

Use of endovenous sclerotherapy in venous malformation of the face and pharynx

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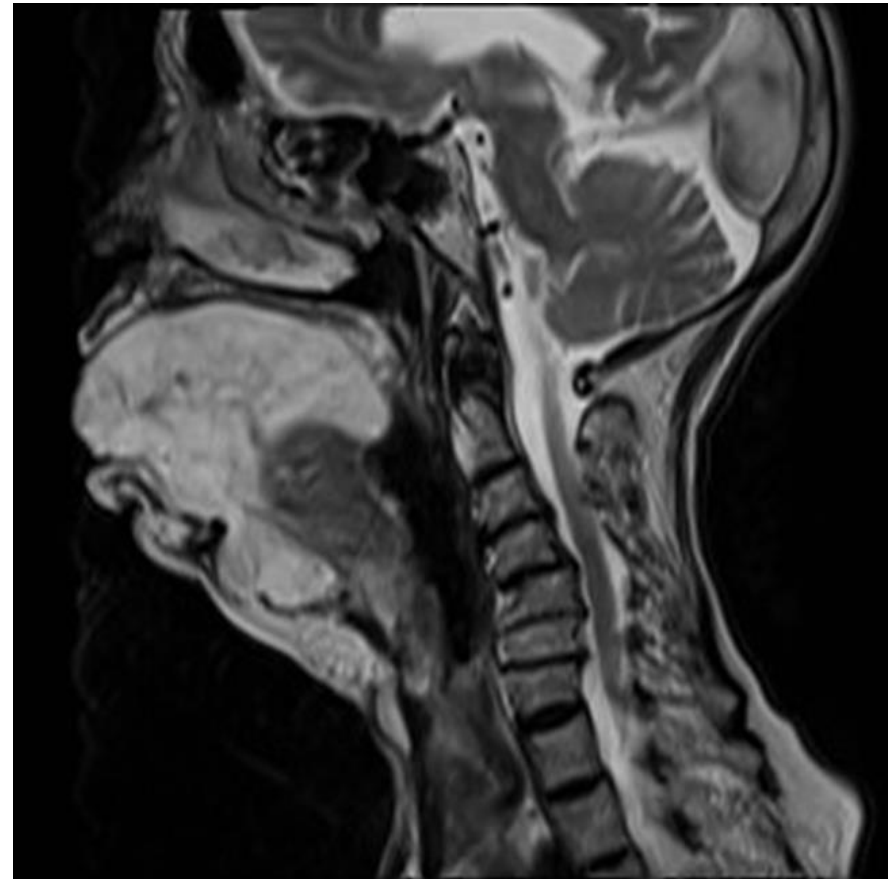
Venous malformation

- Low flow
- Most frequent
 - Head and neck 40%
 - Body 20%
 - Limbs 40%
- Expansion
 - Valsalva
 - Dependent position
- Bluish coloration



Oropharyngeal VM

- Evaluate impact
 - Esthetic
 - Bleeding
 - Nutrition
 - Patency upper airways
- Collaboration with ENT surgeon if
 - involvement of posterior portion tongue
 - Pharynx
 - Larynx



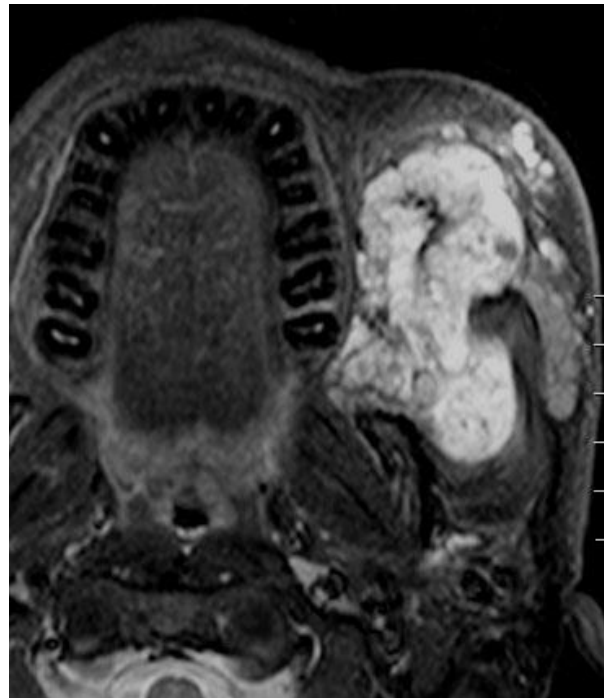
Venous malformation

- Doppler ultrasound
 - Low flow
 - Hypoechoic
 - Compressible venous dilatation
 - Phlebolitis
 - Evaluate feasibility of needle guidance for sclerotherapy



VM & MRI

- Best examination for extension
- T2 (STIR), T1 and T1 fat sat post gado



Invasive treatment

- Sclerotherapy
 - Failure of conservative treatment
 - Pain
 - Aesthetic
 - Bleeding
 - Oropharyngeal compression
- Intralesional Laser
 - Less edema
 - Failure in large lesions
- Rarely surgery

Foam-STS



Efficacy foam-STS > STS liquide

Yamaki T et al. *J Vasc Surg.* 2008;47:578-584

Case series

- CHUM & CHU-Ste-Justine vascular anomaly clinics
- Patient with oropharyngeal VM
- MRI +/- US pre and post-treatment
- Clinical and radiological evaluation:
 - Standardized mean diameter measurement on MRI¹
 - Manchester Orofacial Pain Disability Scale

1. Caty V et al. Clinical validation of semi-automated software for volumetric and dynamic contrast enhancement analysis of soft tissue venous malformations on magnetic resonance imaging examination. Eur Radiol. 2014 Feb;24(2):542-51.

Appendix: Disability questionnaire

Have you had any pain in your face, mouth or jaws for more than 24 h in the past month? Yes No

Have you sought professional advice for this pain? Yes No

Below are some statements about problems people have because of pain in their face, mouth or jaws.

For each statement, please indicate if this has applied to you in the past month.

If so, was this only on some days or on most or every day in the past month?

