

CONTROVERSES ET ACTUALITÉS EN CHIRURGIE VASCULAIRE  
CONTROVERSIES & UPDATES  
IN VASCULAR SURGERY



JANUARY 23-25 2014

MARRIOTT RIVE GAUCHE & CONFERENCE CENTER PARIS, FRANCE

***Sclerosant agents to treat venous  
and lymphatic malformations: an  
overview of the past 10 years***

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[www.cacvs.org](http://www.cacvs.org)



## **Disclosure**

I do not have any potential conflict of interest

# Scclerosing materials/agents

- Liquid agents: Foam/ETOH/Bleomycine A5, Doxycycline
- Semi liquid agents: glue/Onyx/Ethanol gel
- Permanent agents: Plug/Coils
- Endovenous thermal ablation / radiofrequency ablation



Agent choice depends on lesion **type and location** + extension : resorbable ??

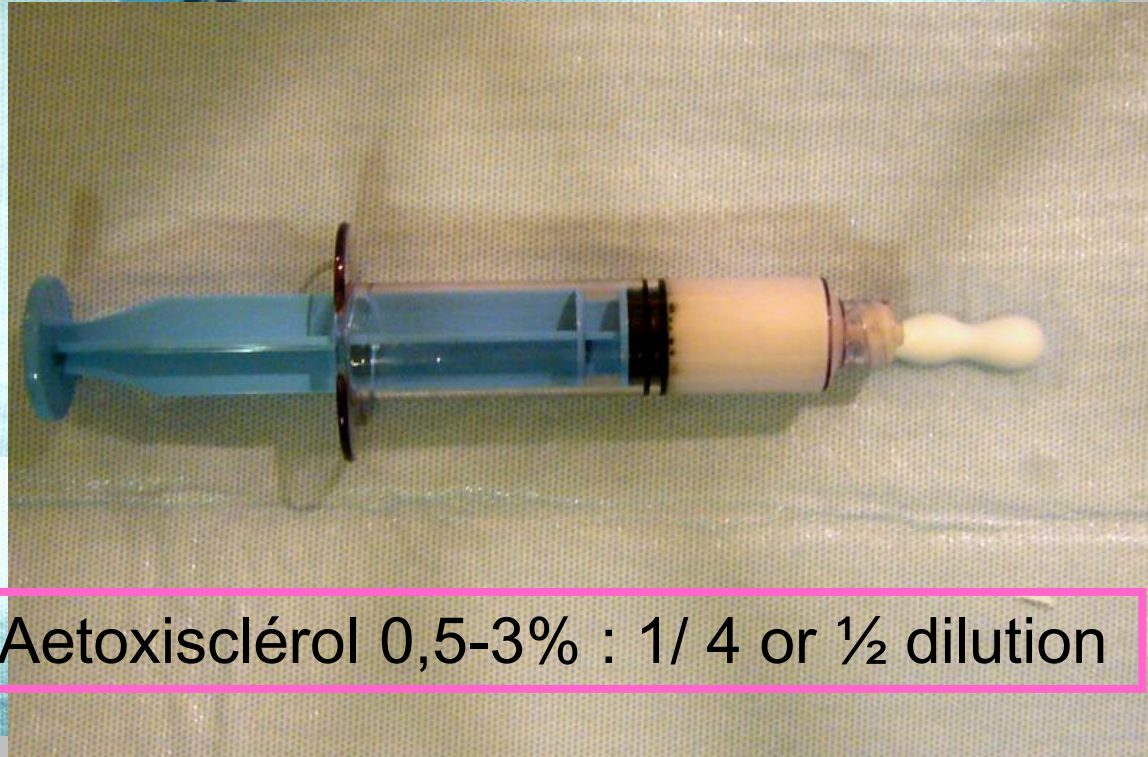
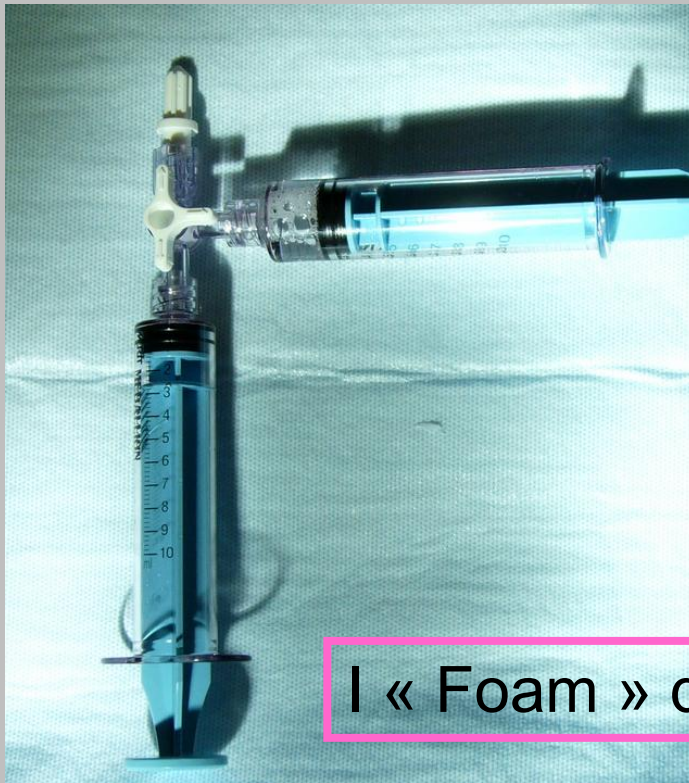
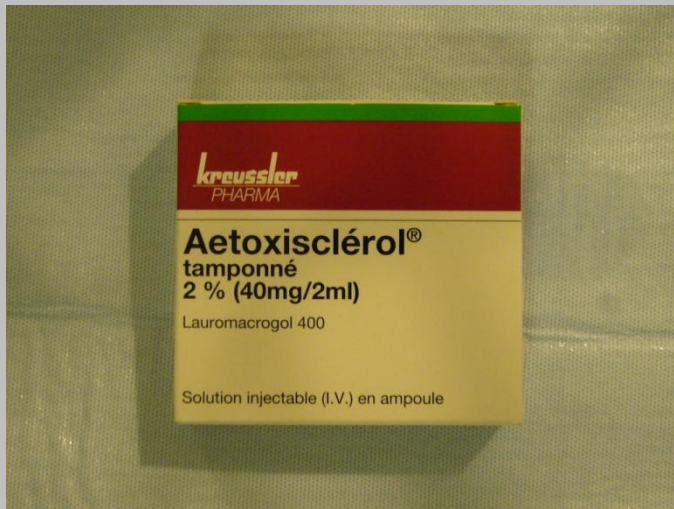
# VM treatment : direct puncture



US, Fluoroscopie, MRI

## **Liquid sclerosant agents**





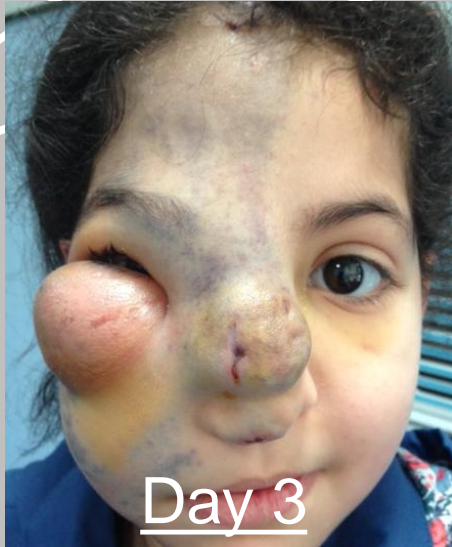
I « Foam » d'Aetoxisclérol 0,5-3% : 1/ 4 or 1/2 dilution



