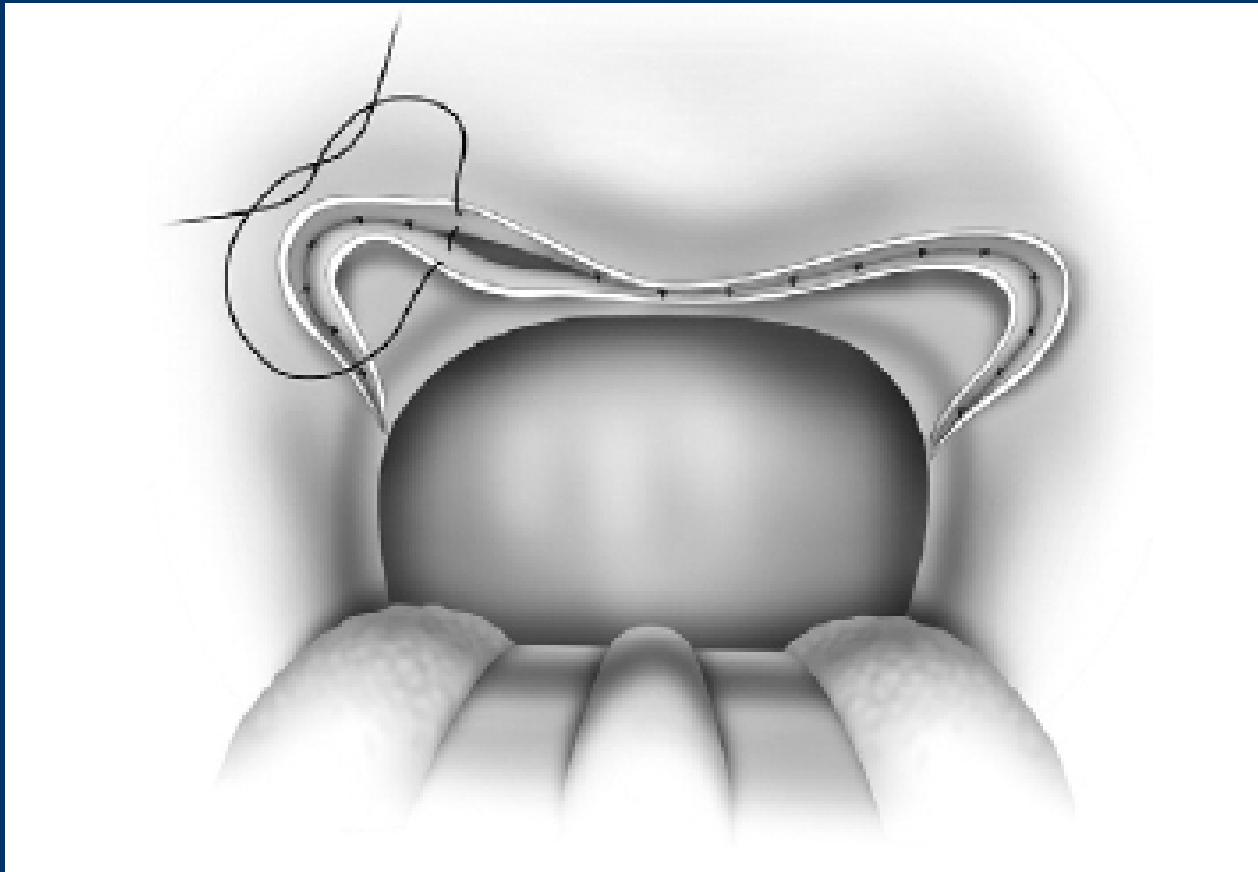
ZPP



ZPP



ZPP



Type 3, subtotale nasofaryngeale stenose



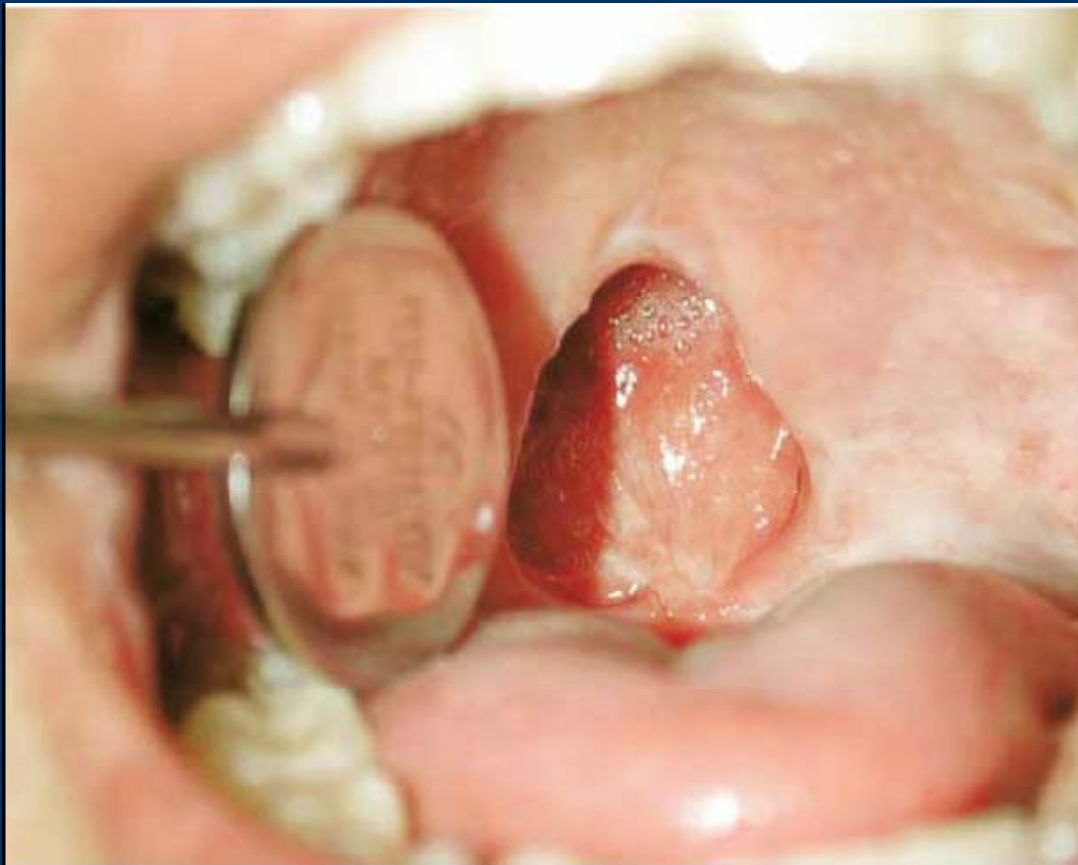
Gecombineerd palatinale en nasofaryngeale klos



Postoperatief, klos in situ



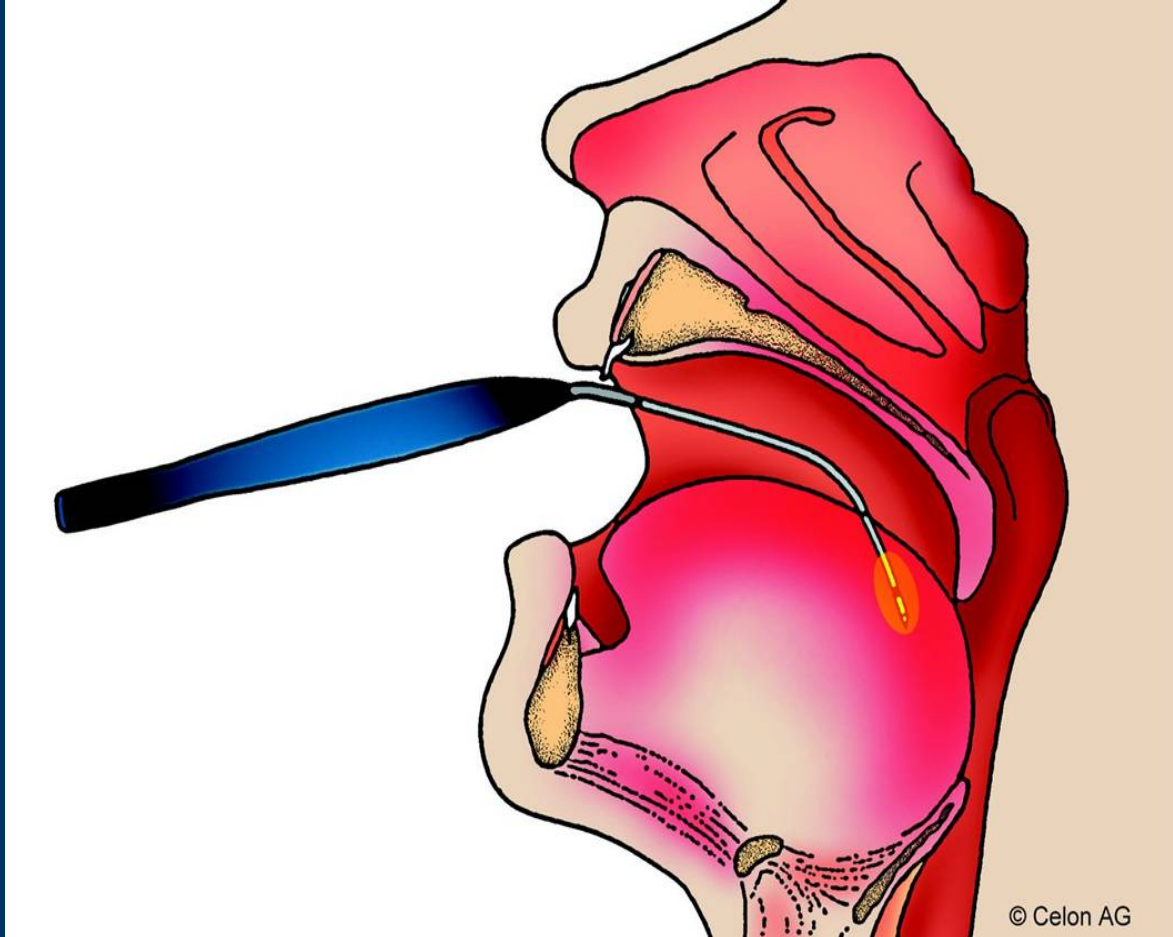
Status na maanden gebruik van de klos....



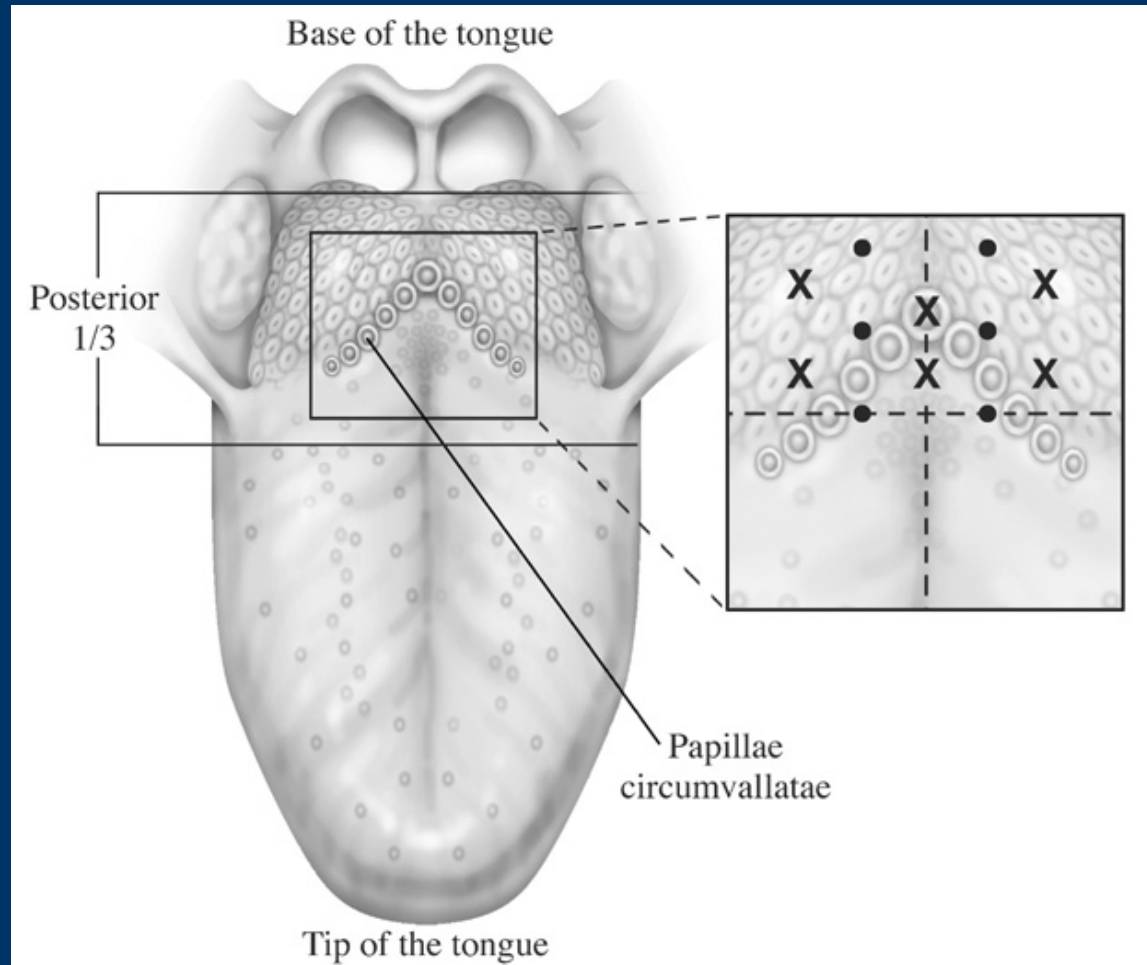
TB-ingrepen

- RFTB, 2 sessies
- RFTB, een sessie
- HTP
- HTP modificatie volgens Hörmann
- HTP + RFTB
- GA
- Hyoïd suspensie
- Midline glossectomy, lingualplasty
- Bedrijven met experimentele TB-ingrepen:
 - InluENT repose
 - Aspire: laterale hyoïd-expansie
 - Aspire: Tongankertje
 - Apneon: aan- en afstotende magneten
 - Pavad
 - ReVent
 - N. hypoglossus stimulatie

