

# Skull and Skull Base cryoablation



A. GANGI

. GARNON

RL CAZZATO

X.BUY

G. KOCH

J. CAUDRELIER

P. RAO

E. BOATTA

PAUI OGE

C DERRY

F. PROUST

HCFBIIA

JIANG

DEPARTMENT OF INTERVENTIONAL RADIOLOGY

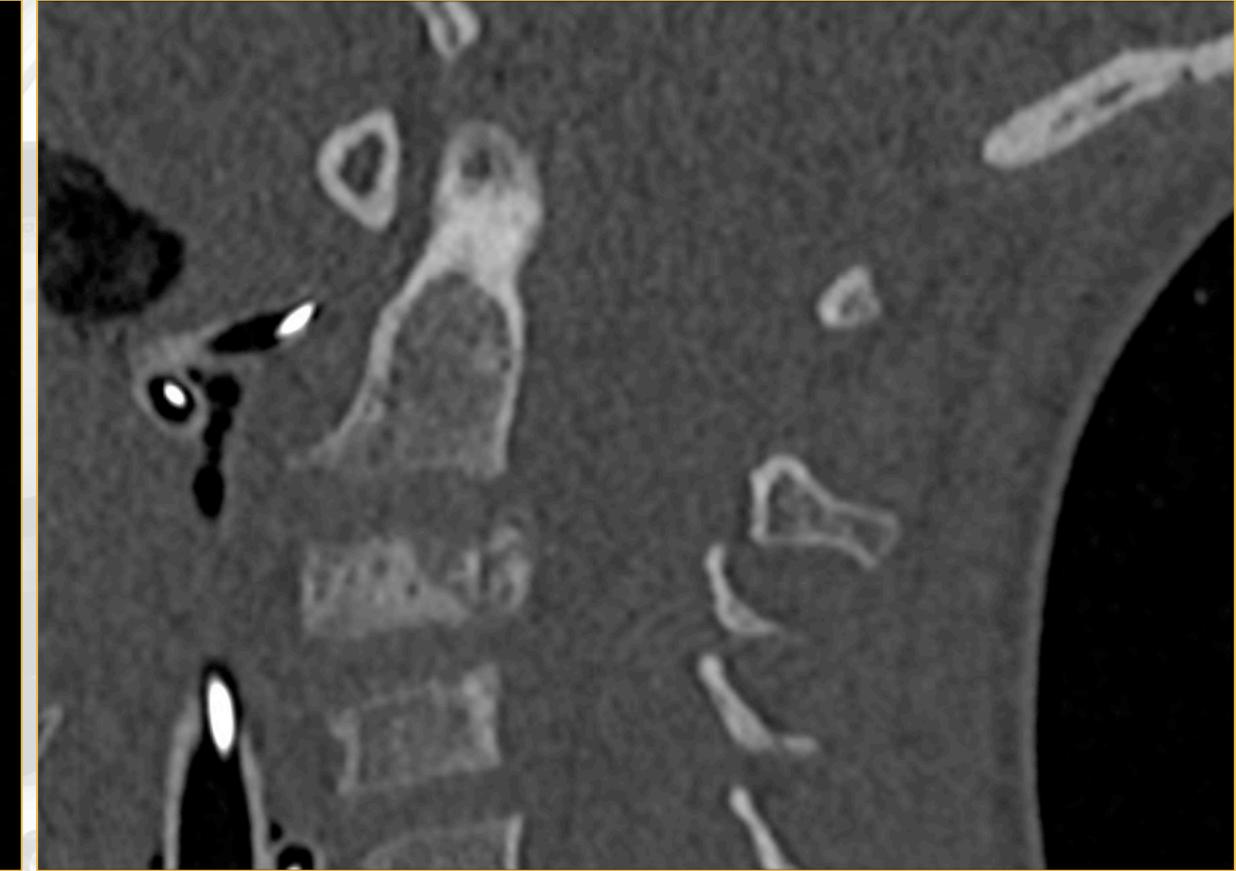