After 1 laser + 2 foam sessions



Before



Day 3



Day 7

GVM



post 1MO /sclero



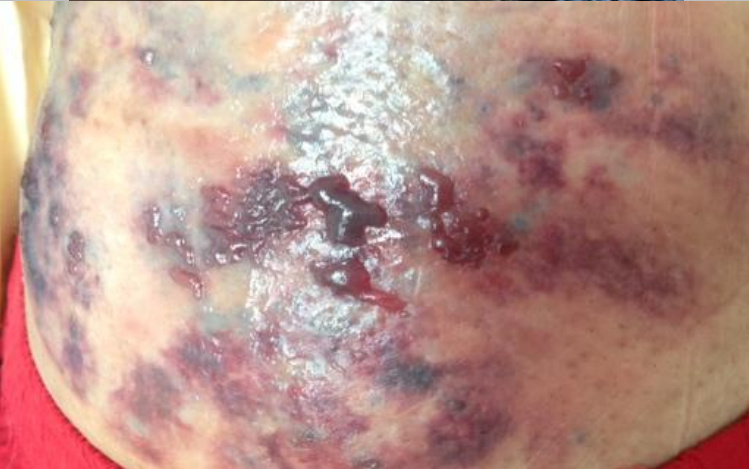
2 MO post foam

Aetoxisclerol 3%  
foam: 1/3 dilution

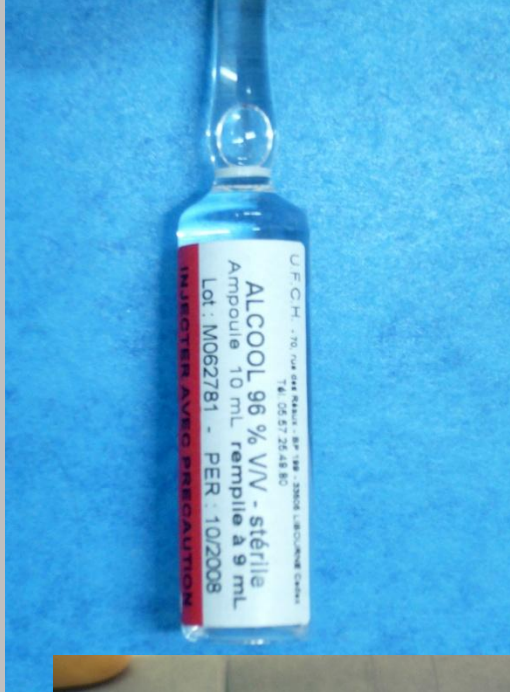


GVM

Necrosis  
Aetoxi 3%  
foam: 50-  
50%







## II) ETOH/Lipiodol mixture

Still a very efficient sclerosant agent, although side effects



## ETOH

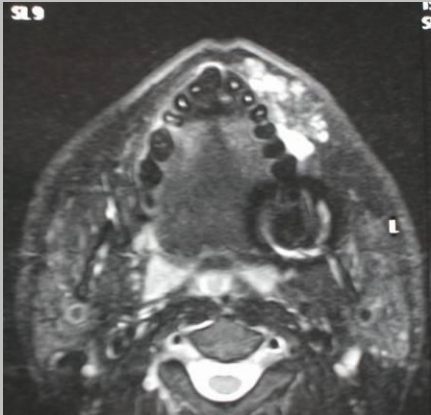
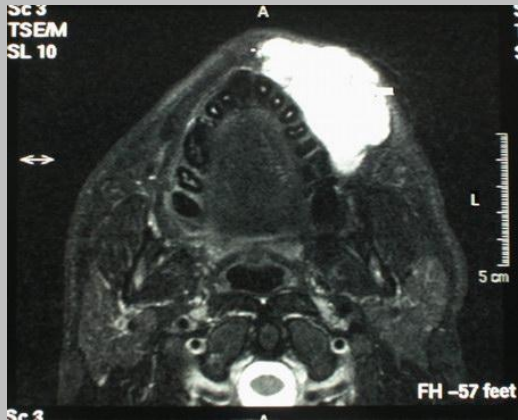
- Requires general anesthesia
- Very/ Most efficient sclerosing agent
- Not expensive

### But .... Possible major complications: 2d to ETOH sclero

- Venous drainage ++ : DVT / PE
- Transient nerve palsy
- Arterial : occlusion (exceptional)
- Death : 2 cases in France