Radiofrequente ablatie van de tongbasis (RFTB)



Standaard RFTB, 2 x 6 lesions in 2 sessies, power setting 7 Watt



C. den Herder, H. van Tinteren, D. Kox, N. de Vries. Bipolar radiofrequency induced thermotherapy of the base of tongue: its complications, acceptance and effectiveness under local anesthesia. Eur Arch Otorhinolaryngol 2006 Nov 263 (11):1031-40



pre



24h post

RFTB, complicaties

In enkele US series zijn TB-abscessen gerapporteerd.
In deze studies werden steroïden gegeven.

Wij vonden slechts in 1.8% adverse events en minor complicaties. We geven routinematig antibiotica gedurende 1 week, maar nooit steroïden.

Deze data bevestigen eerdere data uit Mannheim.

C. den Herder, H. van Tinteren, D. Kox, N. de Vries. Bipolar radiofrequency induced thermotherapy of the base of tongue: its complications, acceptance and effectiveness under local anesthesia. Eur Arch Otorhinolaryngol 2006 Nov 263 (11):1031-40

Single Session RFTB

Lionel Nelson, MD, FACS¹

Jose E. Barrera, MD, FACS²

San Jose, CA¹ and Stanford University
Otolaryngology-Head and Neck Surgery
School of Medicine²



Hypothese

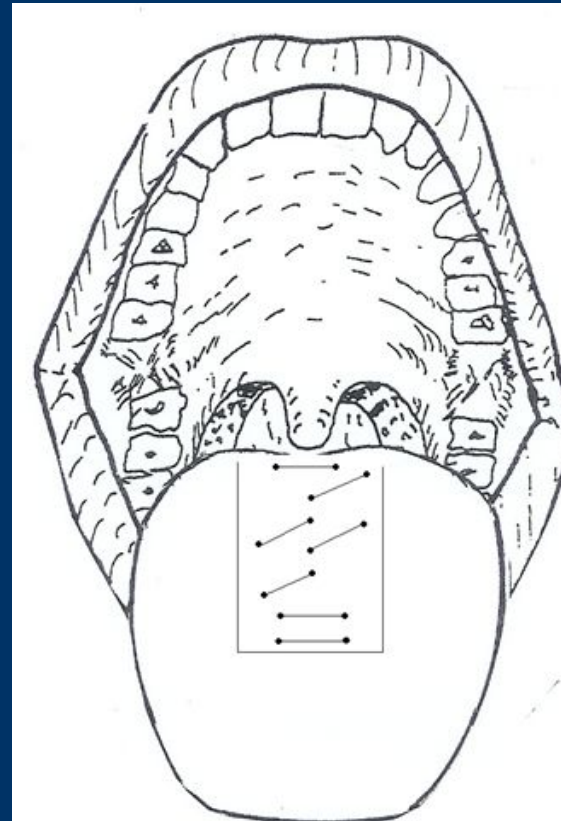
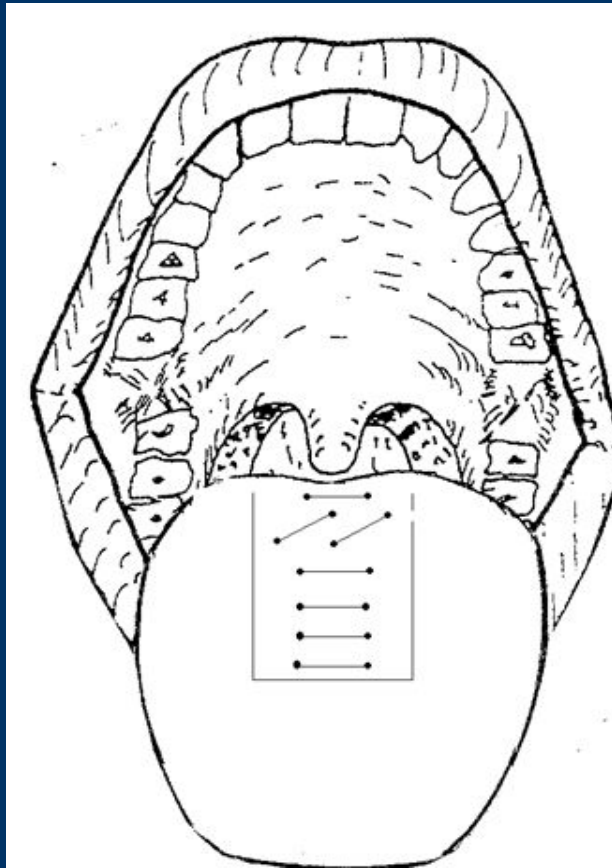
- Een sessie RFTB is effectief, leidt niet tot meer complicaties, en kan ook geïntegreerd worden in multilevel ingrepen.

Study Design

- Gem BMI 28,
- Gem lft 42 jaar.
- 14 lesies, van 750 J met Gyrus Somnoplasty® dual-tong probe.

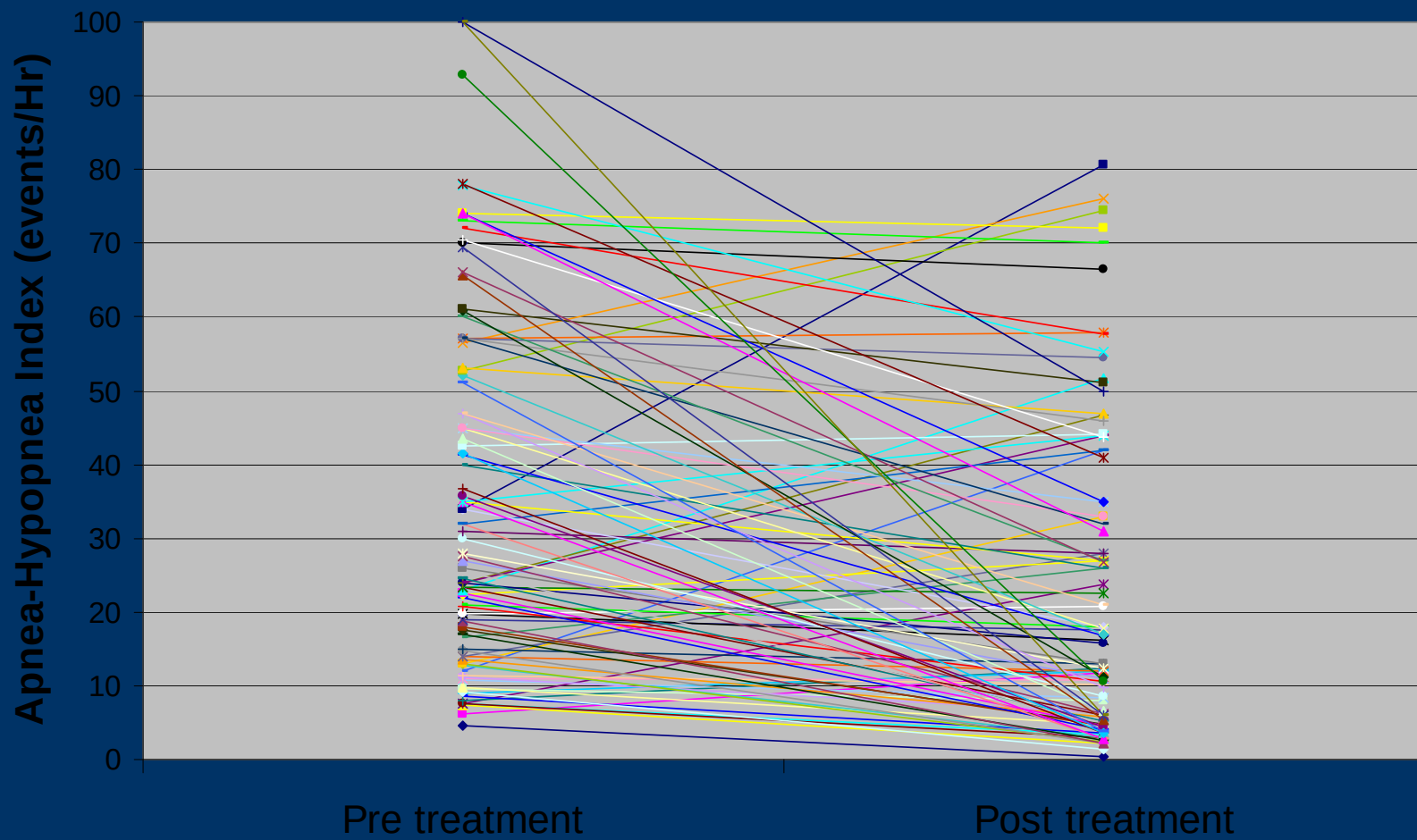


Schema



Pre and Post-operative effect

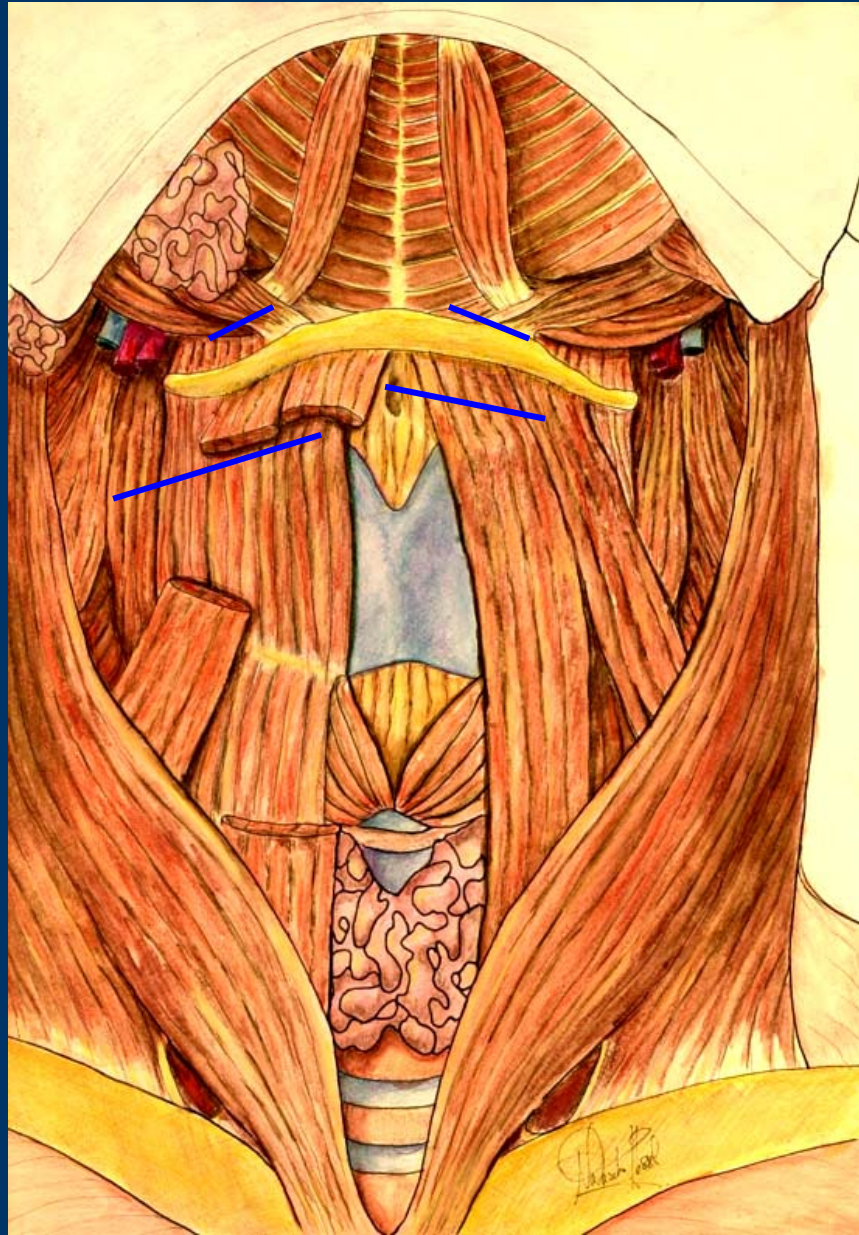
Measure	Preoperative	Postoperative	p value
ESS	11.2 ± 4.9	5.9 ± 4.5	p<.00001
AHI (events/hr)	35.4 ± 23.9	24.3 ± 21.5	p<.00001
Supine AHI (events/hr)	52.9 ± 32.3	26.3 ± 23.3	P<.00001
AI (events/hr)	20.9 ± 23.9	8.3 ± 13.9	P<.00001
LSAT (%)	83.3 ± 8.7	84.6 ± 6.7	P<.05
RAI	41.6 ± 22.9	29.0 ± 20.9	p=.0001
REM (%)	12.7 ± 7.8	18.5 ± 10.5	P<.00001