UNIVERSITY HOSPITAL OF STRASBOURG

FRANCE

# Head and neck

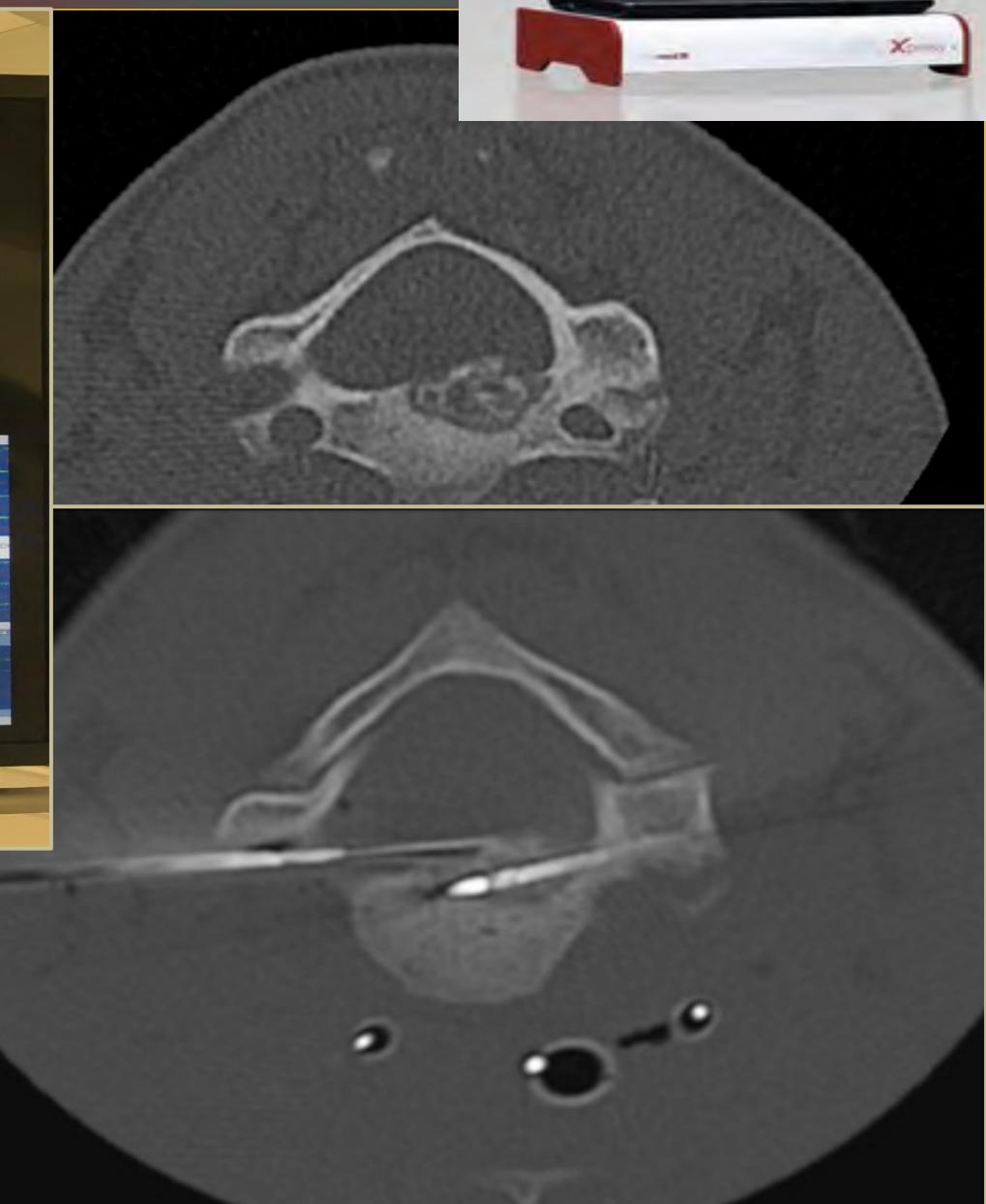
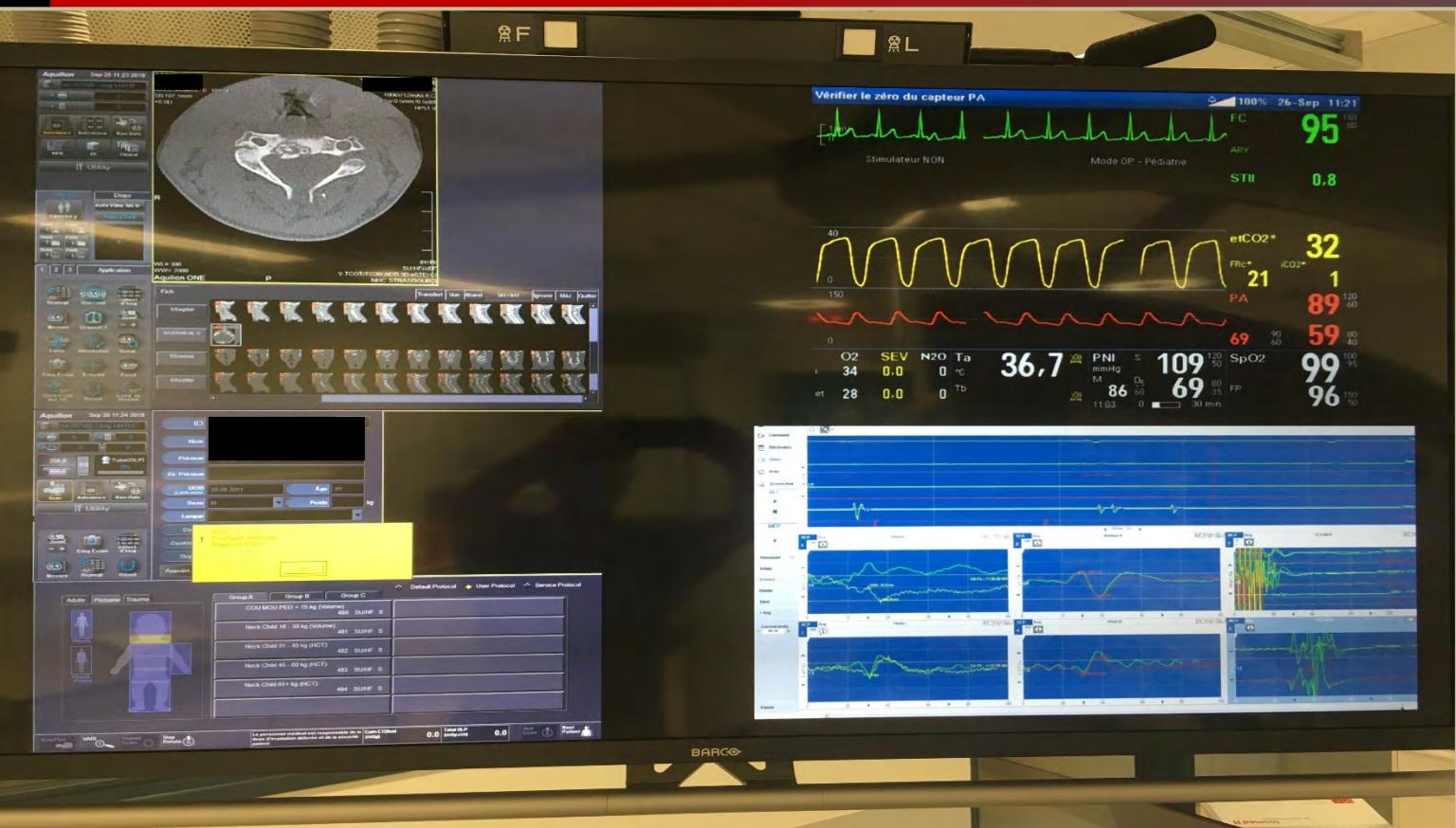