Before

After



before

before

after

after

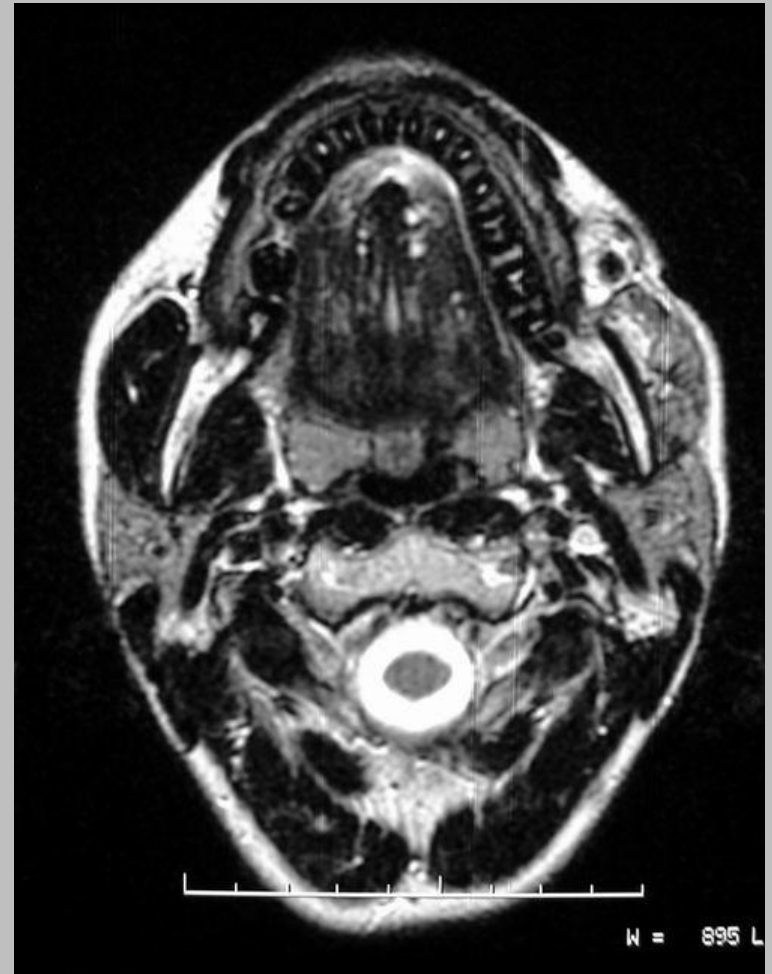


# Before and After

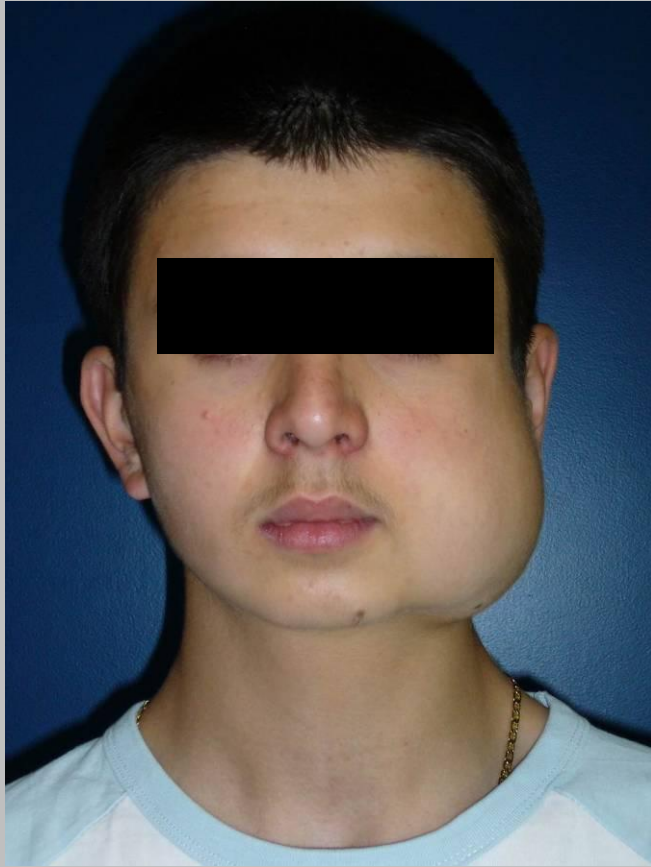


R Chapot

# Before and after ETOH



RC



After 7 sclero sessions



# ETOH Complication in VM ttt



J 8



Transient facial  
nerve palsy after  
left temporal  
ETOH sclero

### III) Bleomycine = liquid sclerosant agent

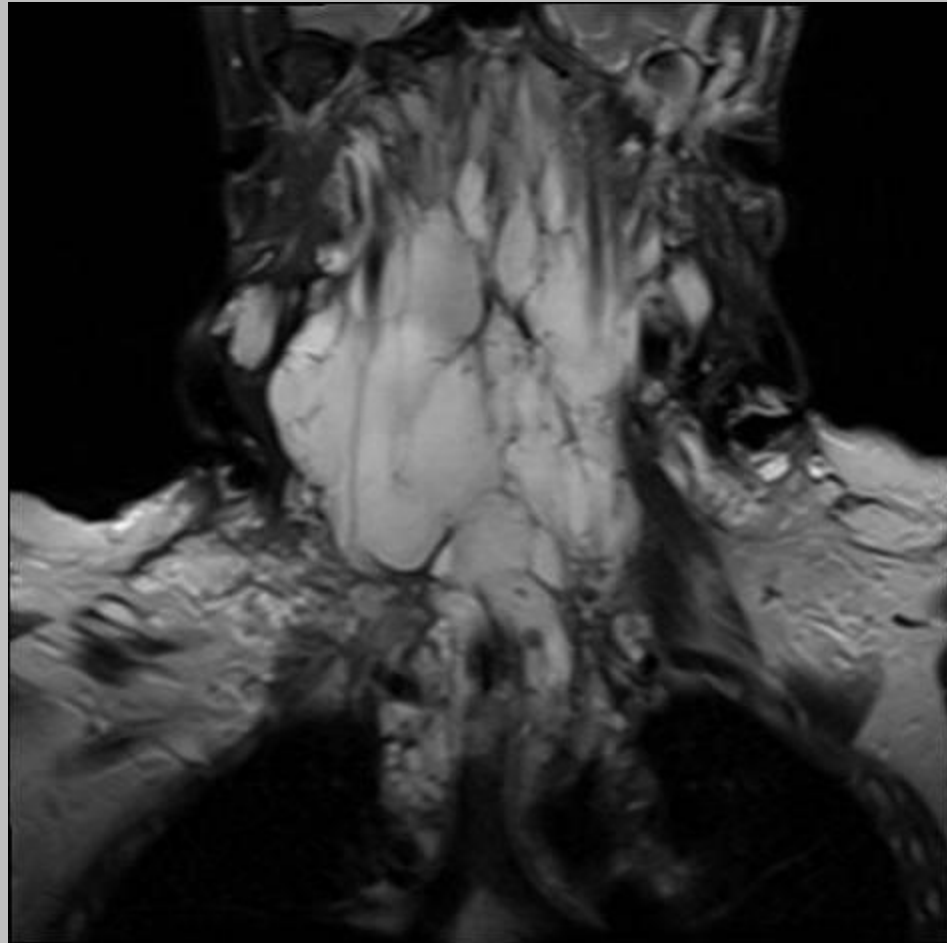
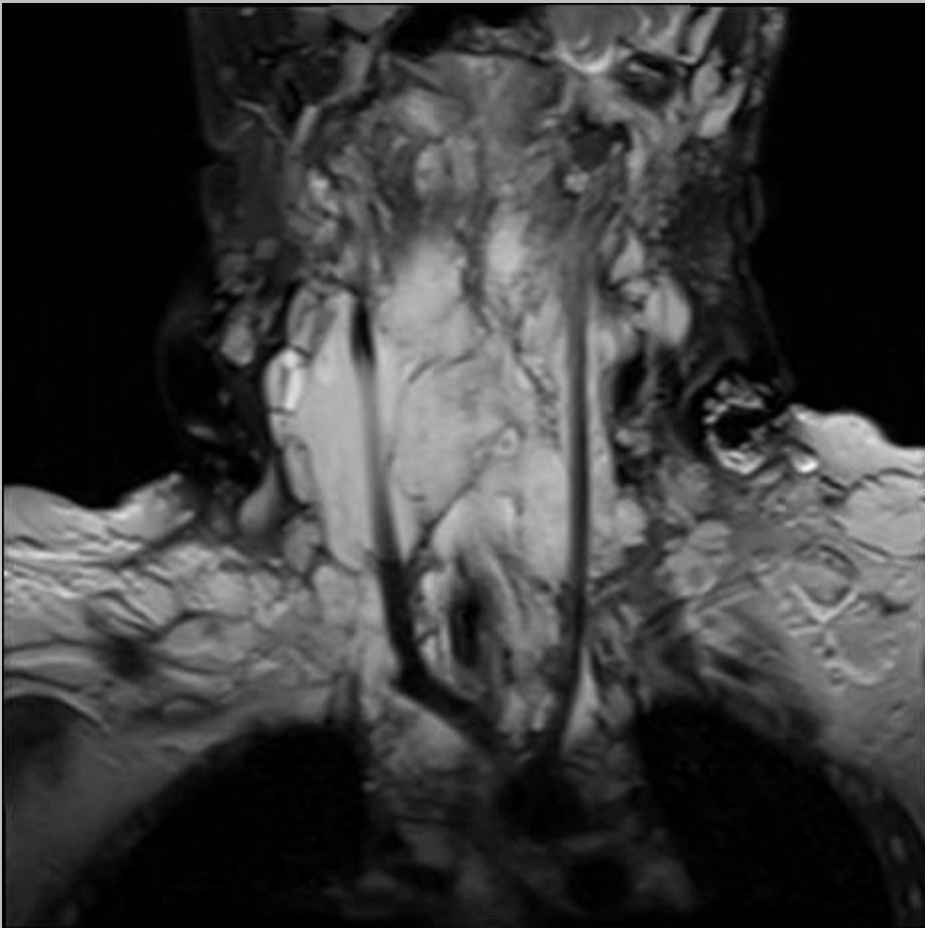
Glycopeptide antibiotic produced by the bacterium streptomyces verticillus. Usually, it is used as an **antineoplastic drug** to treat many kinds of cancer, such as lymphoma, cervical cancer, head and neck cancer, and testicular cancer.

Bleomycin A5, also named **pingyangmycin**, is the most commonly used sclerosing agent for the treatment of vascular anomalies in China

Due to potential toxicity related to **pulmonary fibrosis** there is limited experience with Bleomycin for the treatment of VM/ LM in North America and Europe .