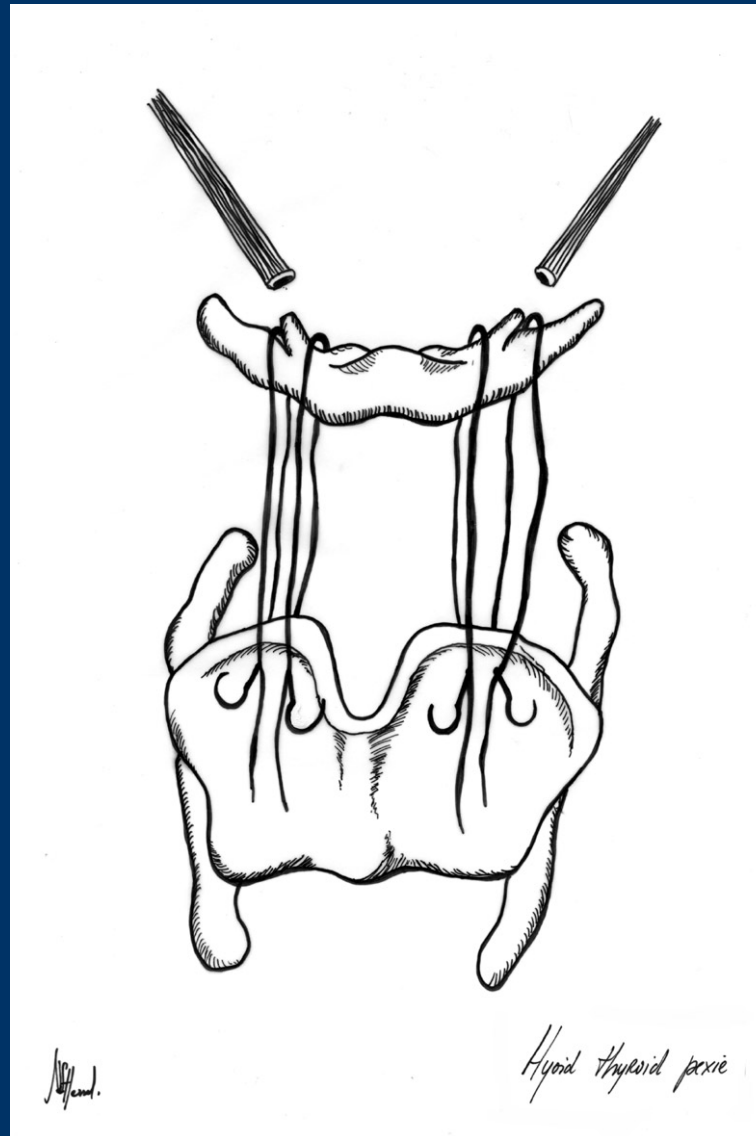
Complicaties van een sessie RFTB

- 8 van de 176 patiënten, hadden adverse events/minor complicaties (4.5%),
- 5 oppervlakkige TB ulcera (2.8%),
- 3 smaakverandering (1.7%) 6 maanden postop.
- Geen abscessen, verandering in tong-mobiliteit of gevoel, geen luchtwegcomplicaties

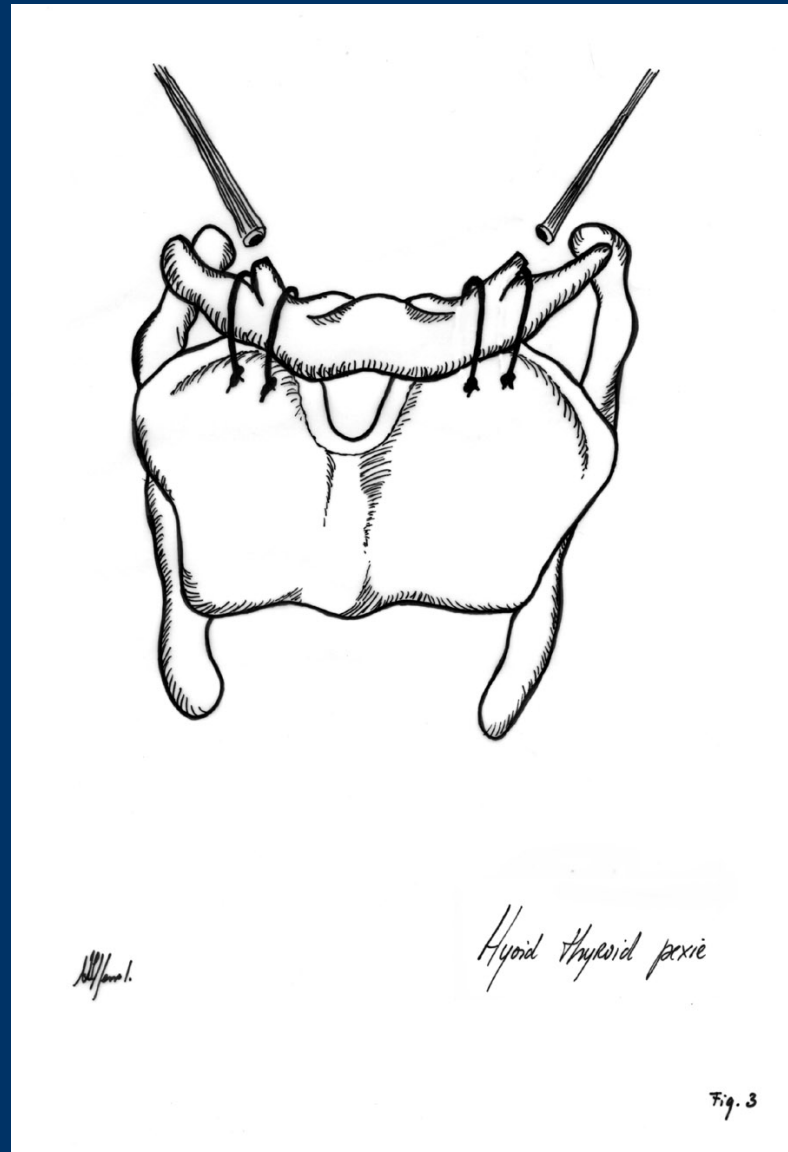
Hyoïdthyroïdpexie



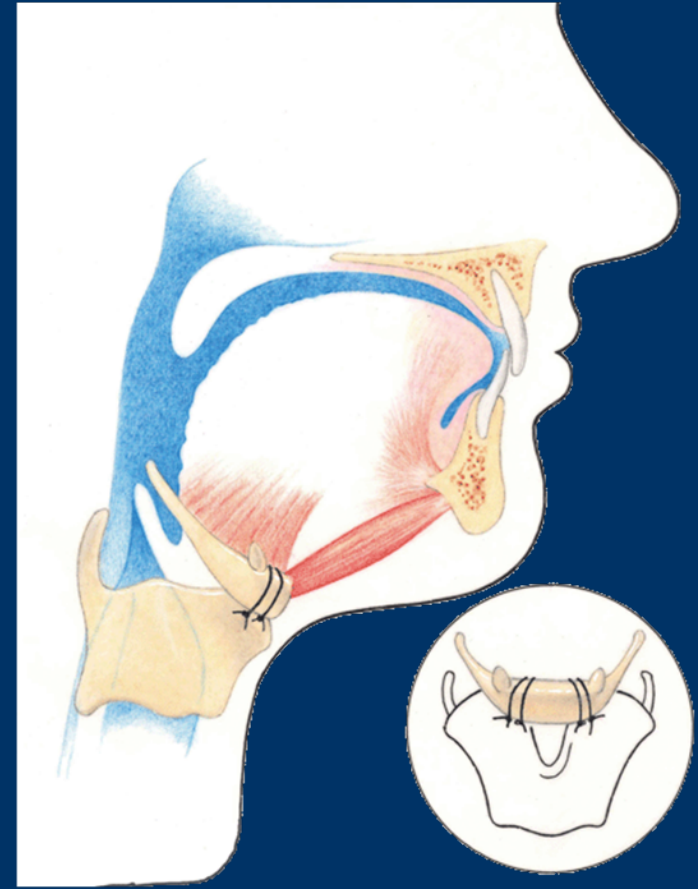
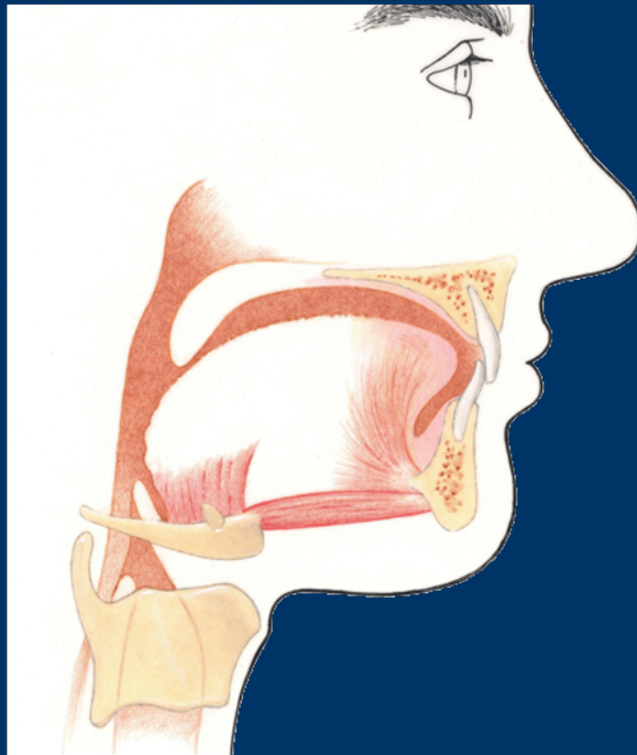
Hyoïdthyroïdpexie