# Osteoblastoma C3

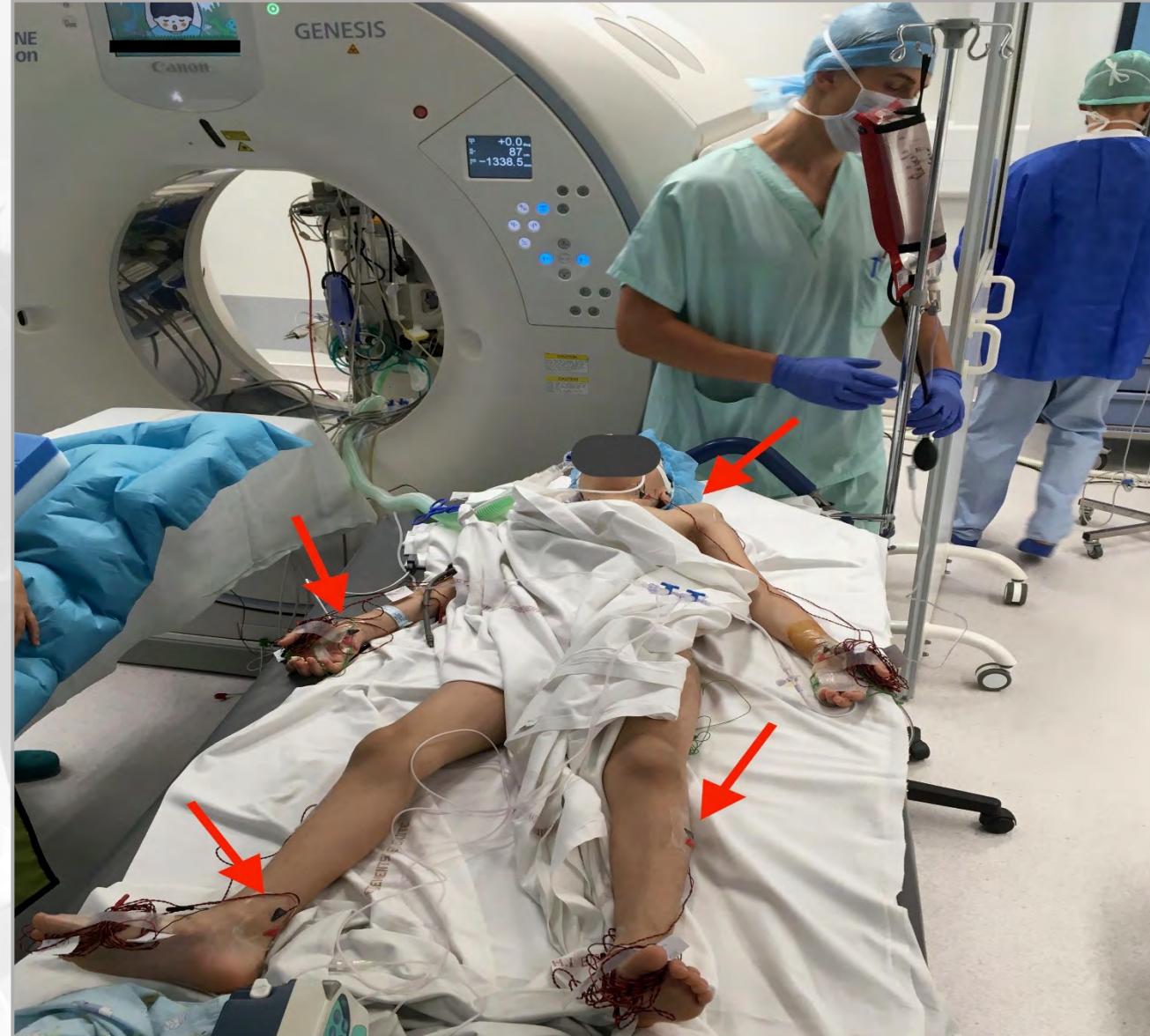


- Cryoablation: 1 Icesphere - Protective measure:  
Hydrodissection  
Thermocouple  
Evoked potential