Because of pain in my face, jaws or mouth:	During the past month this has applied to me: (please tick on line under appropriate statement)		
	None of the time	On some days	On most/everyday(s)
I cannot open my mouth as wide as I could	—	—	—
I cannot touch my face	—	—	—
I have difficulty falling asleep	—	—	—
I wake up at night in pain	—	—	—
I cannot find a comfortable position in which to sleep	—	—	—
I cannot eat hard foods like apples or toast	—	—	—
I take longer to finish my meals	—	—	—
I no longer enjoy my food	—	—	—
I find it sore to kiss	—	—	—
I find it difficult to smile or laugh	—	—	—
People find me difficult to live with	—	—	—
I have had to take time off work	—	—	—
I have lost earnings	—	—	—
I have found it difficult to concentrate	—	—	—
I have problems performing normal household tasks	—	—	—
I would rather be by myself	—	—	—
I find it difficult to talk for long periods of time	—	—	—
I have cancelled social activities and holidays	—	—	—
I am unable to eat out in restaurants	—	—	—
I feel weary/tired	—	—	—
I am irritable, angry and easily frustrated	—	—	—
I cannot stop crying	—	—	—
I am worried that I may have a serious illness	—	—	—
I feel embarrassed and self conscious	—	—	—
I feel depressed	—	—	—
I feel I no longer take any pleasure in life	—	—	—

Pain / discomfort /
breathing

Alimentation

Social

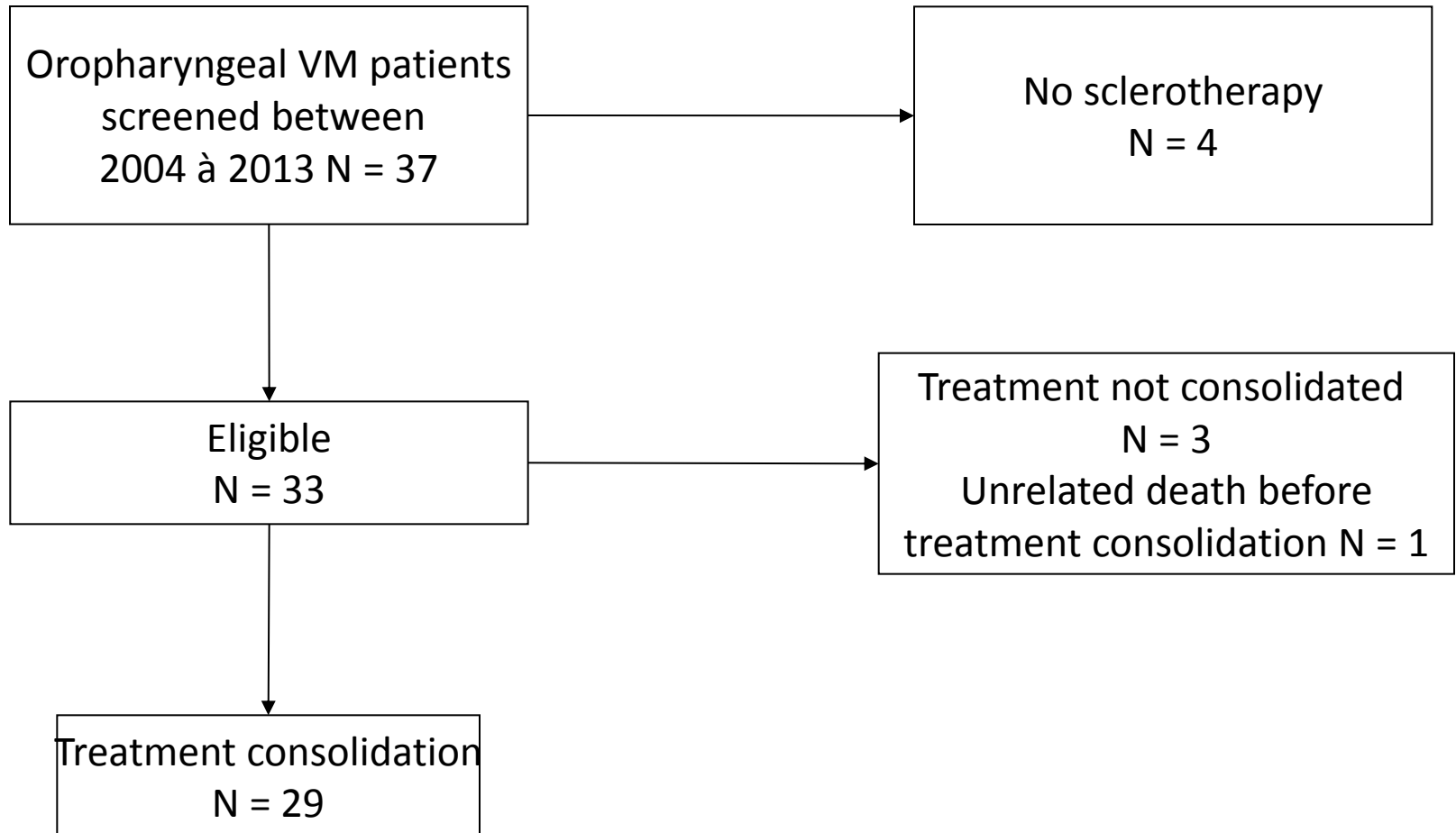
Psychology

I have read and considered ALL of the above statements —.

Methods

- 1.5 T or 3 T MRI
 - T1 spin echo et 2 perpendicular STIR acquisitions
 - T1 VIBE post contrast a 0, 1, 2, 5 et 10 minutes
- Treatment with
 - Sclerosing foam (sodium tetradecyl sulfate (STS)3%-air-liopodol)
 - Bleomycine-non ionic contrast.
- Multidisciplinary team (ENT)
 - Evaluation of tracheostomy
 - Endoscopic guidance for VM puncture
 - Fluoroscopy for sclerotherapy

Patient flow chart

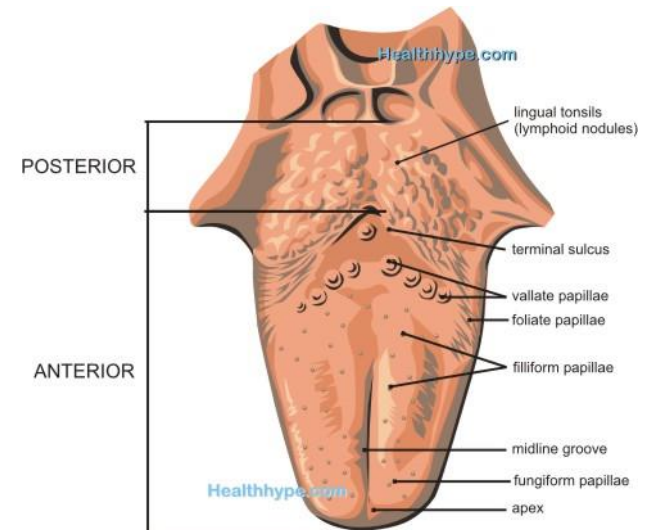


Patient population, anatomy and VM classification

Demographics	
Age	43 (14-77)
Sexe (M:F)	16:17
Lesion localization	
Anterior	20 (61%)
Posterior	13 (39%)
Classification	
Venous	28 (85%)
Venous-lymphatic	5 (15%)
Anesthesia	
Locale	11 (33%)
General	22 (66%)
Treatment	
STS	31 (94%)
Bléomycine	2 (6%)

Posterior:

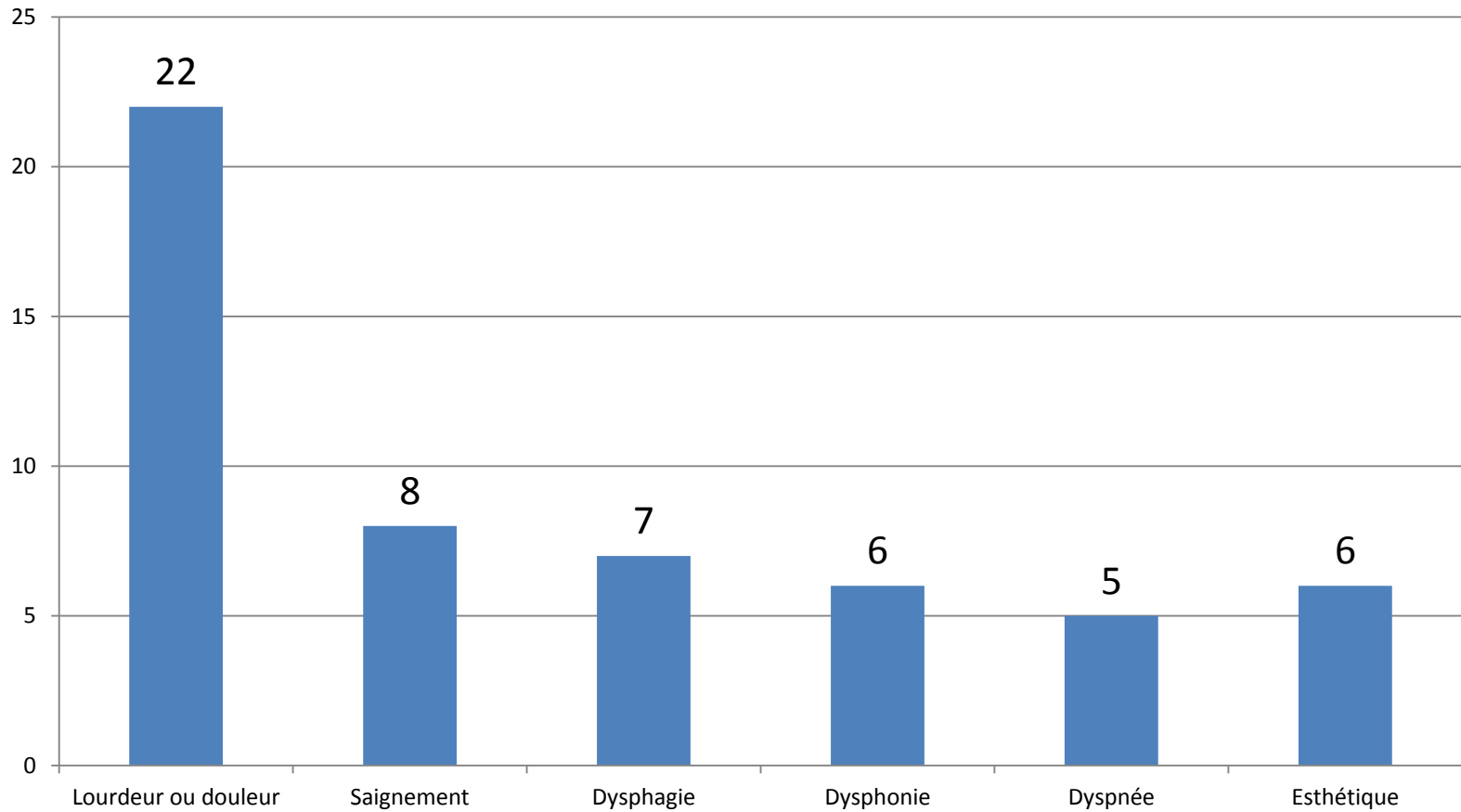
1/3rd posterior tongue,
rhinopharynx, oropharynx,
larynx



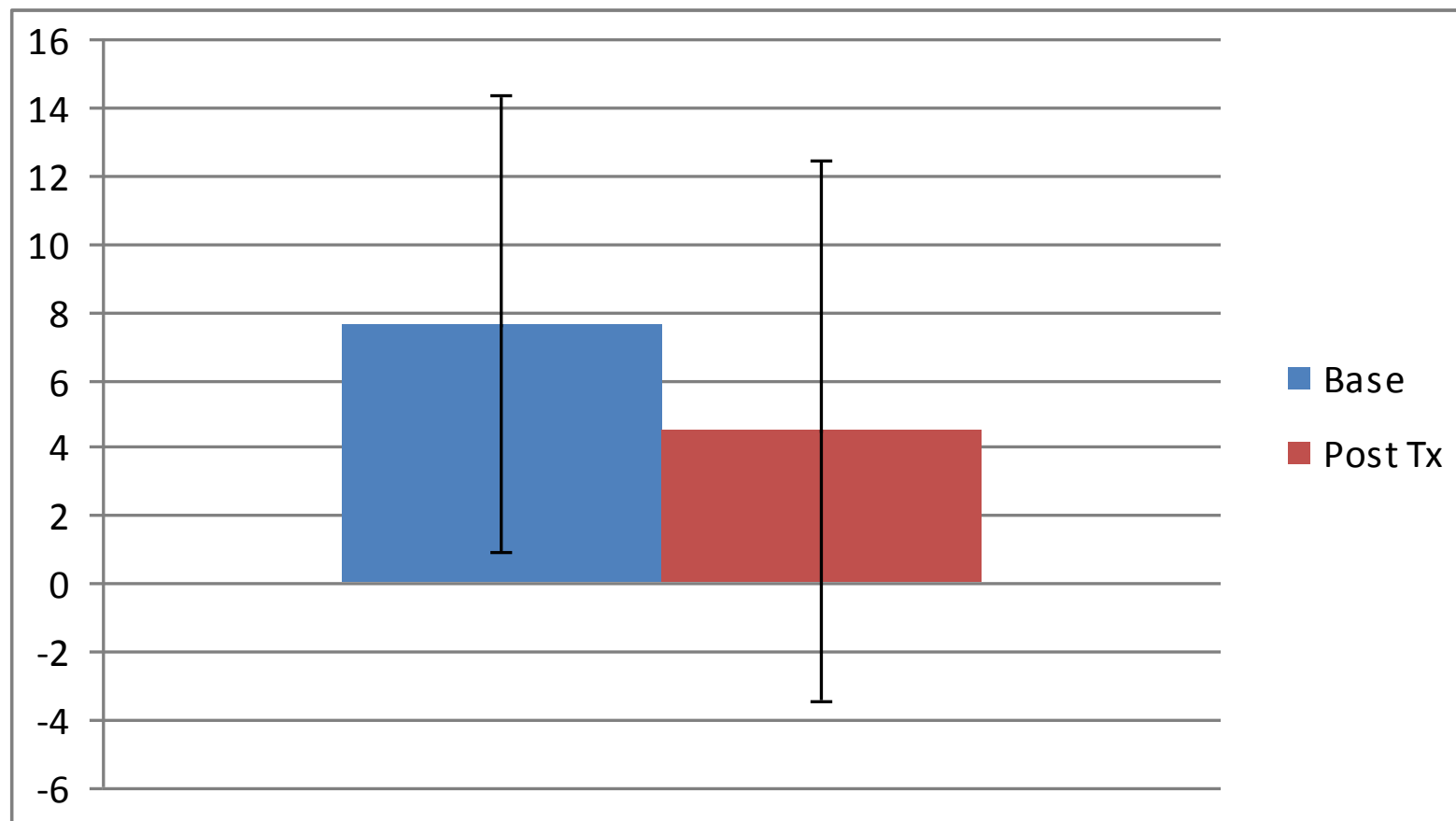
Anterior:

Lip, mobile portion tongue,
masticator space , cheek

Results – symptoms



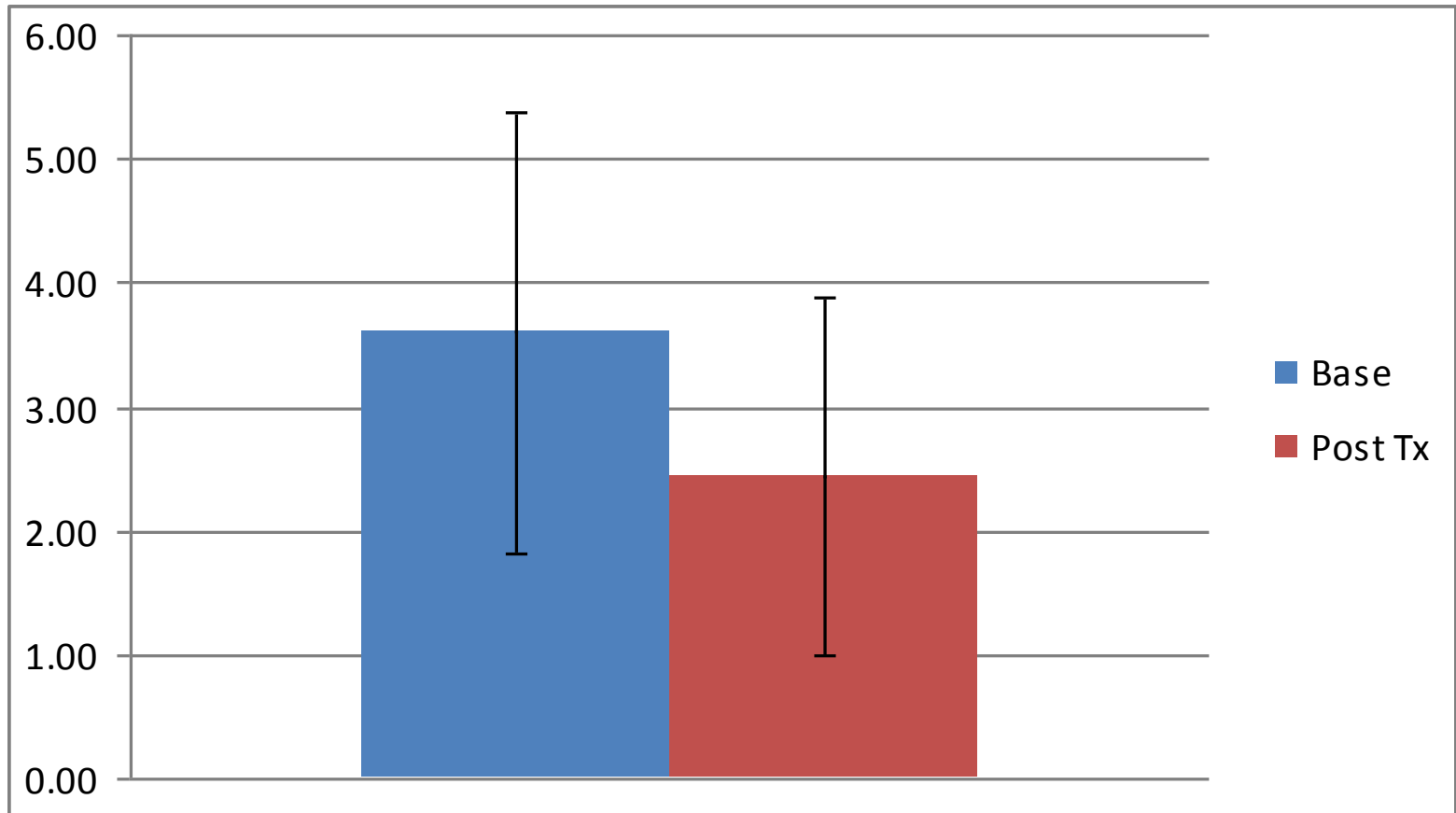
Results –Manchester Score



Baseline: 7,63 \pm 6,70 t-test: p = 0,008

Post Tx: 4,48 \pm 7,93

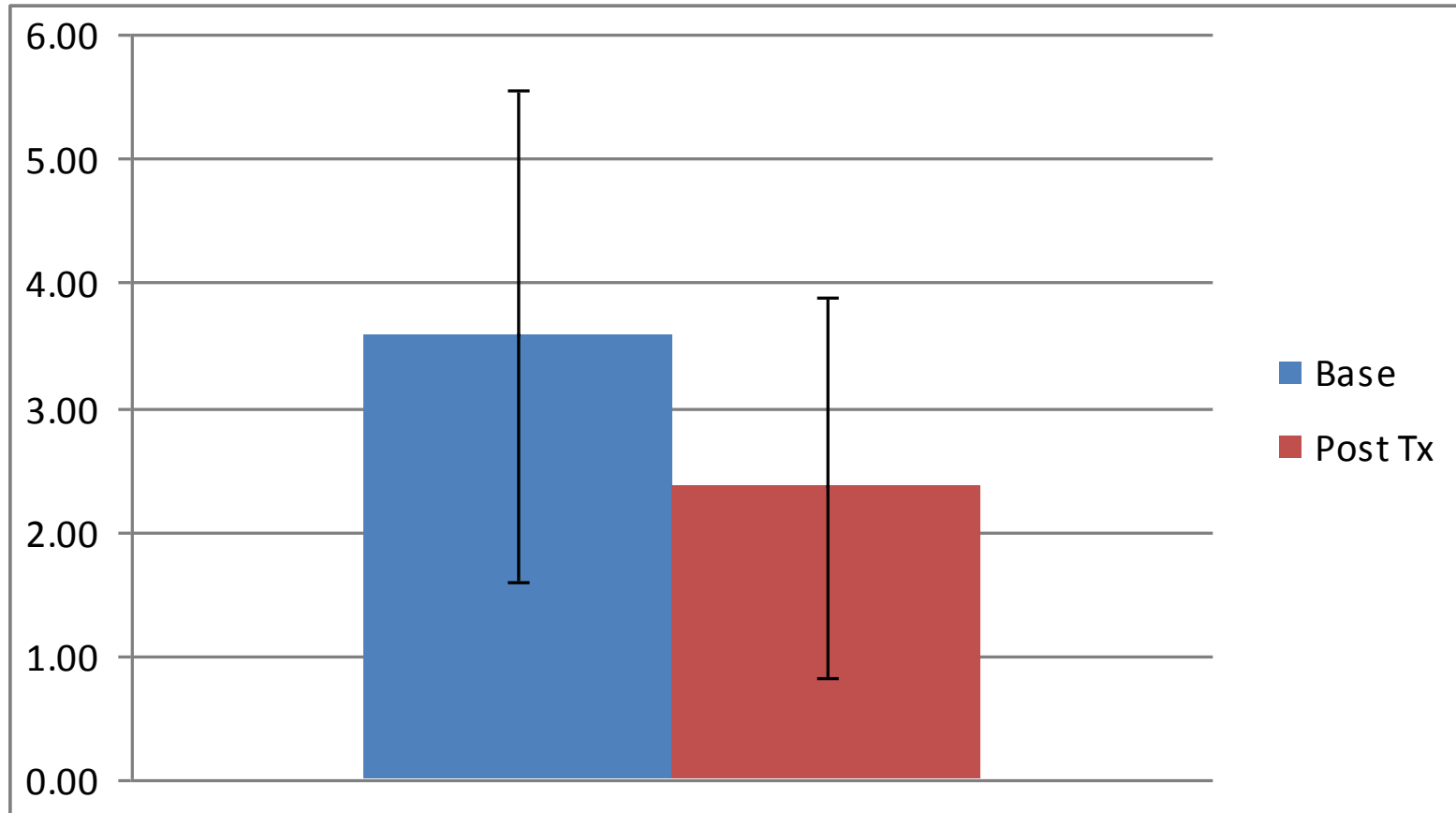
Results – size (mean diameter) Per patient