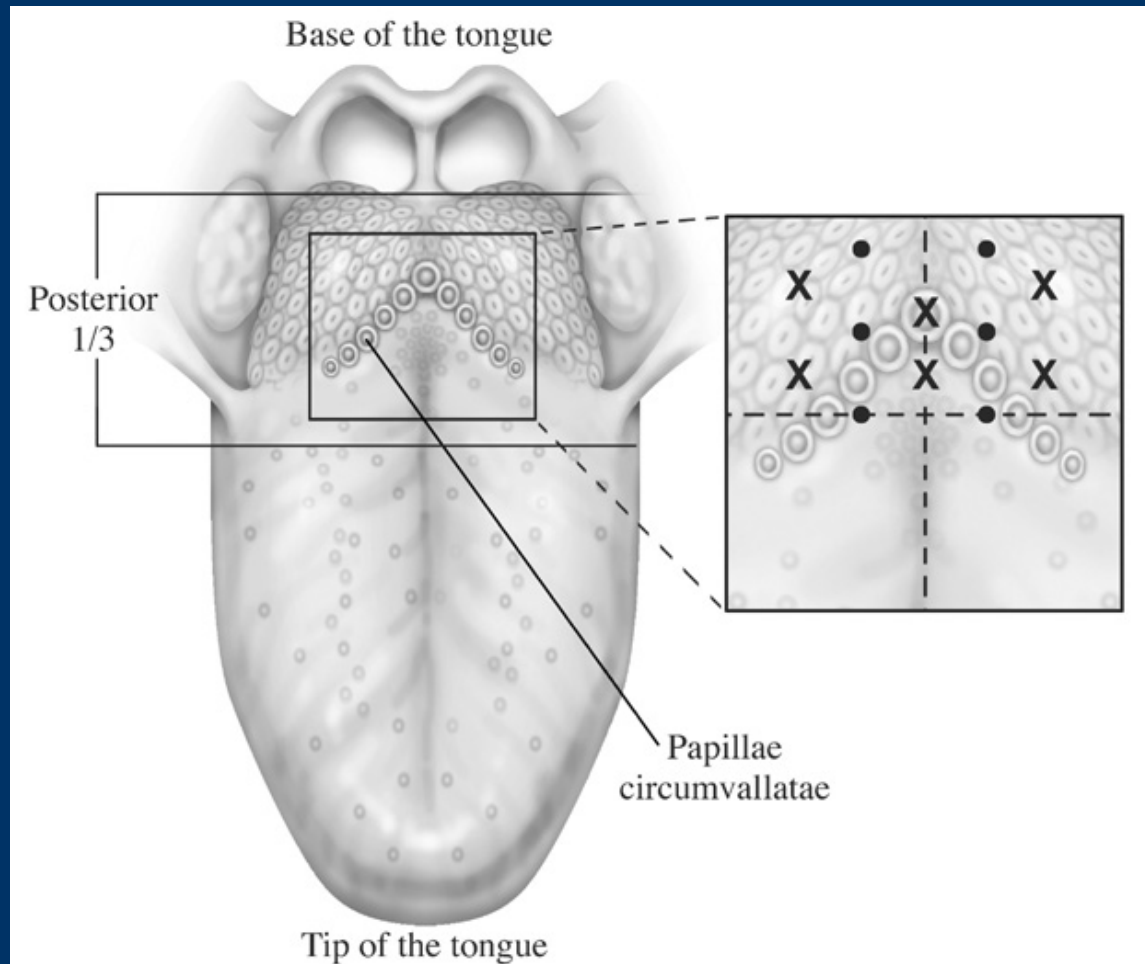
Hyoïdthyroïdpexie



Hyoidthyroidpexie



**Als Hyoidthyroidpexie wordt
uitgevoerd, wordt nu meestal
routinematig ook RFTB verricht**



TB-ingrepen

- RFTB, 2 sessies
- RFTB, een sessie
- HTP
- HTP modificatie volgens Hörmann
- HTP + RFTB
- GA
- Hyoïd suspensie
- Midline glossectomy, lingualplasty
- Bedrijven met experimentele TB-ingrepen:
 - Invent stitch
 - Aspire: laterale hyoïd-expansie
 - Aspire: Tongankertje
 - Apneon: aan- en afstotende magneten
 - Pavad
 - ReVent

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Opening Lecture	Bert Huizing
-----------------	--------------

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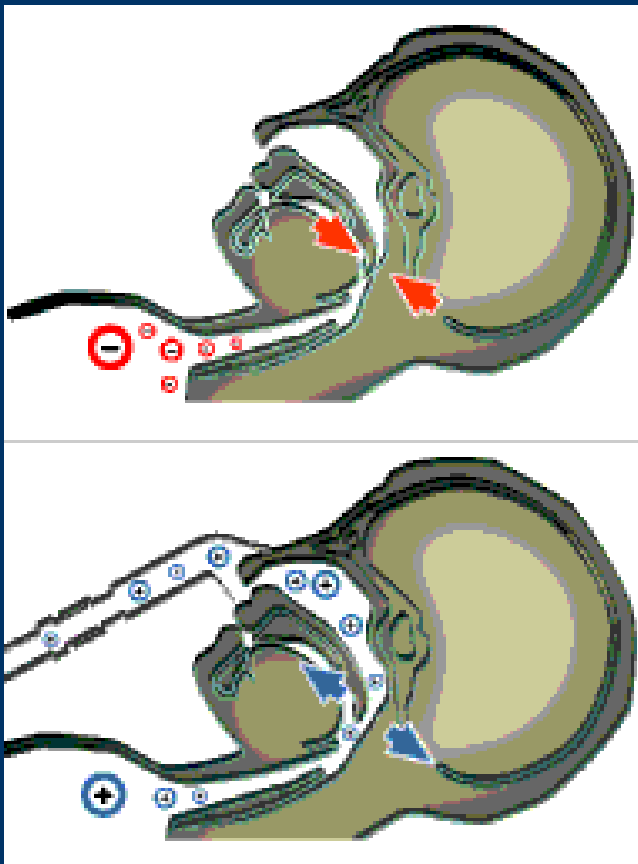
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NCPAP: gouden standaard bij ernstig OSAS, maar..



CPAP-weigeren, niet kunnen verdragen of accepteren, wat dan?

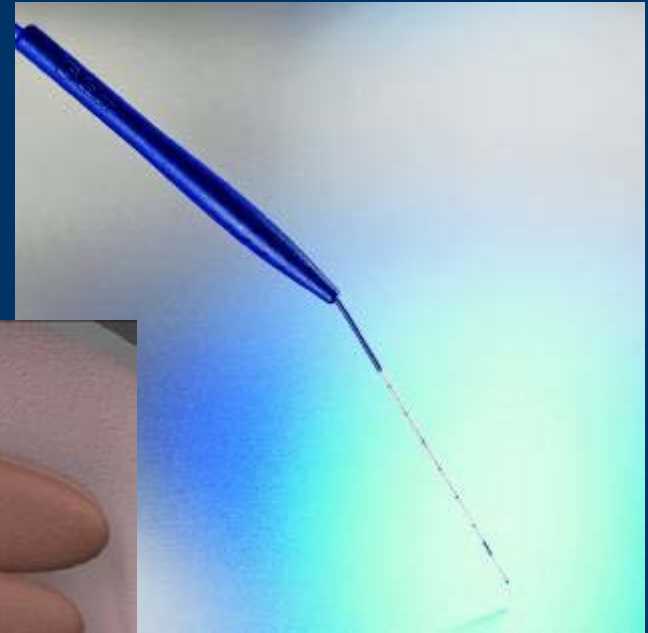
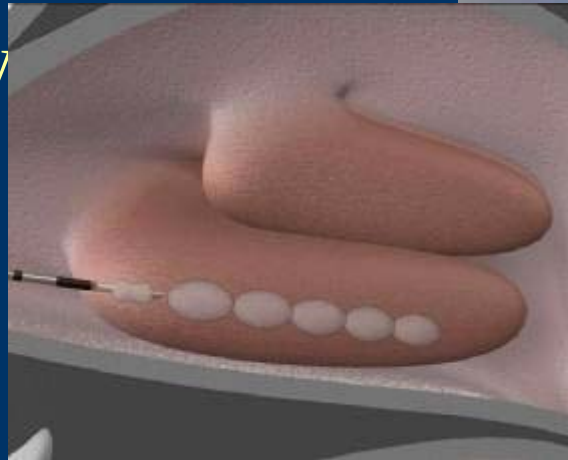
- 30-40% van de patiënten accepteert CPAP niet.
- Indien de neuspassage verminderd is, kan hier soms iets aan worden gedaan met radiofrequentie van de onderste neusschelpen.
- Soms kan een MRA worden aangepast.
- Soms kan zgn Multilevel chirurgie (HTP, UP3, RFTB, +/-GA) worden overwogen.

Concha inferior hypertrofie (CPAP-rhinitis)

bij CPAP-falen

CelonProBreath

Bipolar RFITT for
concha hypertrophy by
interstitial tissue
coagulation



20% of population suffer from chronical nasal obstruction

Additional effect as part of a multi-level treatment for SDB

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-----------------	--------------

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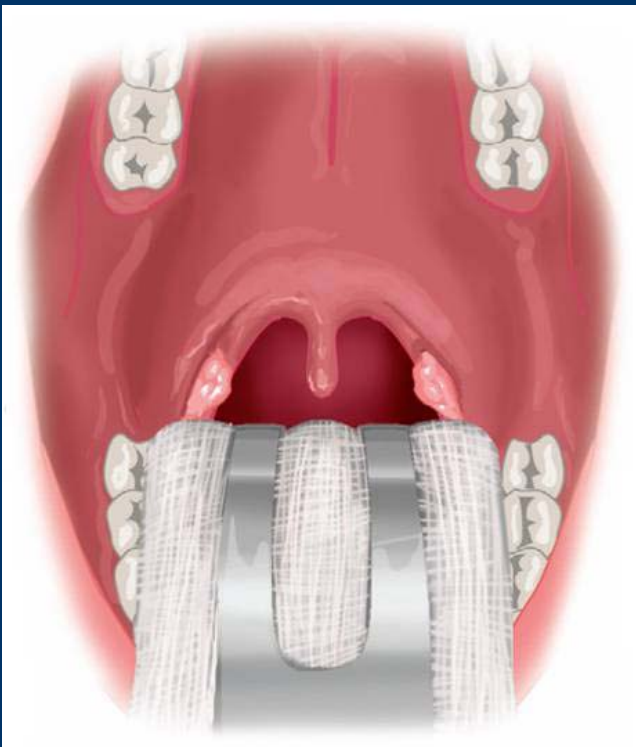
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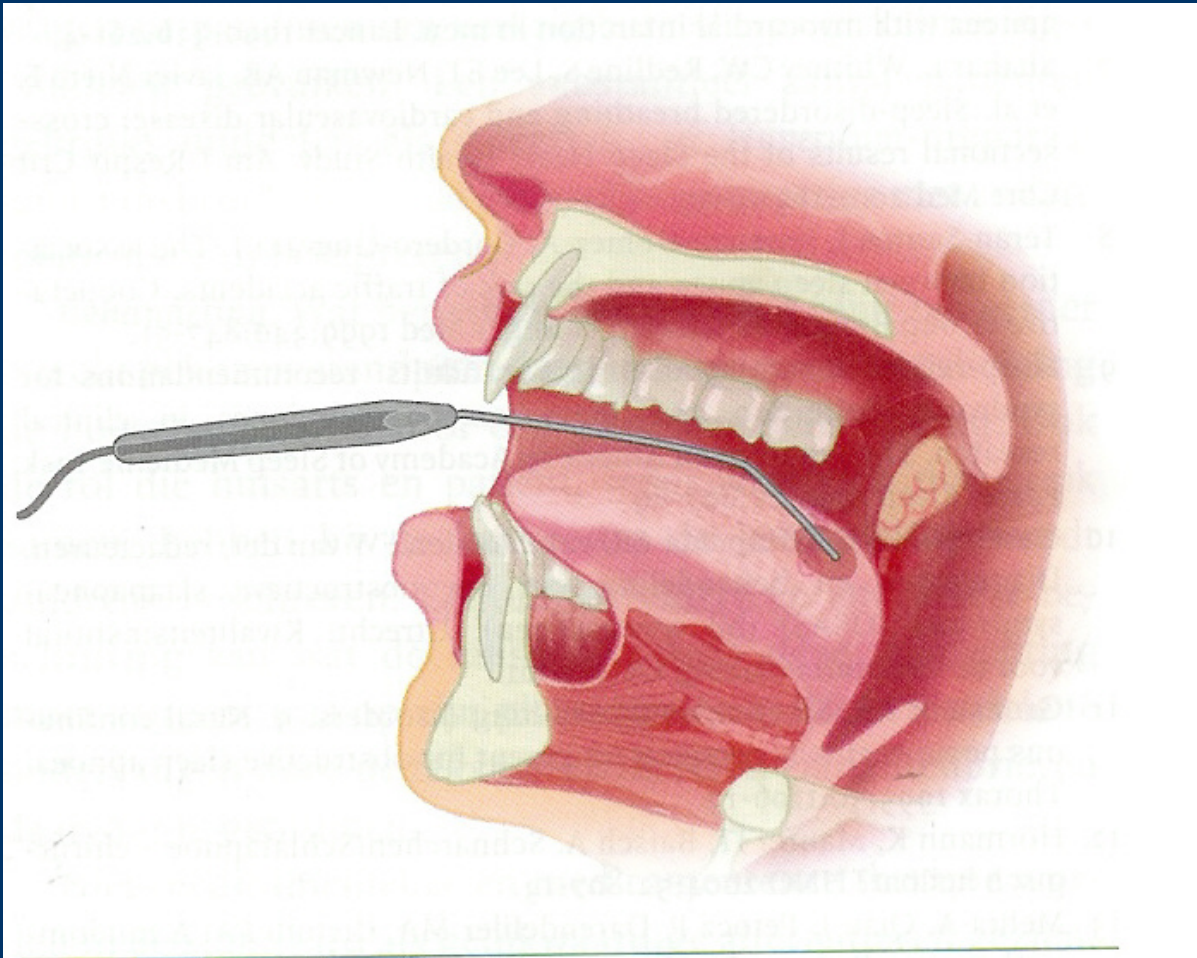
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Uvulopalatopharyngoplastiek