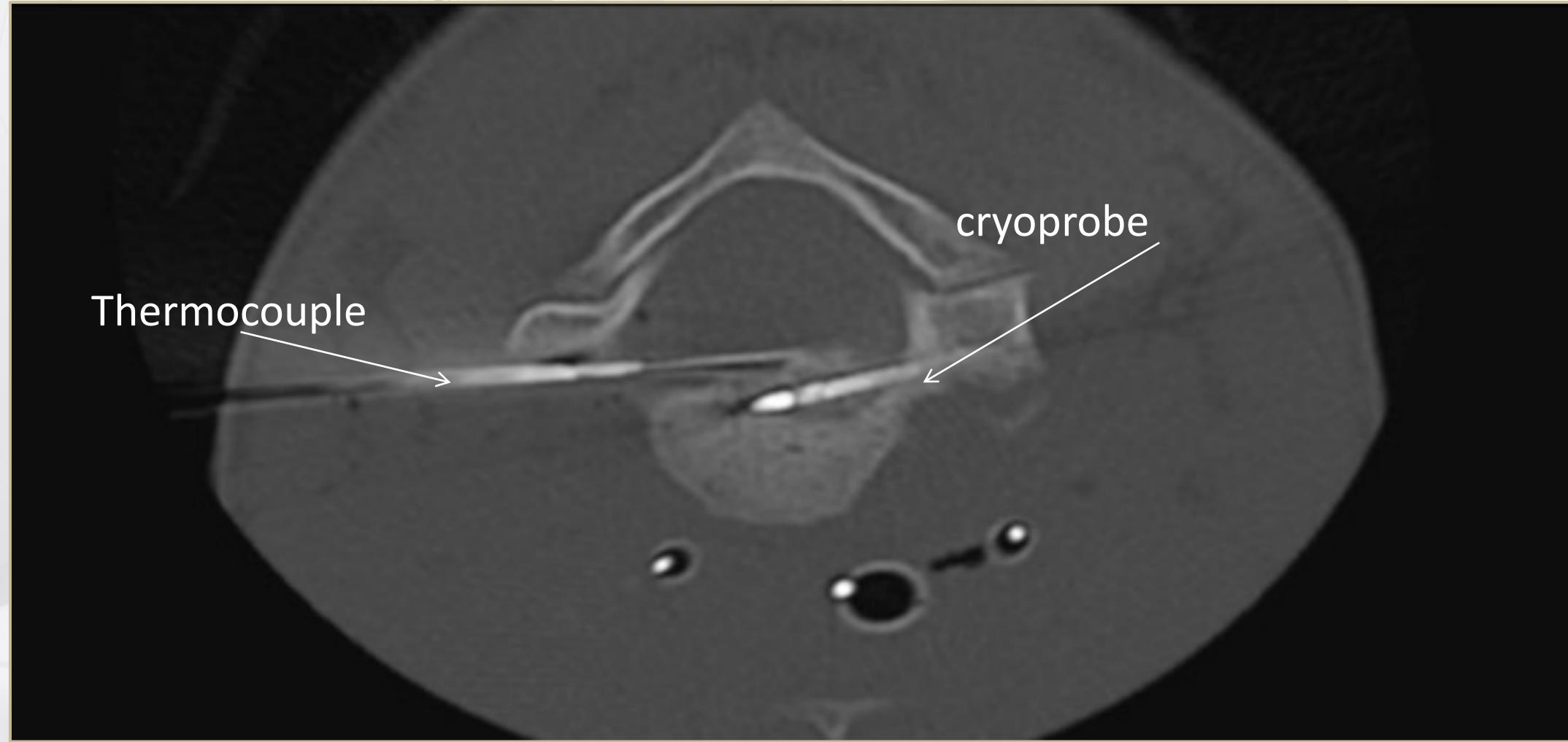
# Progress in Neurophysiological Monitoring