Courtesy Dr G Soulez, Montréal

Severe cervicofacial VM; progression; trach dependent .  
TTT Bleomycine





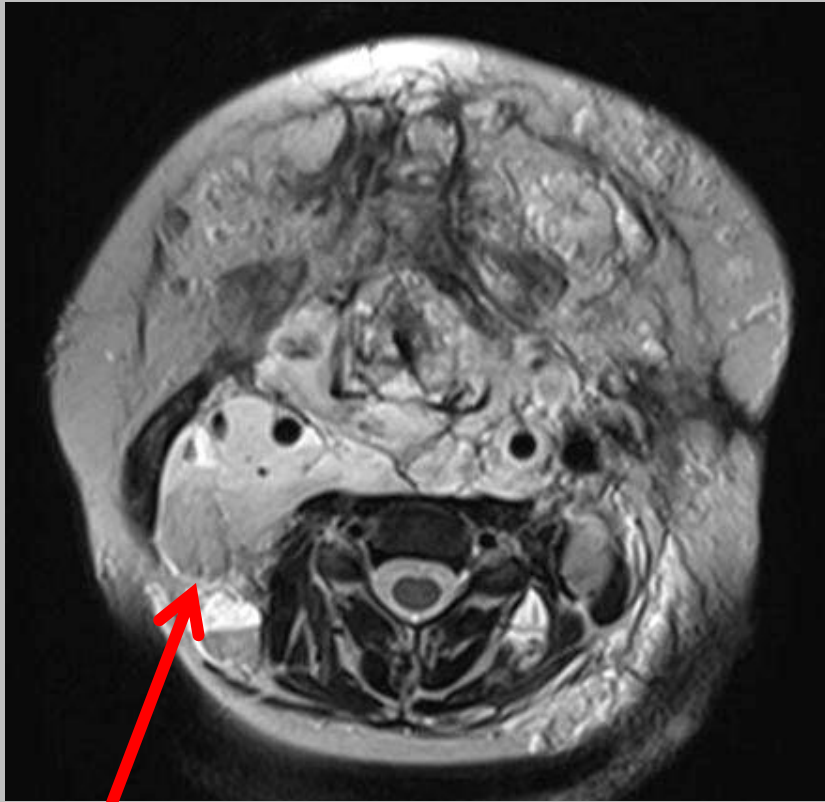


Before

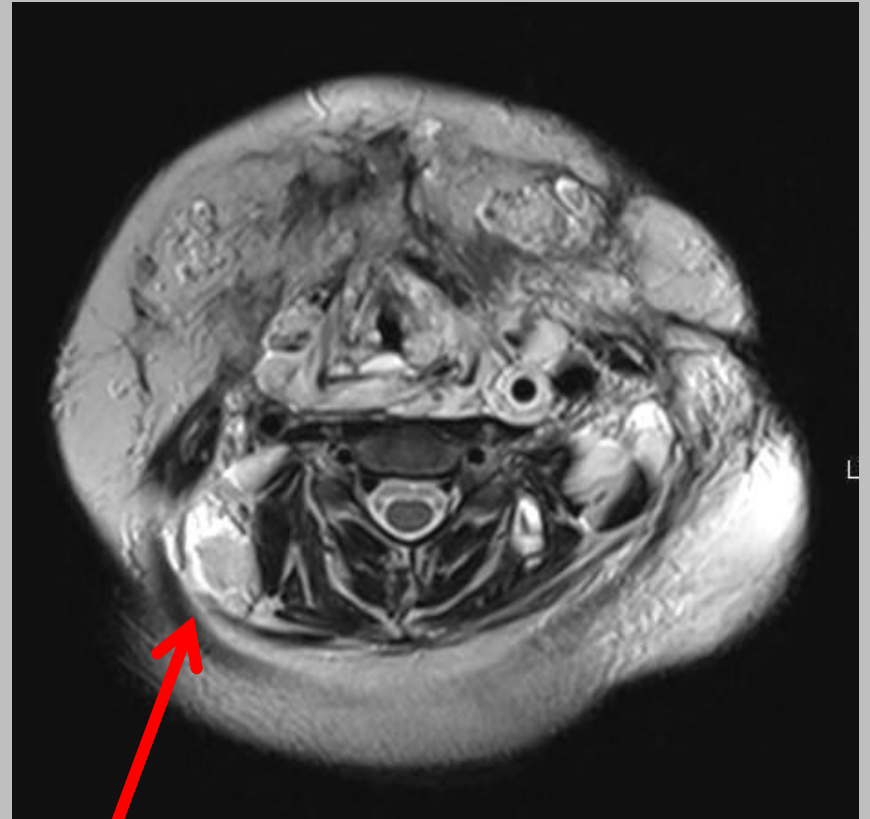


After

Courtesy PE Burrows, USA



Before

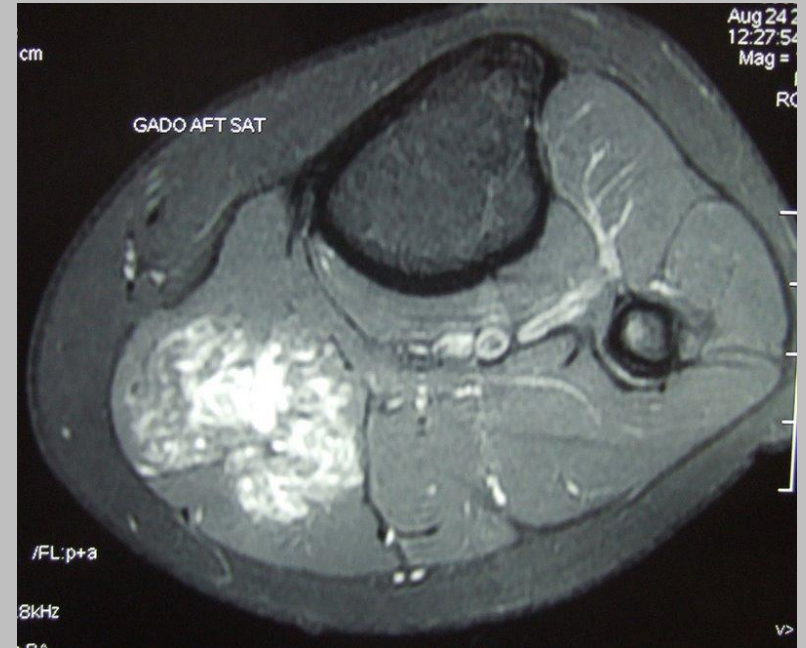


After

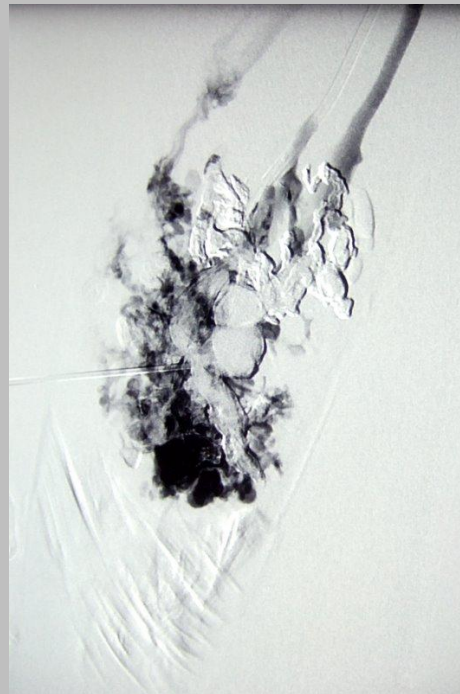
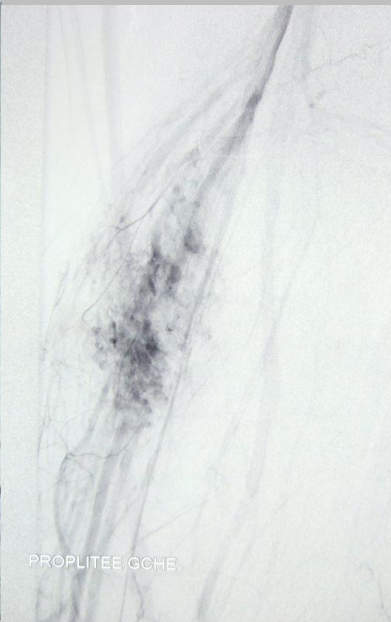
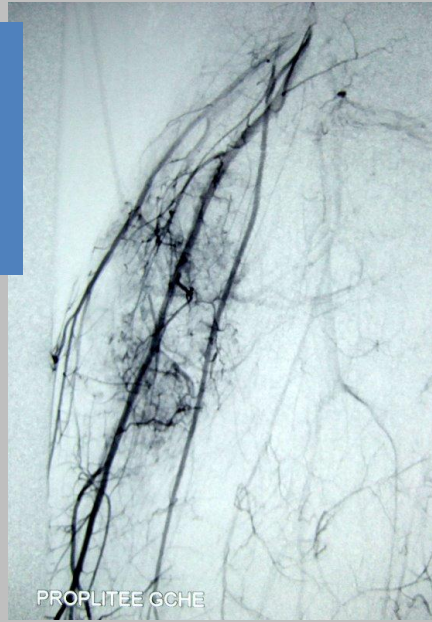
## **Semi liquid sclerosant agents**