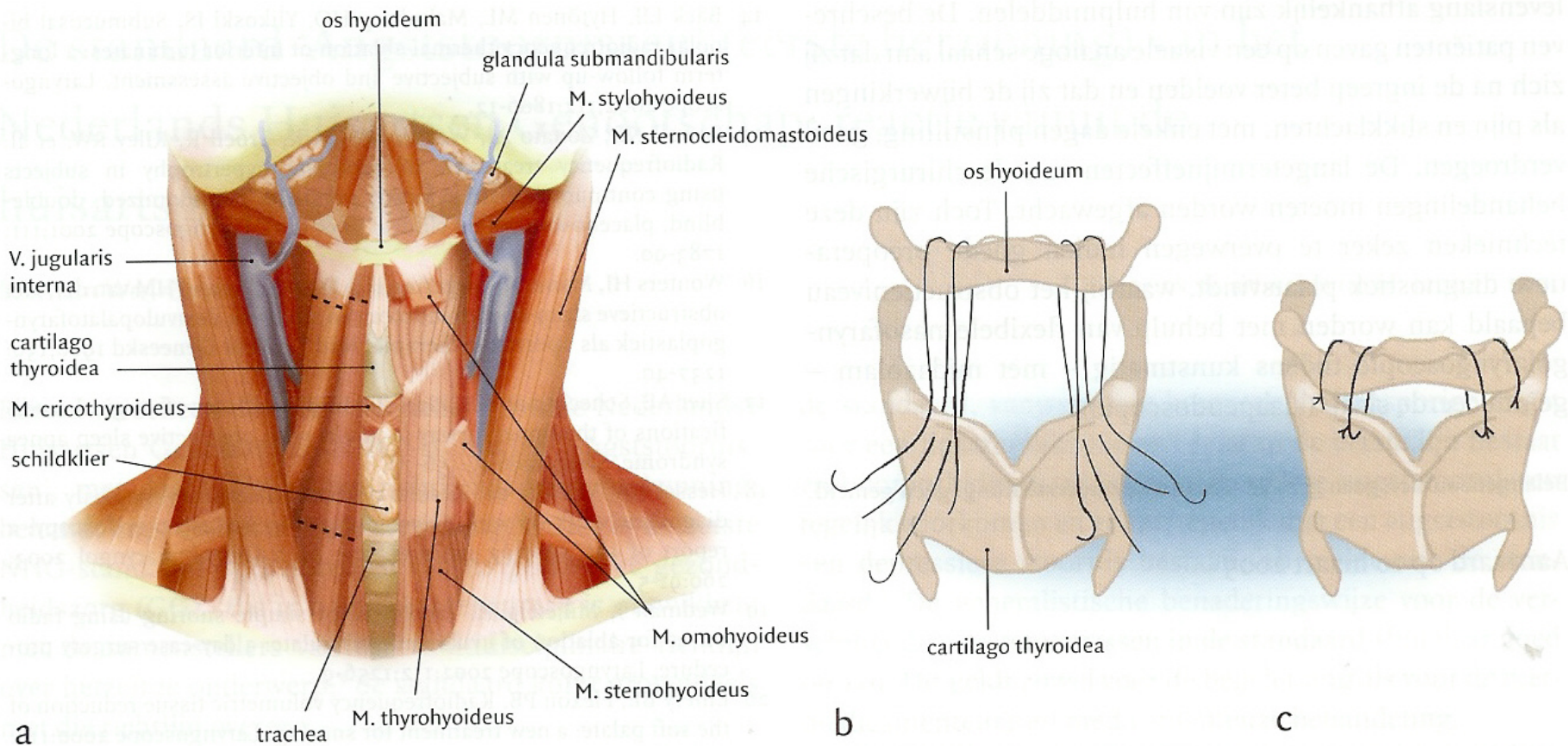


Radiofrequente thermotherapie van de tongbasis “RFTB”

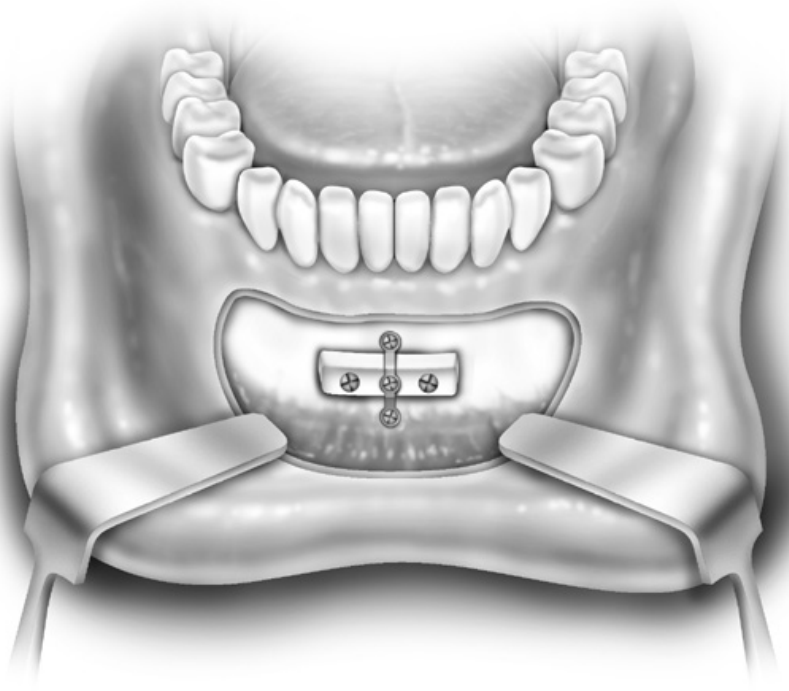
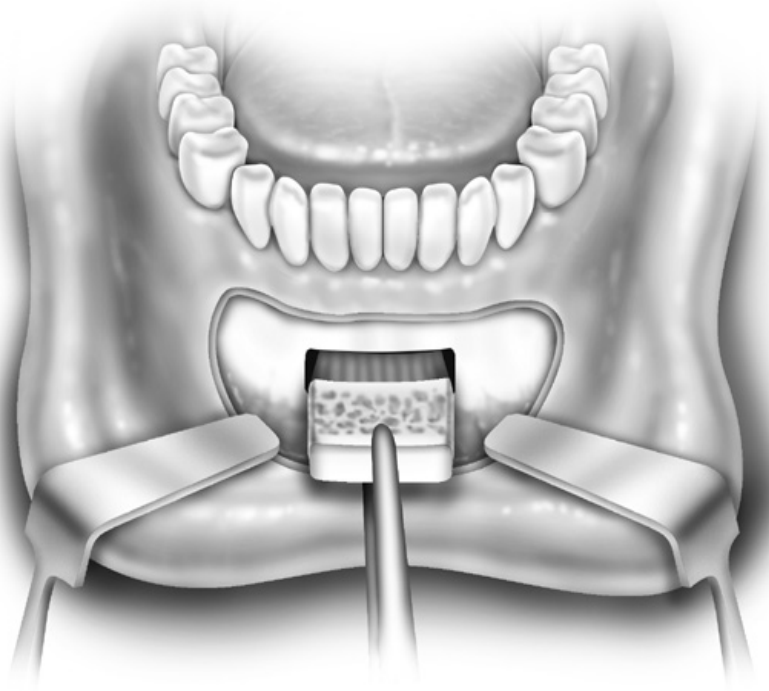
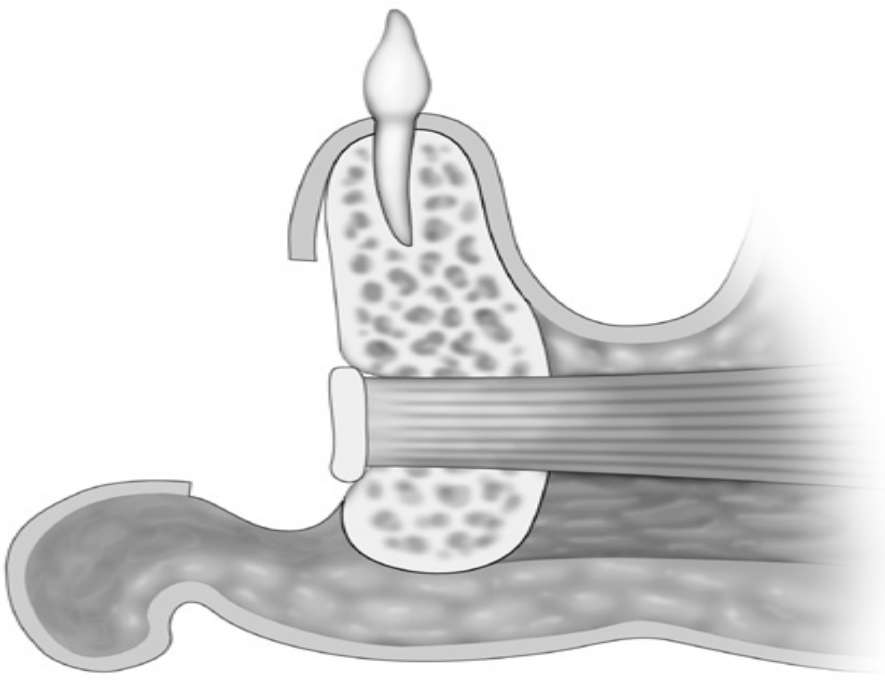
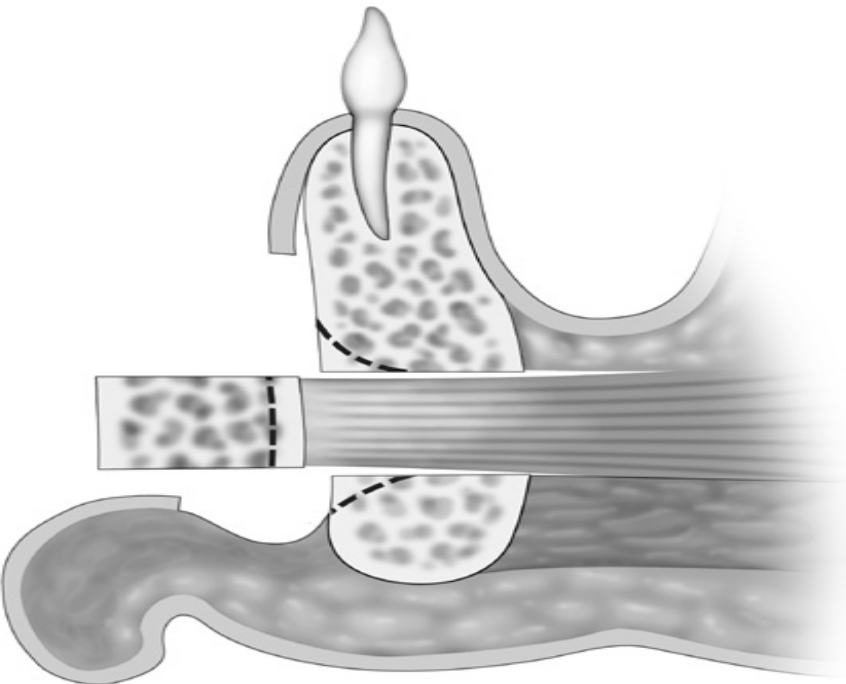


FIGUUR 3. Radiofrequente thermotherapie van de tong; het doel is door verstijving en reductie van tongweefsel te bereiken dat klachten van snurken of van een licht slaapapneusyndroom afnemen.

“HTP”



FIGUUR 2. Hyoïdothyreoïdopexie: infra- en suprahyoïdale spieren worden gekliefd (a); vervolgens wordt het os hyoideum in antero-caudale richting gemobiliseerd en met permanente hechtingen aan het cartilago thyroidea gefixeerd (b en c). De bedoeling is hypofaryngeaal meer ruimte te verkrijgen en klachten van het obstructief slaapapneusyndroom te verminderen.