Baseline: $3,60 \pm 1,78$ t-test: $p < 0,0001$

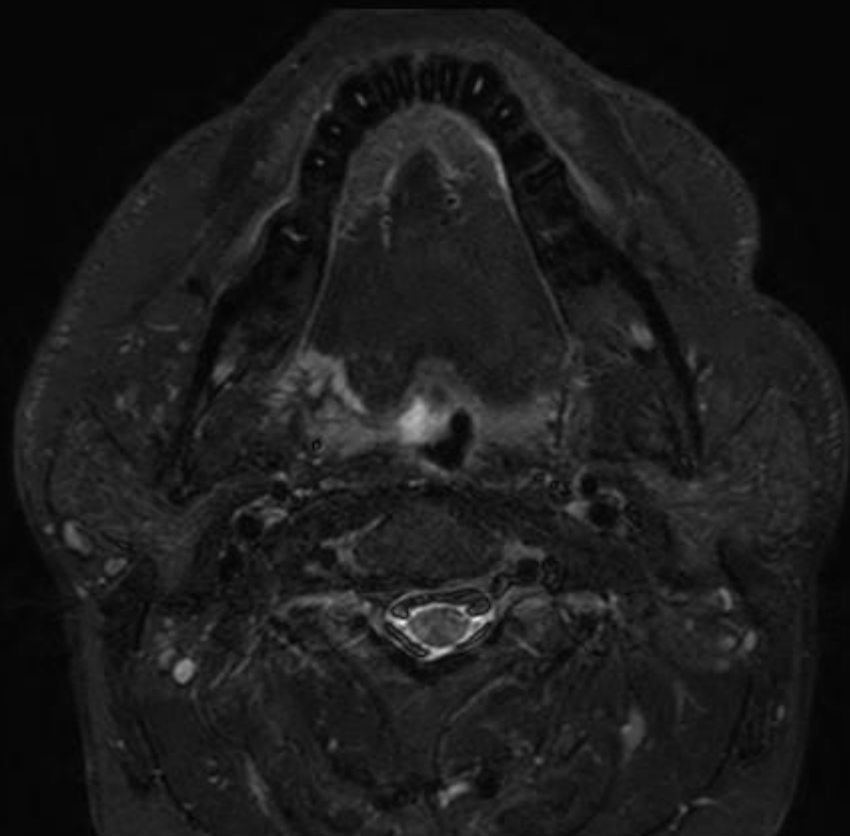
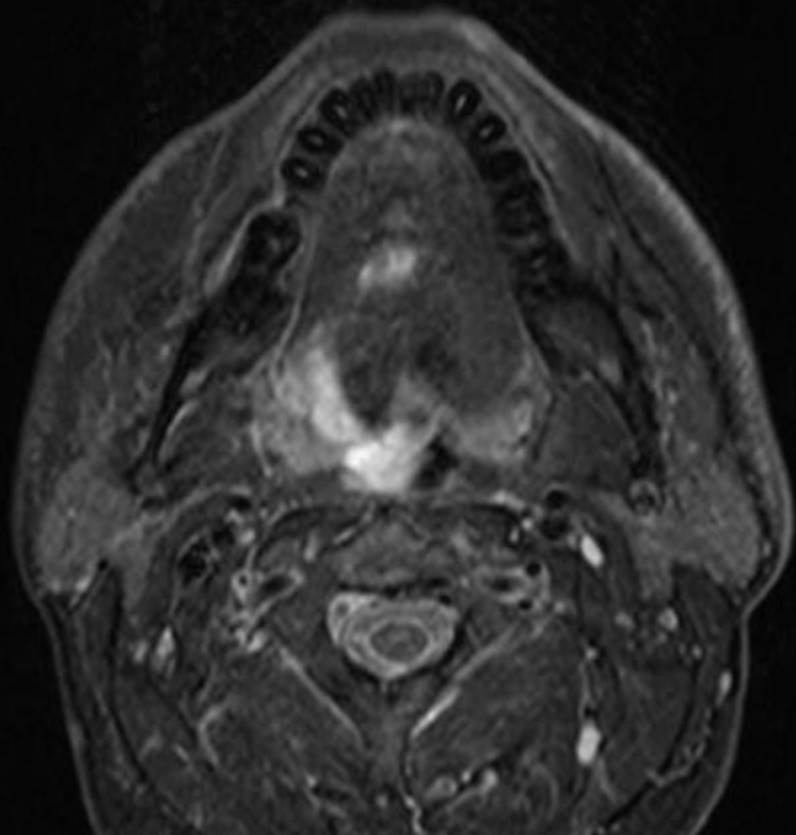
Post Tx: $2,45 \pm 1,45$