**diffuse IMVM of the calf:  
25 Y/O F, pain ++**

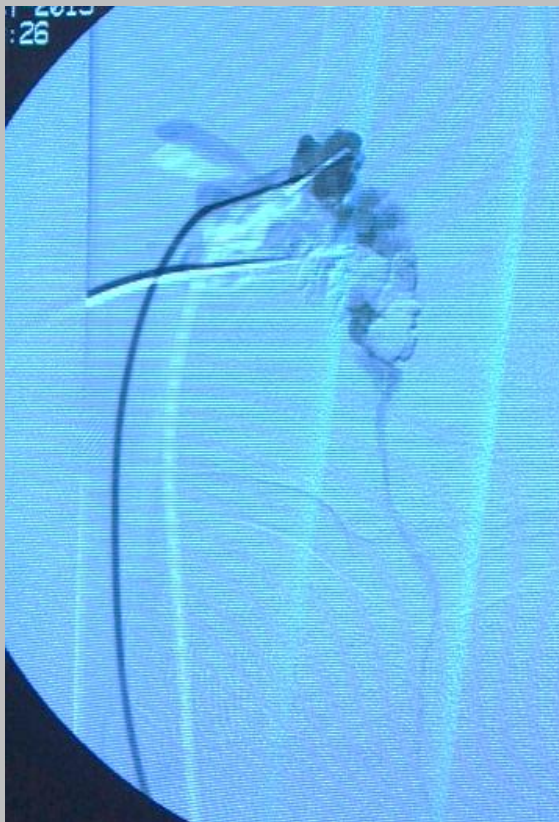


DEEP IMVM  
USE of  
Non resorbable material  
Can be usefull



2 d sclero  
Permanent  
material :  
ONYX 2008:  
D 30 pain = 0





Permanent material :  
Histoacryl cast



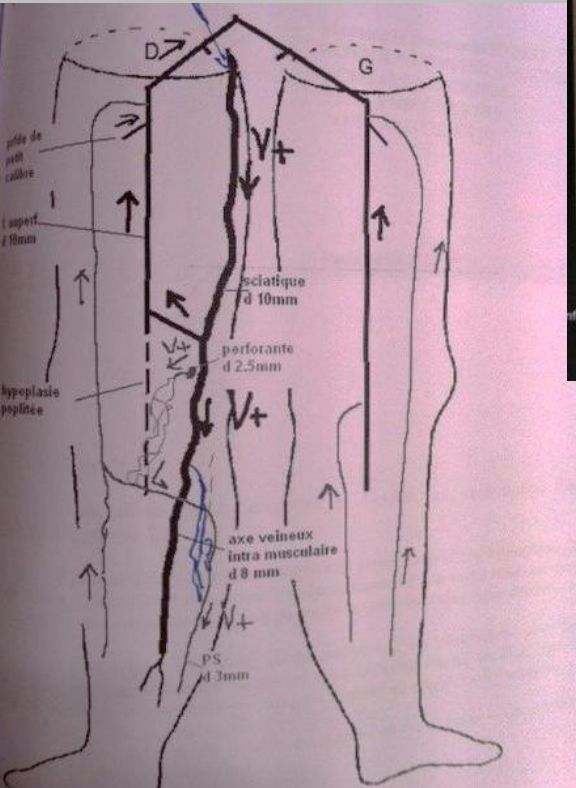
Glue/ NBKA



# Truncular VM



Prior glue embo



Post glue occlusion

Milka Greiner

## Malformation veineuse



(Pr. THERON – *Interventional Neuroradiology* 10:113-127, 2004. - CHUCAEN – France)

SCLEROGEL kit® est contre-indiqué chez les patients ayant des antécédents d'allergie connue à l'un des composants.  
SCLEROGEL kit® n'est pas indiqué chez la femme enceinte.

Mixture of ETOH + cellulose



2ml vial

Pricy \$\$\$



Sclerogel=ETOH gel in between liquid /non resorbable material



Less painfull ETOH , slowly resorbable

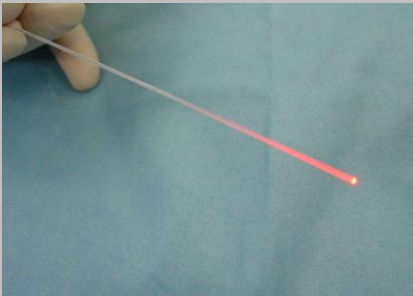


# Endovascular laser treatment

# Endovascular laser treatment



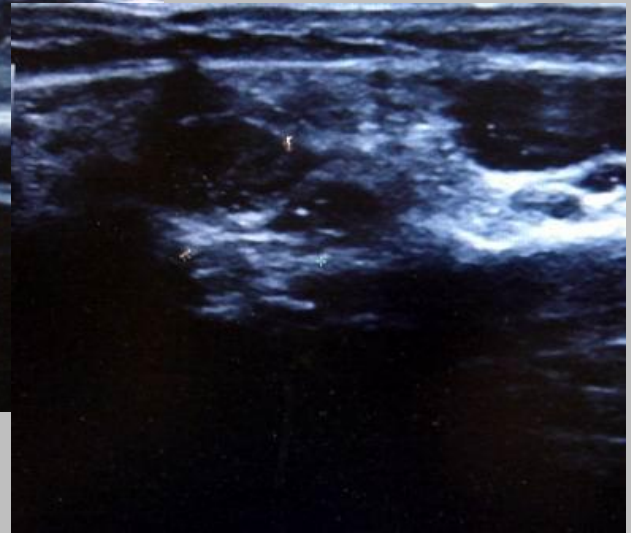
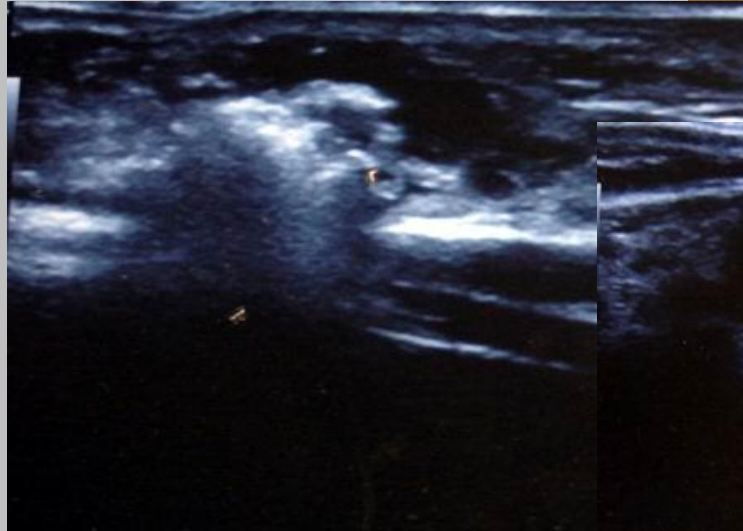
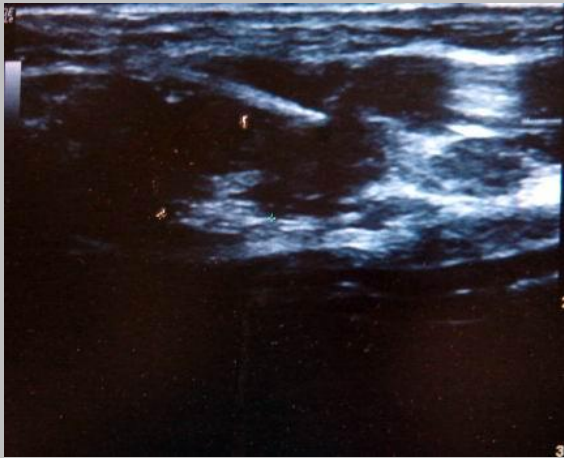
- **Advantages :**
  - Possible under LA + direct puncture technique under US guidance
  - Promising results on small pouches diameter < 1 cm (energy delivery : 250 J/cm in 7mm pouch; 100j/cm in a 5mm pouch ; 65J/cm in 3mm)
  - can be used simultaneously with Ethanol sclerosis , coils etc
- **Disadvantages**
  - Deep and large pouches remain difficult to treat , (difficulty in visualizing the catheter tip on US )