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-----------------	--------------

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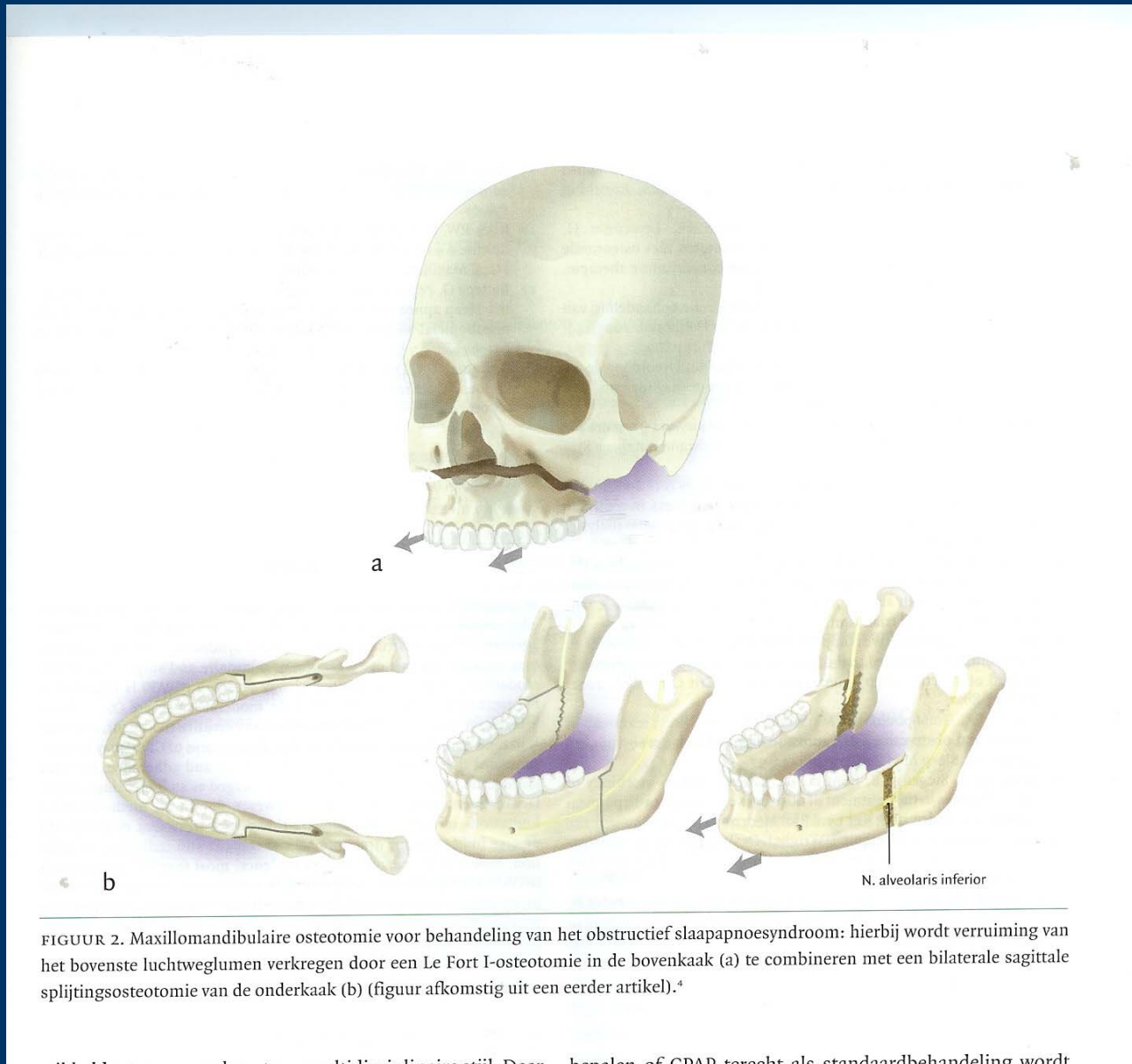
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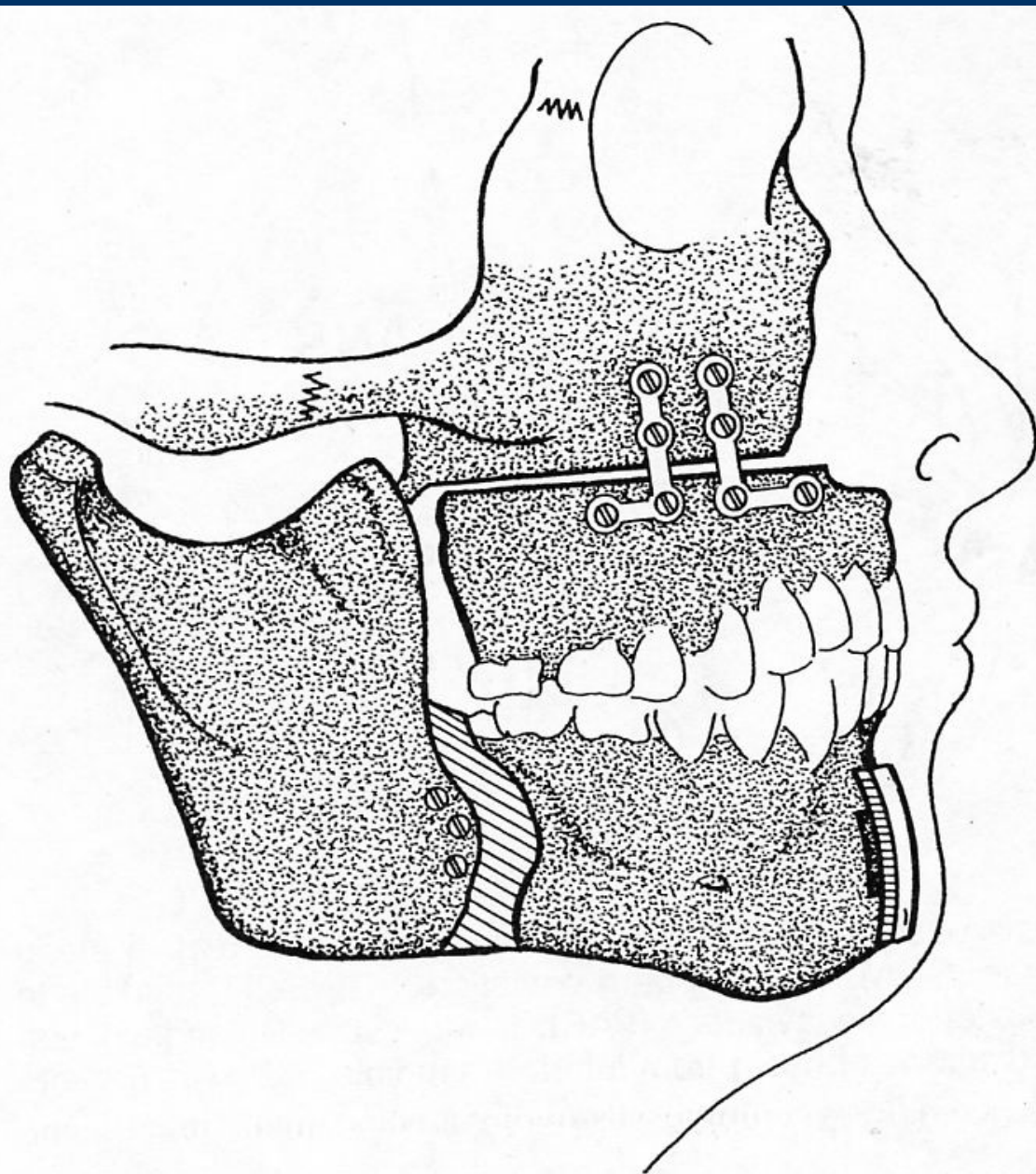
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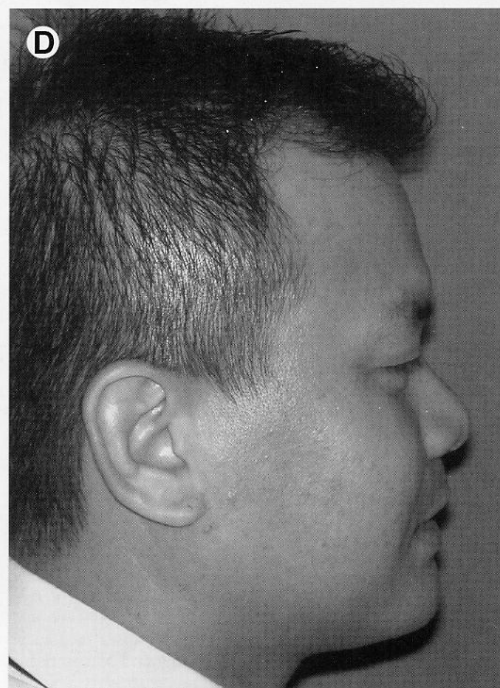
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Bimaxillaire osteotomieën: “Bimax”







Ultimum refugium = tracheotomie

- Tracheotomie moet met de grootste terughoudendheid worden toegepast. Er is een indicatie voor tracheotomie als laatste redmiddel van anderszins niet te behandelen ernstig OSAS.



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-----------------	--------------

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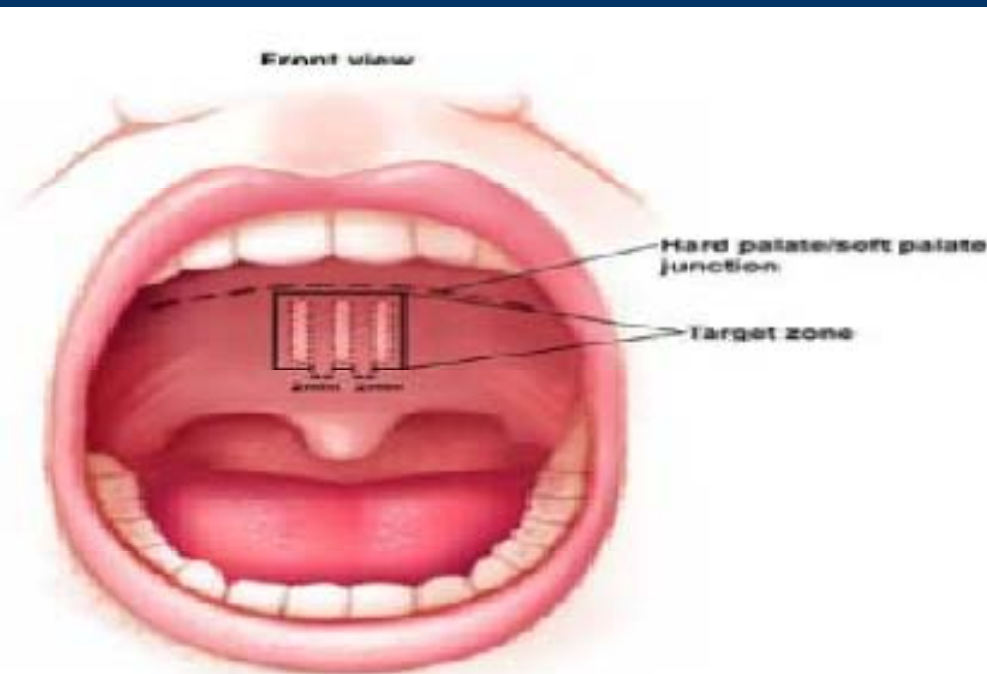
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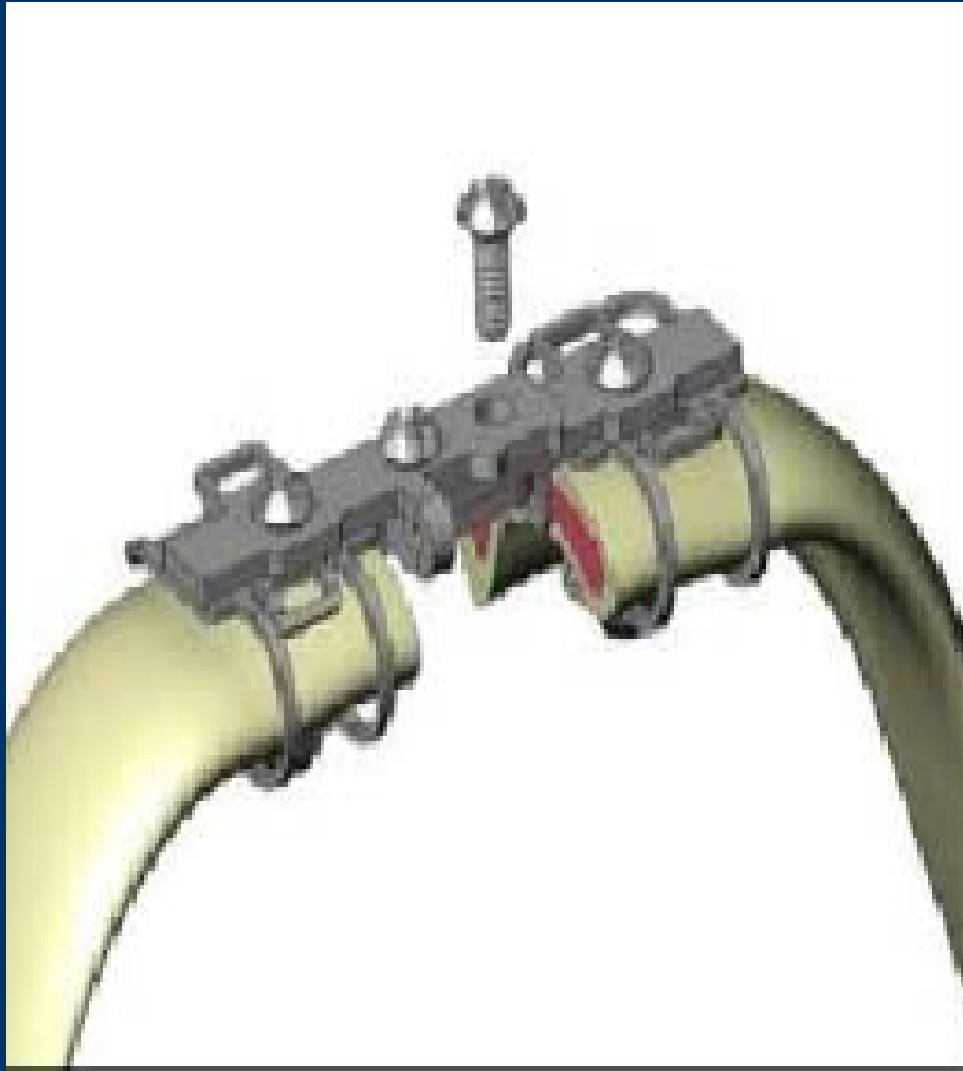
Restore pillars: bij snurken t/m licht OSAS, palatinaal probleem