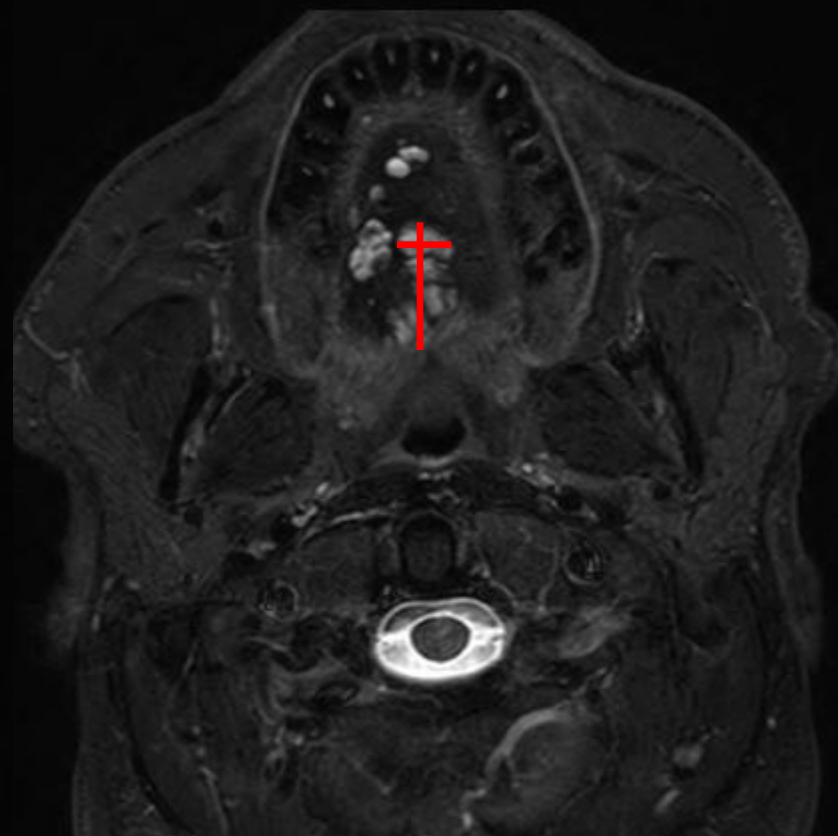
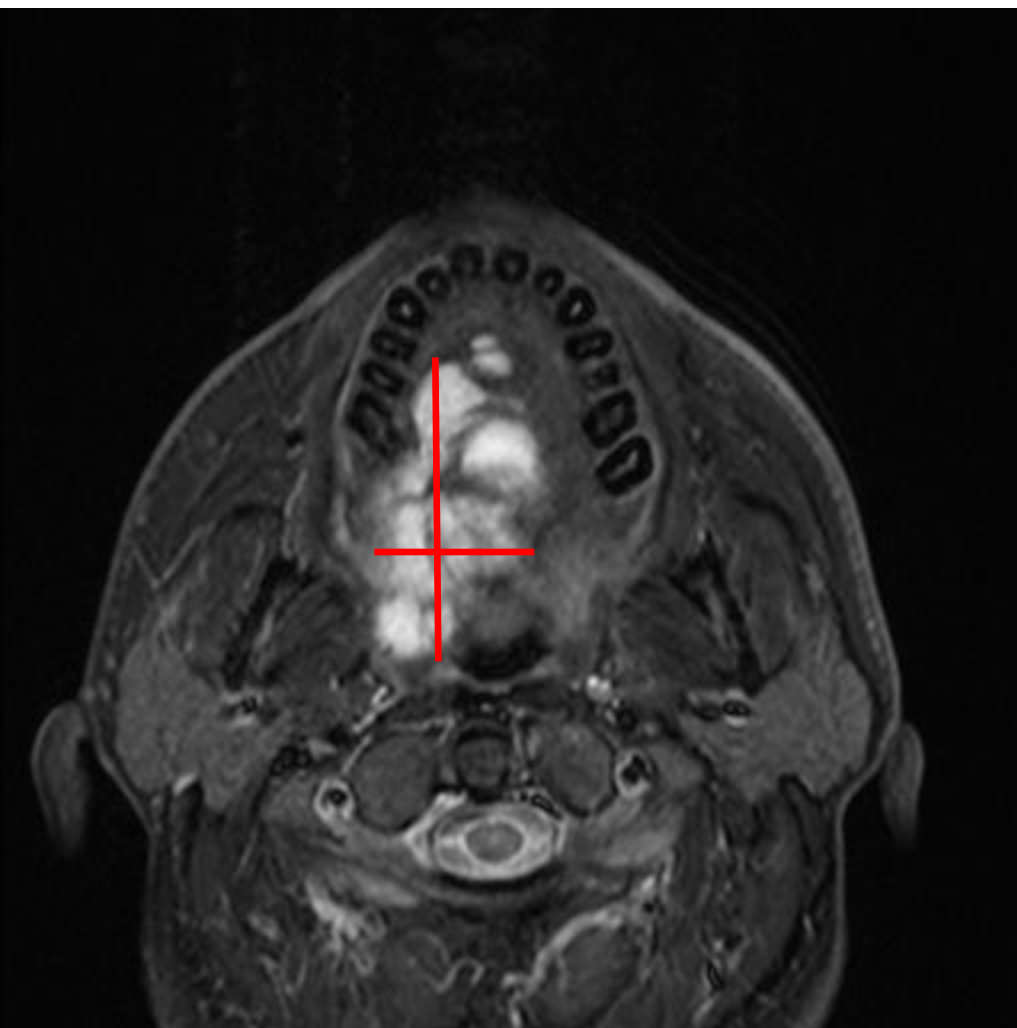
Results – MRI size (mean diameter)
Per lesion (n = 41)