Dr JL Gérard , Paris

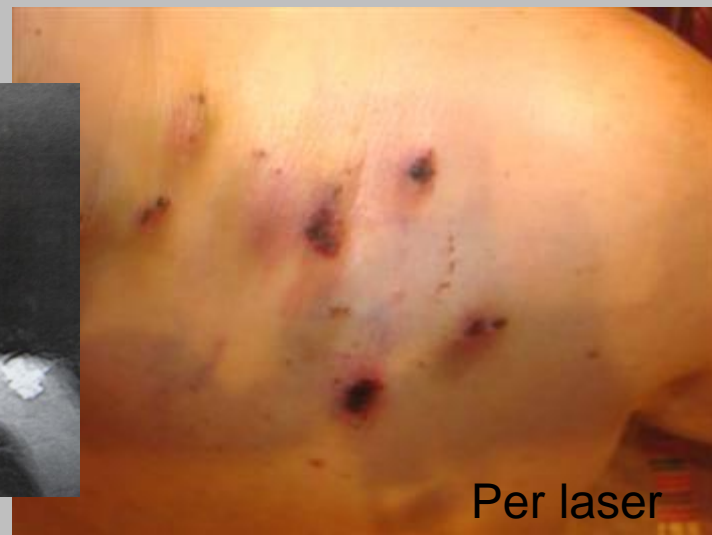
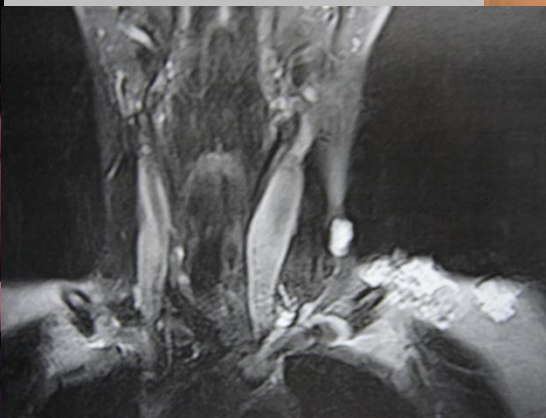


# Combined Laser + ETOH sclero









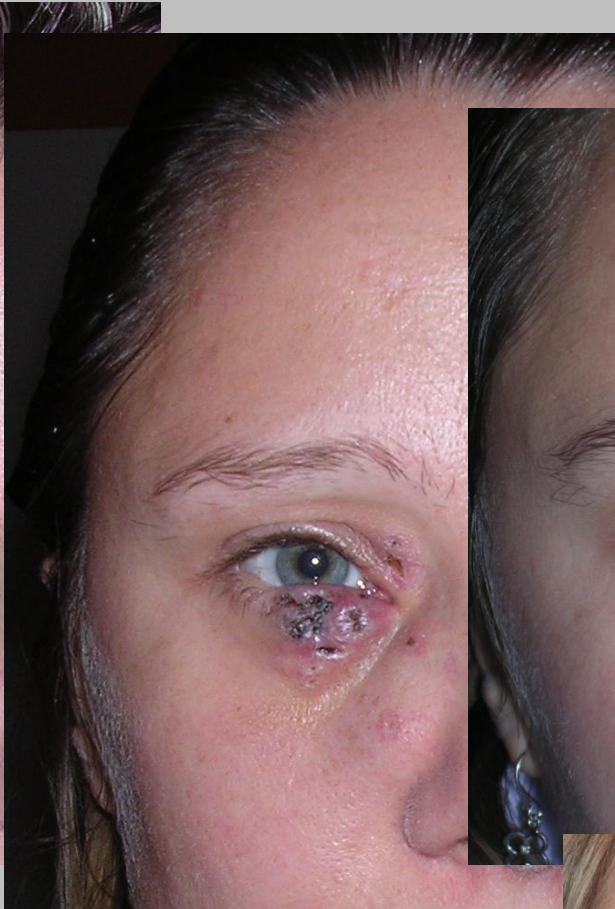
Post laser M2



Post 1 laser session at 1 year



2006



J 7



J 30



2012

Result after 2 laser ttt sessions under LA

B Faucon



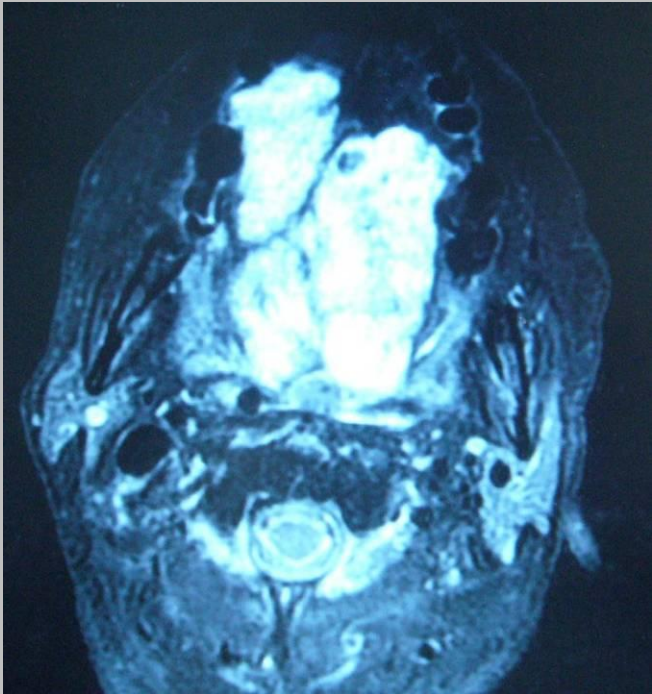
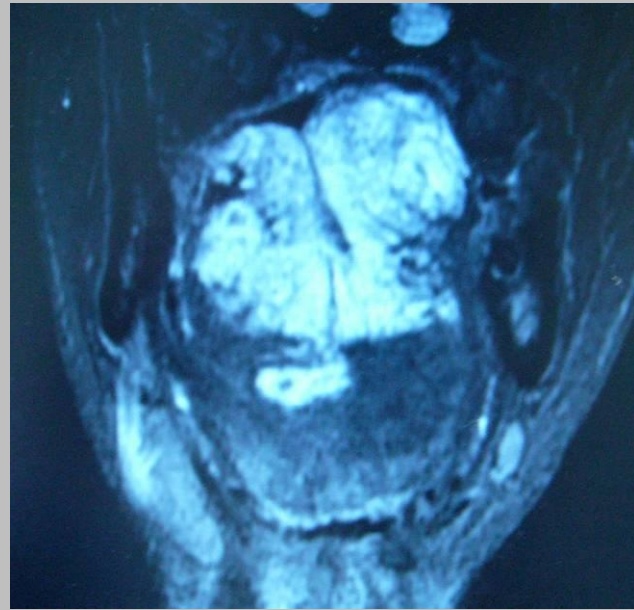