Hyoid expansion (Aspire)



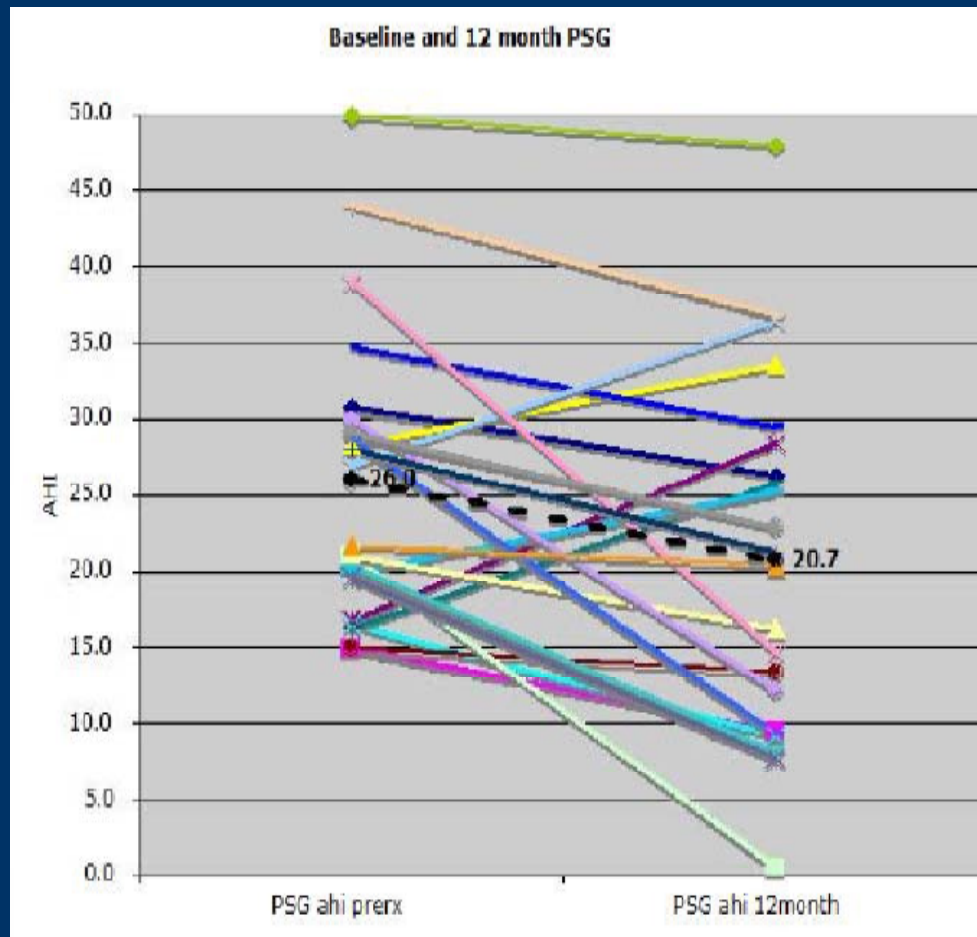
Hyoid expansion (Aspire)



Hyoid expansion (Aspire)



Hyoid expansion (Aspire): matige resultaten voorlopig even “geparkeerd”



Advance system (Aspire)

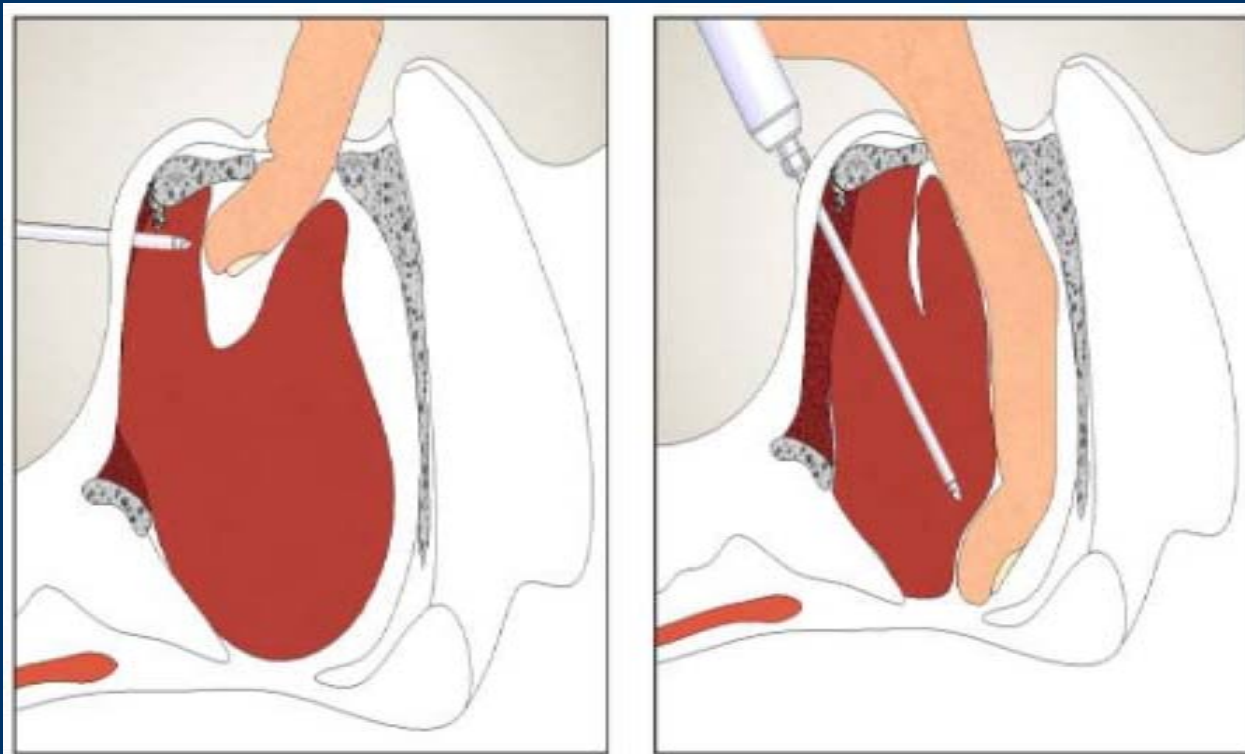


FIGURE 1. Introduction of trocar. Left: Introduction of trocar/cannula into the genioglossus using digital palpation. Right: Positioning trocar at base of tongue approximately at the circumvallate papillae.

Advance system (Aspire)

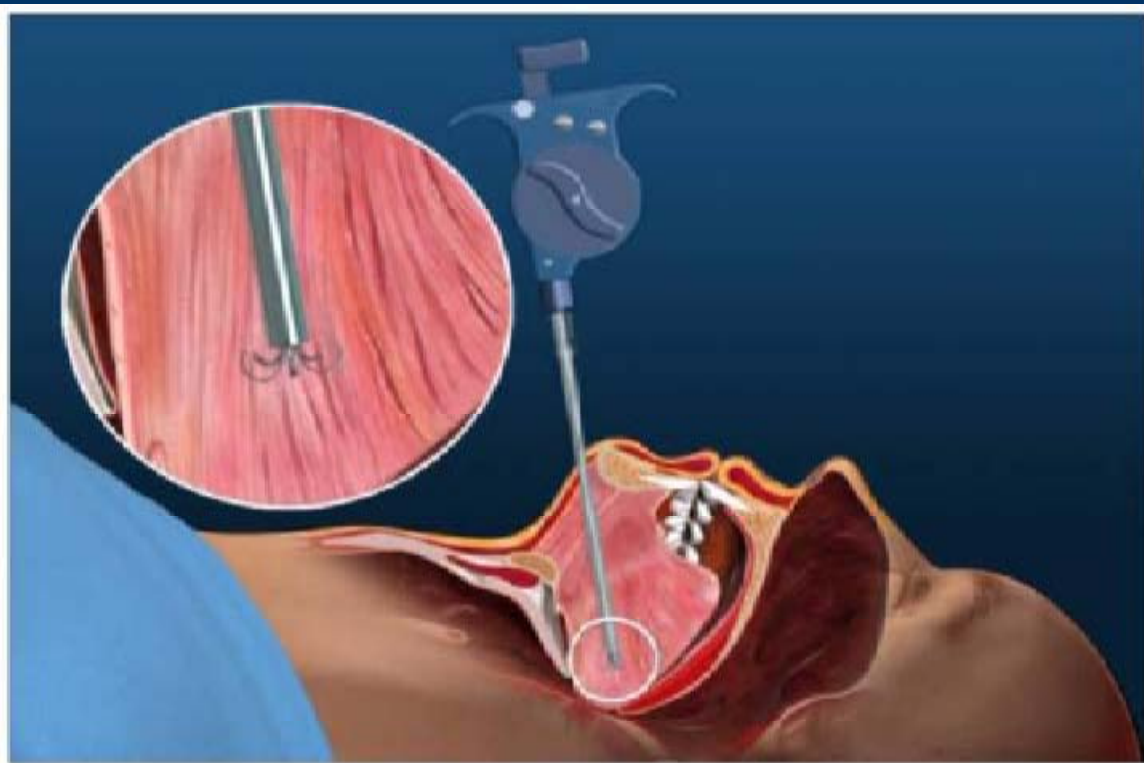


FIGURE 2. Delivery of the tissue anchor into the tongue with the delivery system



Advance system (Aspire)

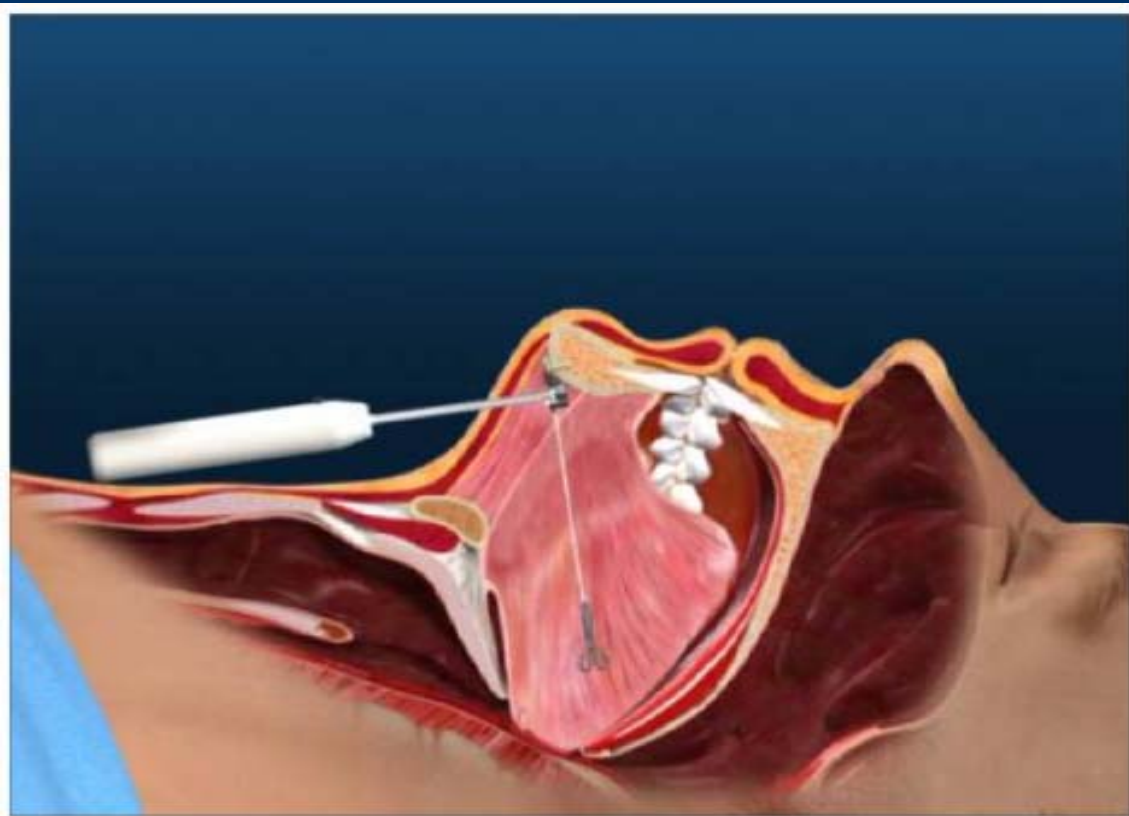


FIGURE 3. Titration Procedure: Patient in supine position, under local anesthesia with sedation, the tissue anchor is advanced with the titration needle until an improvement in airway patency is observed.