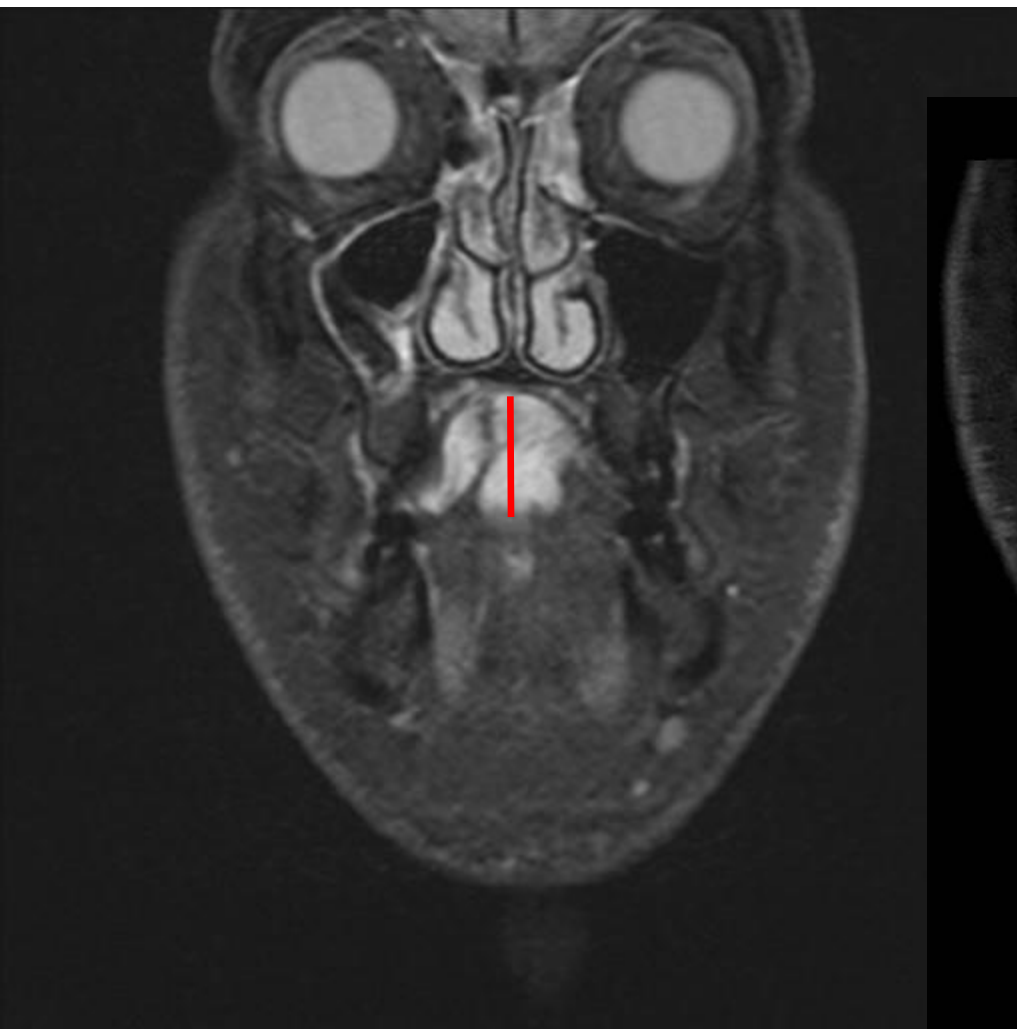


Baseline: 3,58 ± 1,98 t-test: $p < 0,0001$

Post Tx: 2,36 ± 1,53







Clinical /radiological deterioration(3/29)

- ↑ Manchester score = 3 patients
- ↑ Lesion size = 2 patients
- Patients with radiological deterioration had also worse clinical outcome
 - ↑ volume 0.3% → ↑ Manchester 22.2%
 - ↑ volume 83.9% → ↑ Manchester 61.54%
- Sometime clinical deterioration despite radiological improvement
 - ↑ Manchester 200% → ↓ volume 50,1%

MV(L) anterior vs posterior

		Anterior	Posterior	Per session
Type	Venous	17	11	
	Lymphatic	3	2	
Anesthesia	Local	11	0	47
	General	9	13	50
Airway management	O2 nasal cannula PRN	11	0	47
	Intubation	9	6	26
	Preventive tracheostomy	0	7	24
	Tracheostomy per procedural	0	9	18
Complications	Pneumonia	1	4	
	Necrosis	2	0	
	Ulceration	0	2	
	Tracheostomy 2nd	0	4	
	Myocardial infarction	0	2	
	Prolonged intubation	1	0	
Length hospitalization (mean days)		2,76	12,54	p = 0,01

Recurrence

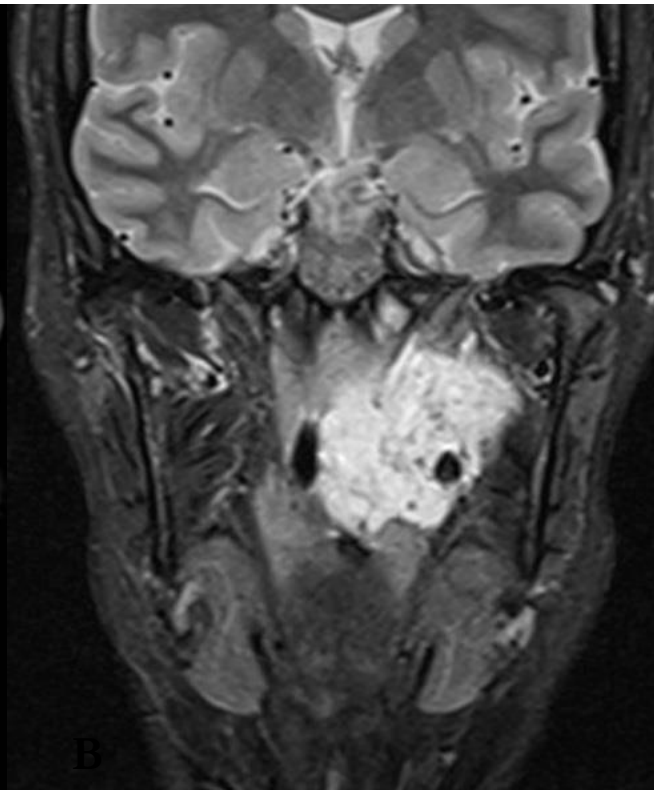
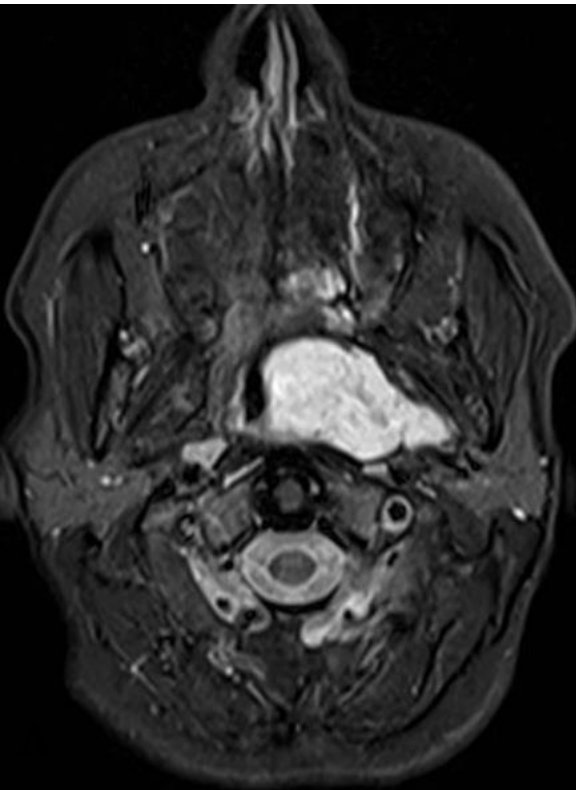
- Symptom recurrence after 1-year post treatment requiring sclerotherapy