D 10 post laser

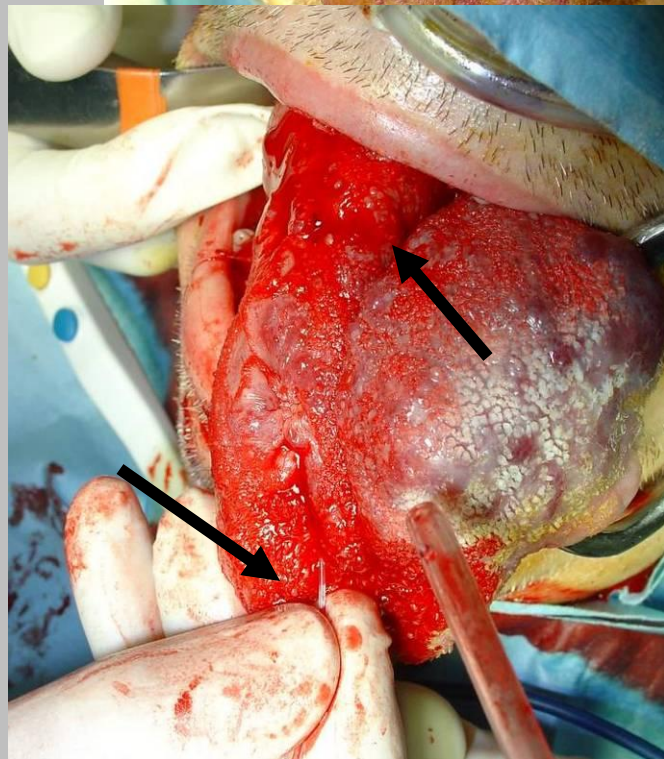
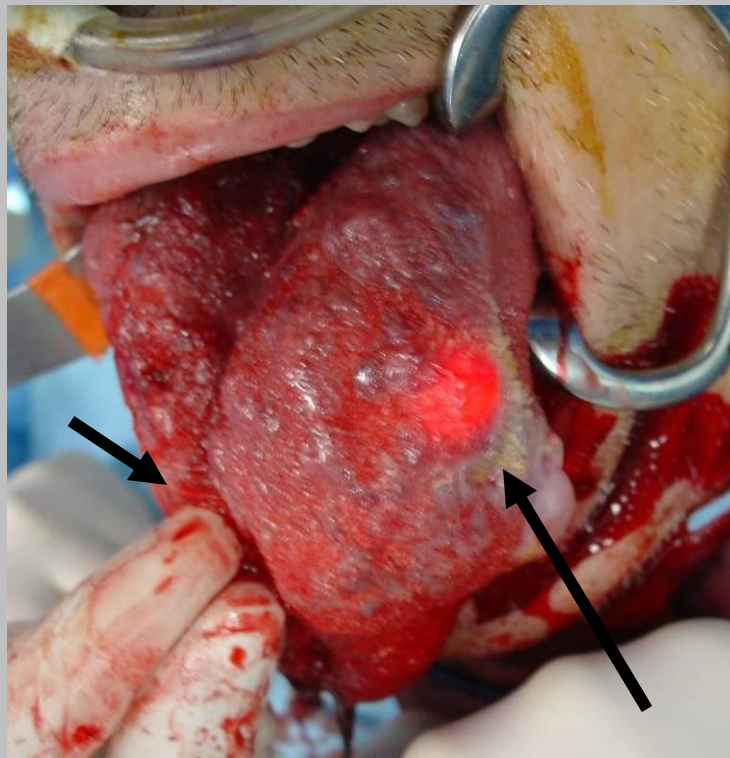
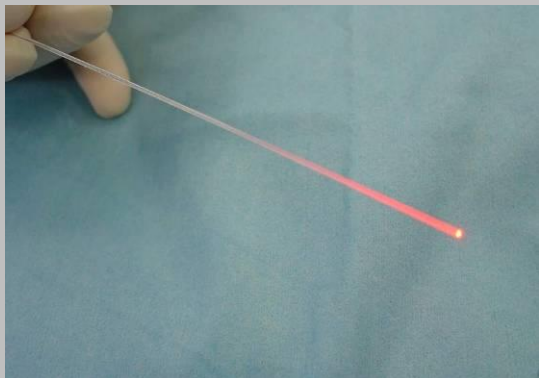
after 4 laser ttt sessions under GA

Dr M Borsik

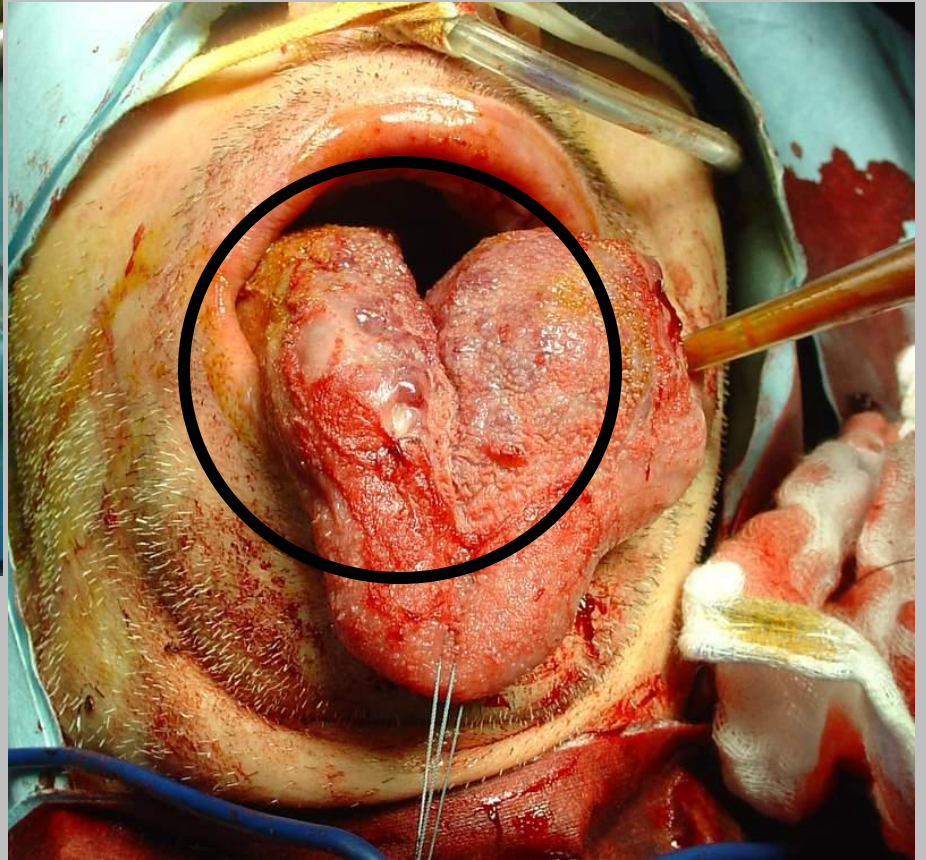










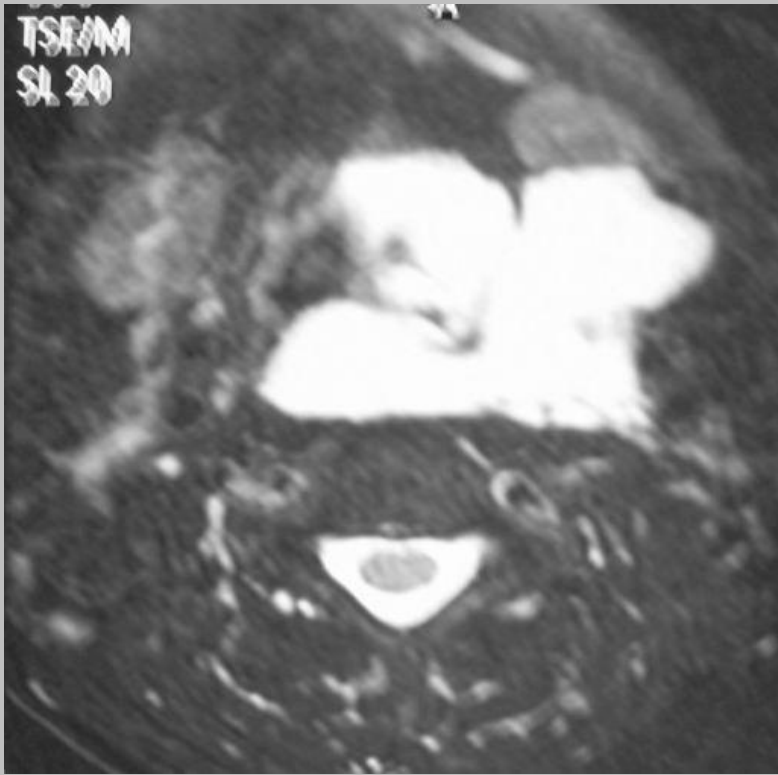




E Sauvaget

avant et après 2 séances de laser endovasculaire





Before and after endovascular laser treatment :  
post wall > lateral wall

Dr D Salvan





M Borsik

Pre and post « laser excision »

# Laser complications ..learning curve required

...