Advance system (Aspire)

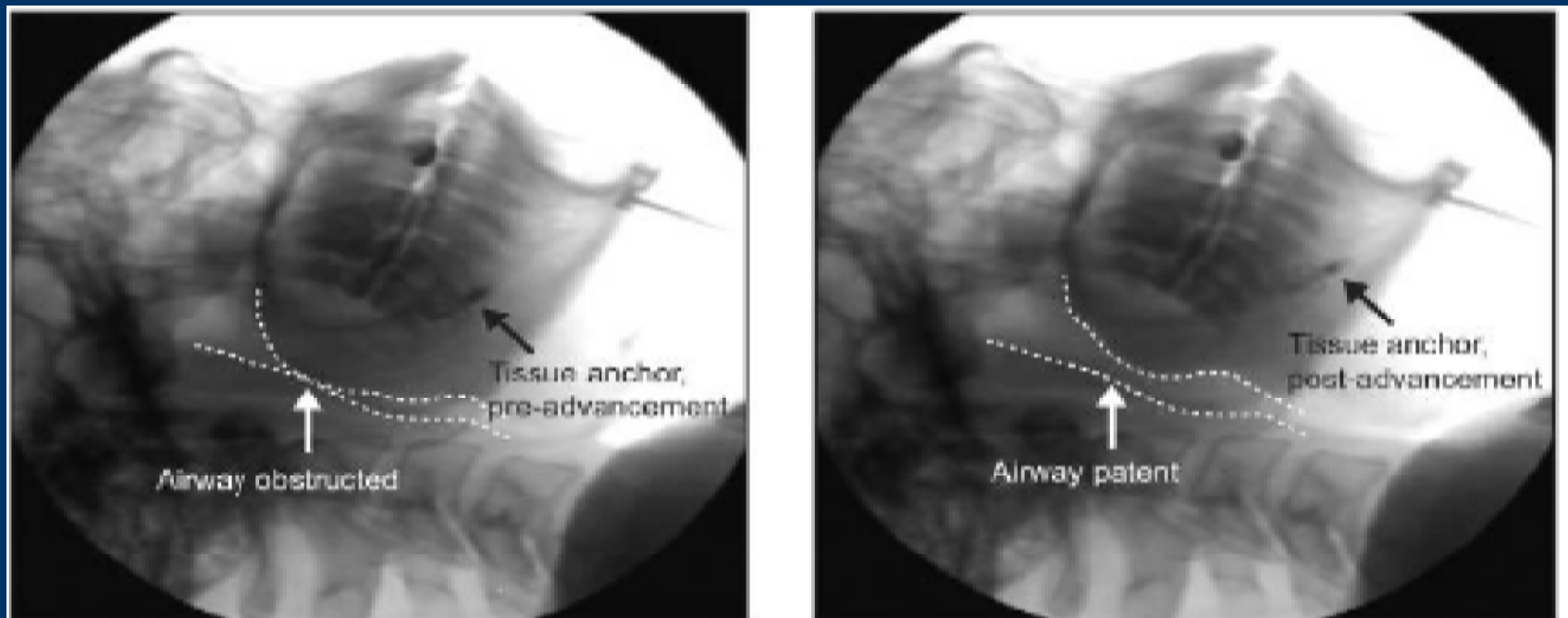
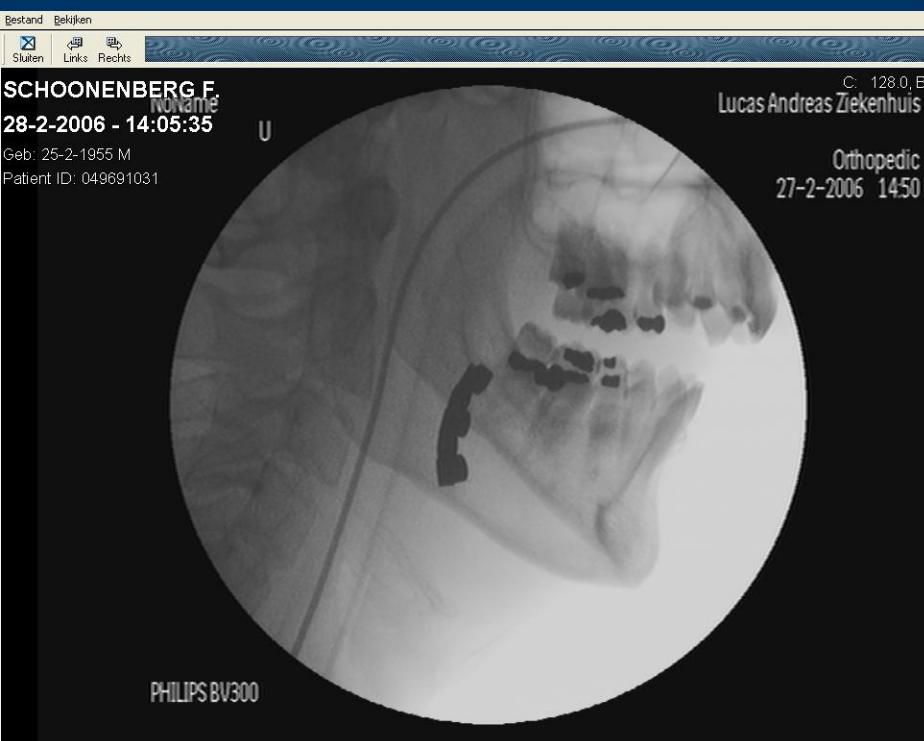
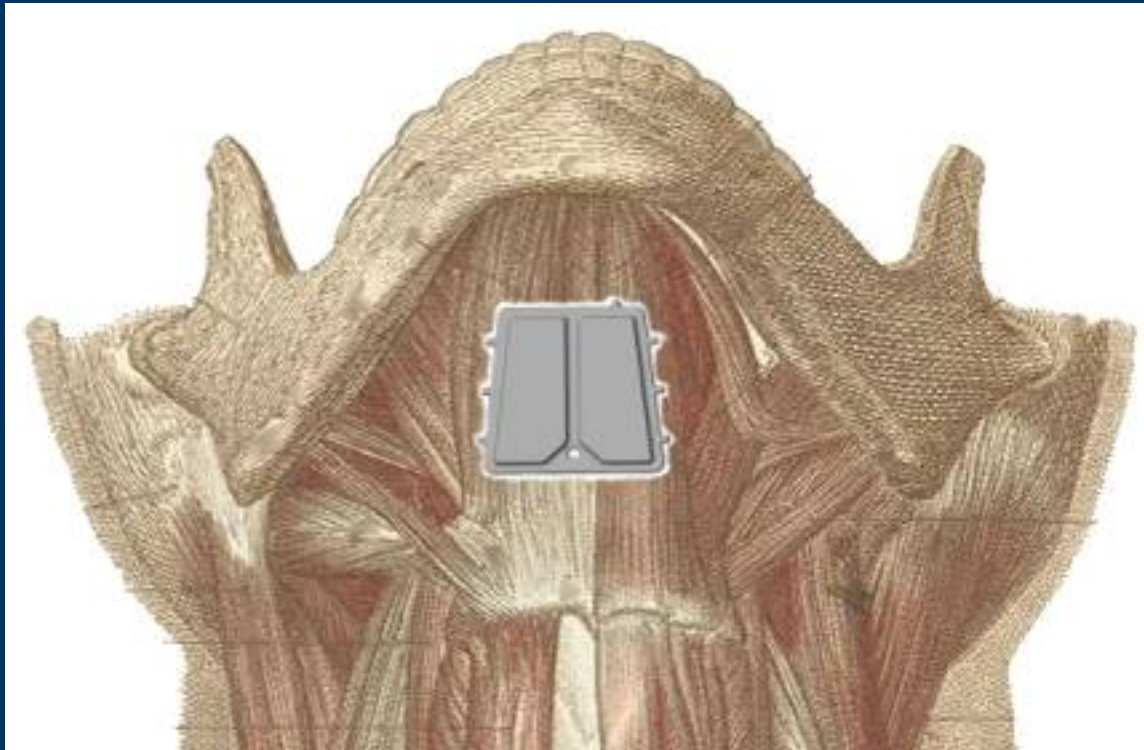


FIGURE 4. Fluoroscopy images demonstrating the effect of 1 cm advancement on airway site in patient 3 during titration (pre-advancement left, post-advancement right).

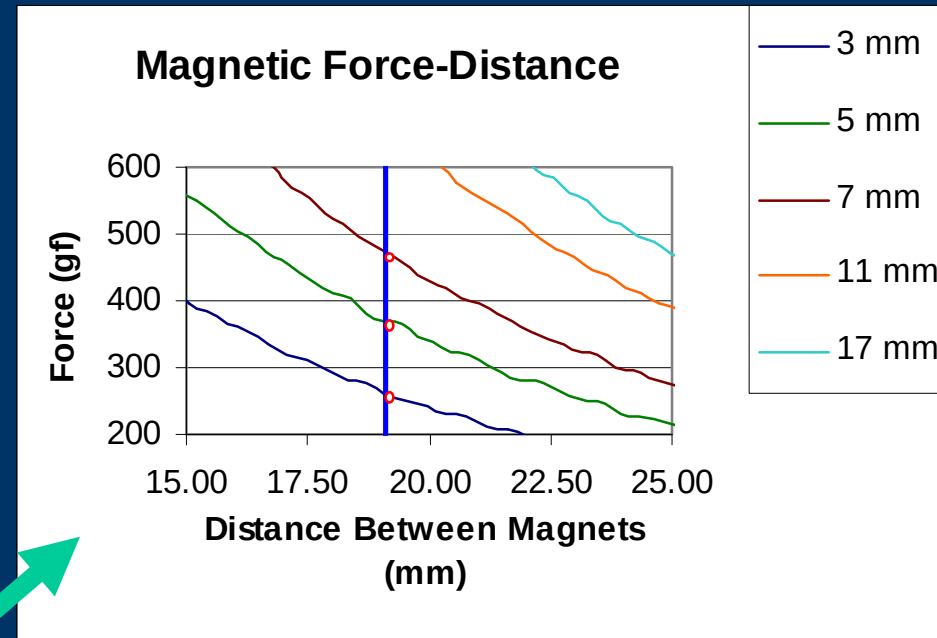
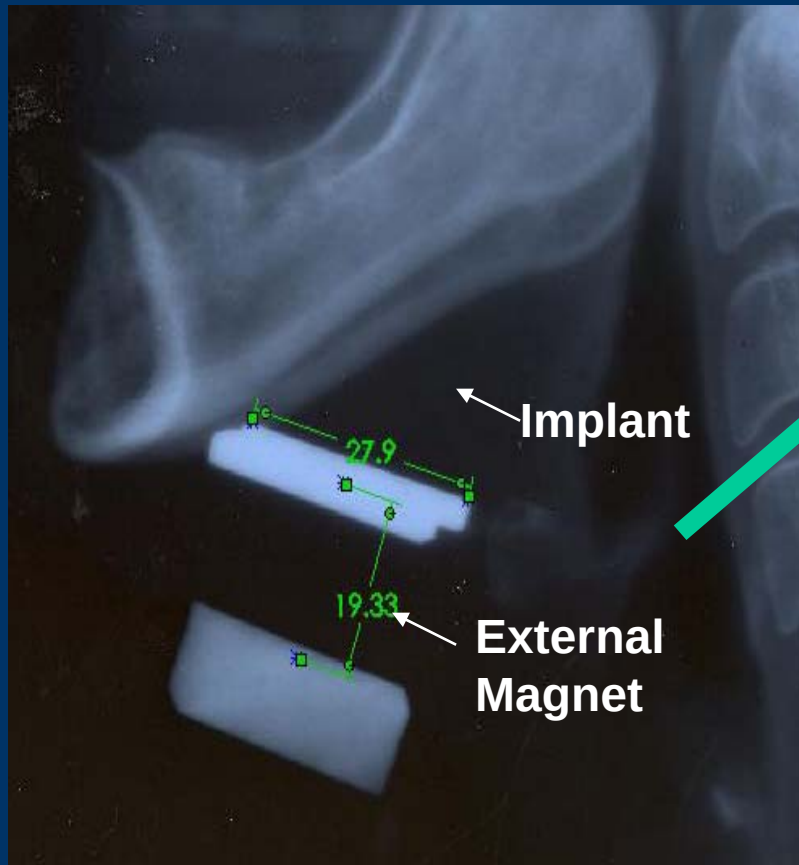
Apneon repelling system



Apneon floor of mouth attracting system



Force Measurement – X-ray



- Distance translated to force using graph

LEVEN MET SNURKEN EN APNEU

- Wat is snurken? Wat is apneu?
- Wat zijn de behandelmogelijkheden?
- Wat kunt u er zelf aan doen?

Bohn
Staflou
van Loghum

Nico de Vries, Piet-Heijn van Mechelen