	Anterior	Posterior	Total
Recurrence	5	6	11
No recurrence	15	7	22
Total	20	13	33

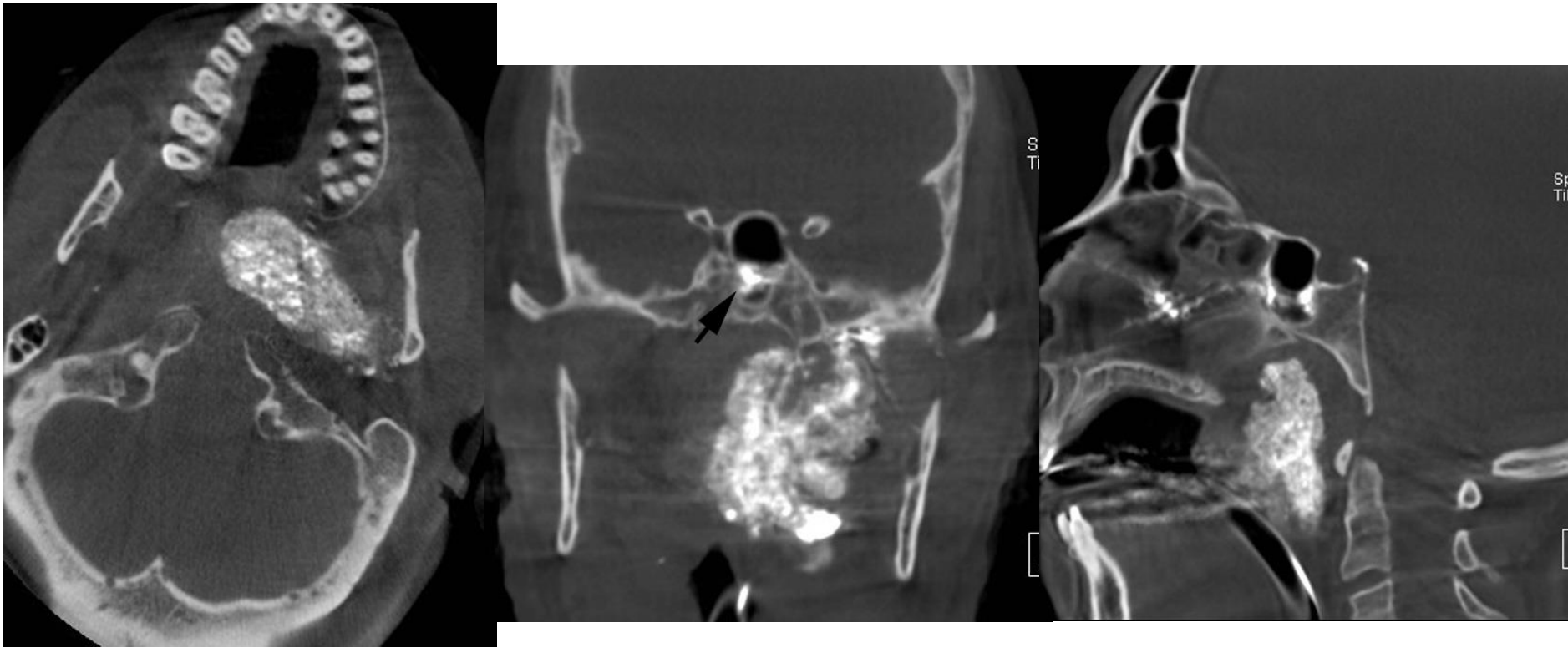
Complications

- Most complications had good evolution with medical therapy
- 4 cases of secondary tracheostomy
 - All patients had general anesthesia with endotracheal intubation
 - 2 patients had previously a tracheostomy removed before subsequent session
- 2 NSTEMI same patient (known CAD +++)
- 1 case of tracheal stenosis related to tracheostomy
 - Balloon dilatation and surgery
 - Good evolution
- One unrelated death (9 month post last sclerotherapy patient had tracheostomy)
 - Pulmonary edema
 - Cardiac failure ?

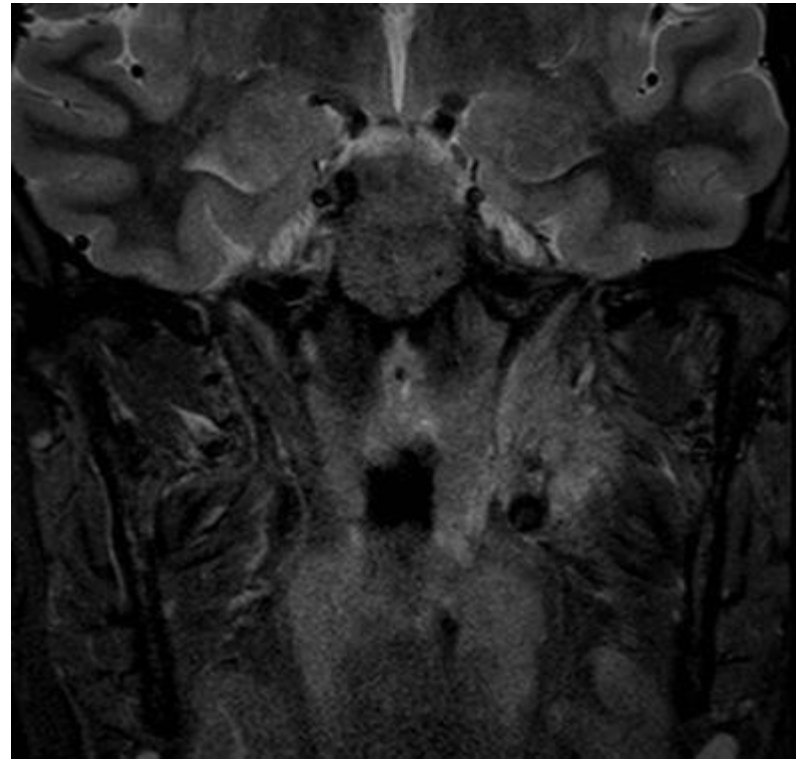
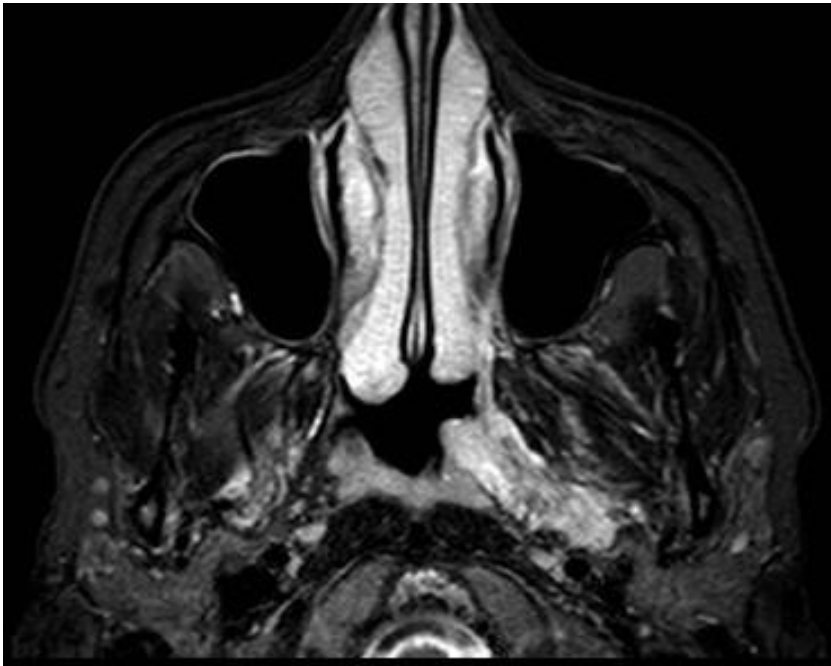
VM Rhinopharynx



C-arm-CT post sclerotherapy



FU MRI



Conclusion

- Good efficacy
 - Mean clinical improvement 49,5%
 - Mean size reduction 32%
- Good safety
 - More complications for posterior VM
 - Good evolution after medical management
- Need a good treatment planning to manage airway patency
 - Posterior VM(L) → preventive tracheostomy, team approach with ENT

To improve

- Imaging
 - Volume evaluation on MRI could be more accurate
- Clinical
 - Difficult to find an appropriate validated score for symptom quantification
 - Symptoms vary with VM local extension
 - Sx not covered by Manchester (esthetic)

3D modeling