# Treatment options in LM

- Macrocystic > Microcystic
- Surgical TTT
- Sclerotherapy **liquid agents +++++**  
**Ethanol** / doxycycline/ OK 432  
(/bleomycine)
- Endovenous laser treatment





Pre-sclero



2002

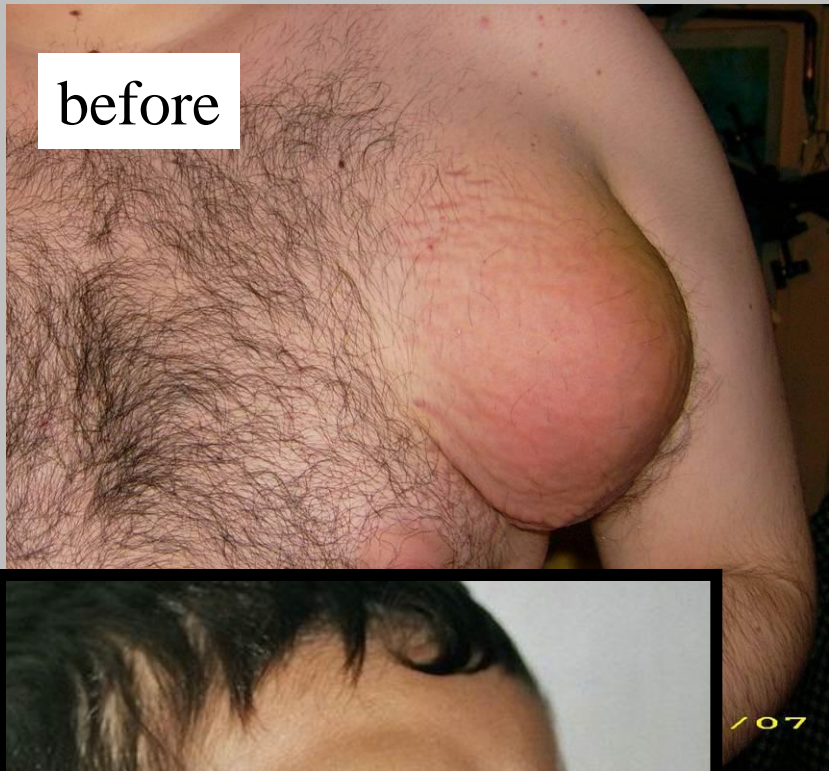


ETOH sclerotherapy

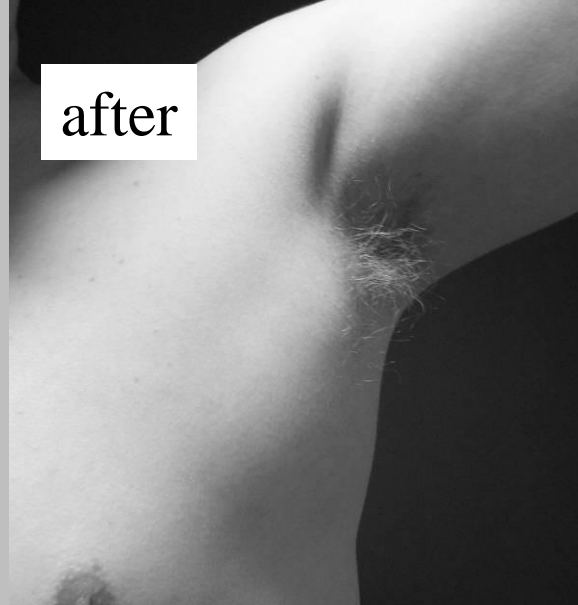


Post- sclero  
2012

before



after



ETOH

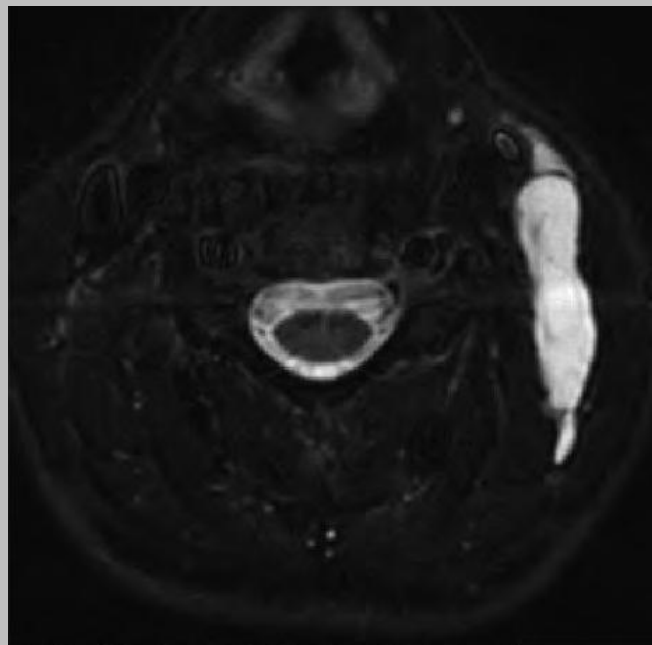




Prior Bléomycine

Macrocystic LM

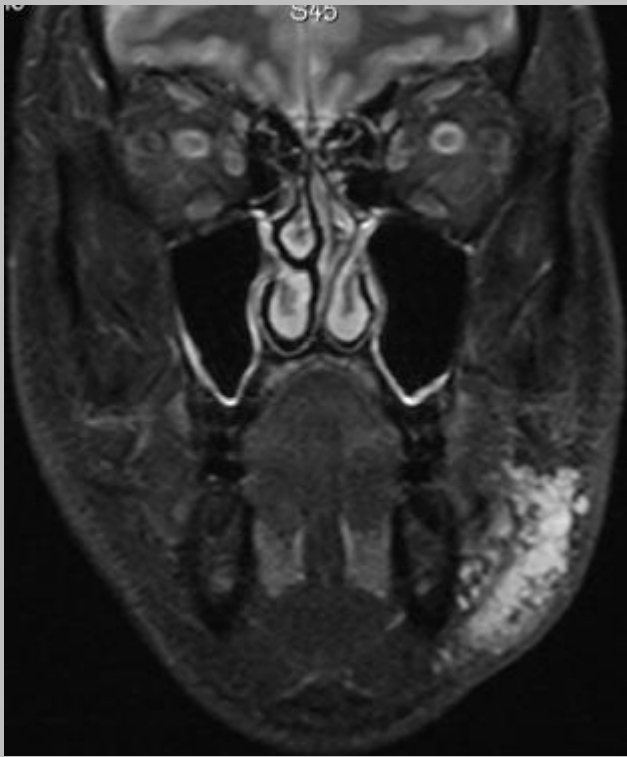
Courtesy Dr G Soulez, Montréal



Post bleomycine

15 ml/session





Prior Bléomycine



Post

Microcystic LM : 15 units of bleomycin in 15 ml of NaCl and 5ml of contrast.

Courtesy Dr G Soulez, Montréal

# Interstitial laser treatment on lymphatic vesicals



# Conclusion

- Sclerotherapy is an efficient treatment tool in VM and LM TTT: **Agent choice depends** on **lesion type and location** + extension : resorbable ??
- **Bleomycine** seems to be promising agent in **VM/LM TTT** –even though recurrence has been observed
- **Ethanol gel** efficiency to be confirmed / price \$\$ and quantity issue (2,4ml/vial)
- Endovenous laser treatment technique is :
  - an **effective modality** in **small < 2cm** skin and mucosal VM
  - **promising** technique in **VM TTT: patient's pain relief ++**
  - Offers TTT opportunity in challenging UE + LE VM
  - Can be associated to sclerotherapy
- Vascular anomalies center (dermatologists, interventional radiologists , anesthetists, surgeons, nurses etc ..)



# Thanks to our Multidisciplinary Vascular anomalies group



Ainsi que  
A Aymard  
M Borsik  
C Degrugillier-Chopinnet  
**C Laurian**  
L Drouet  
**M Wassef**

And Patricia Burrows

Our Mentors:



JJ Merland et MC Riché



Odile Enjolras