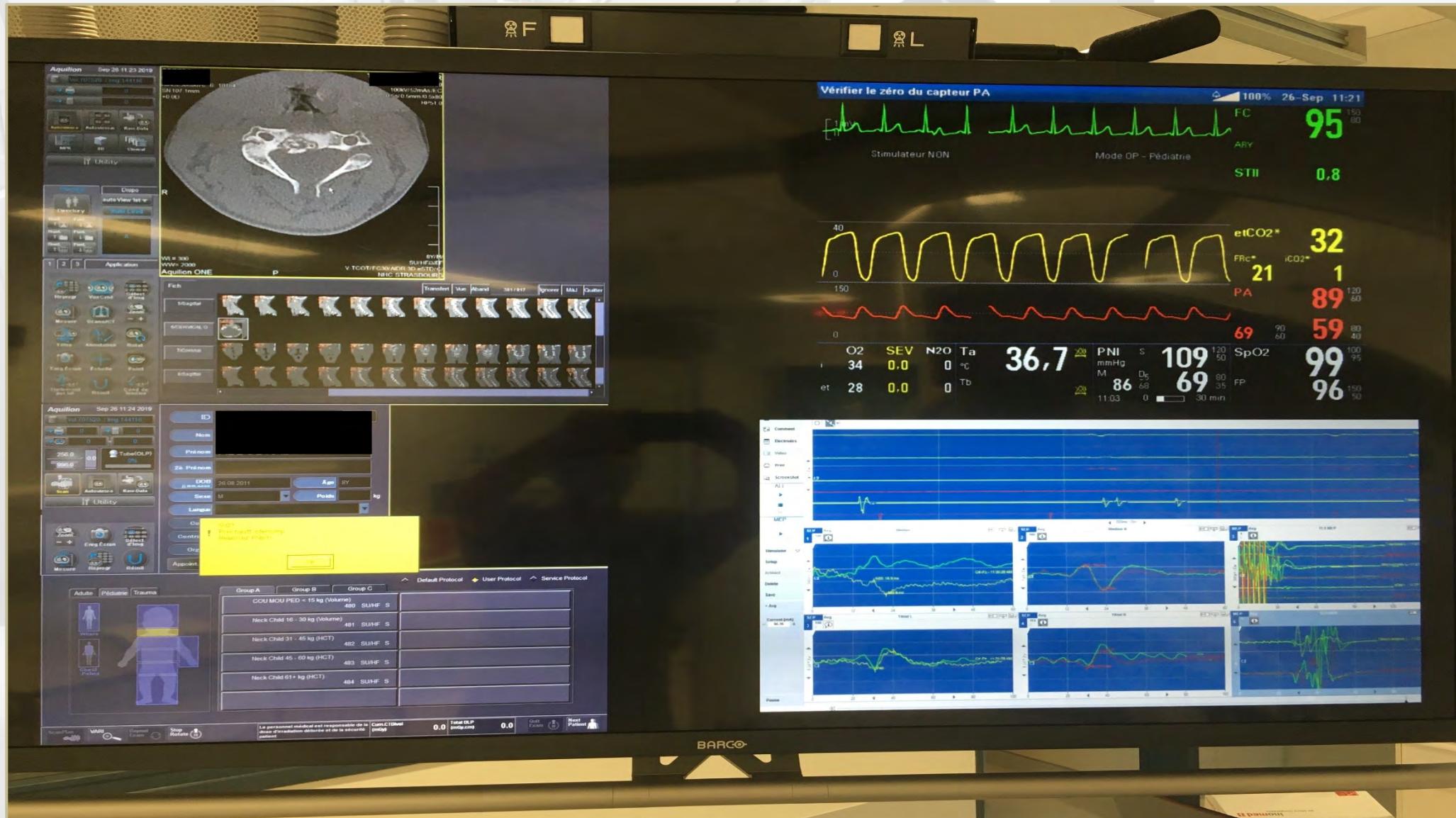
# Evoked potentials: electrode placement



# Osteoblastoma C3



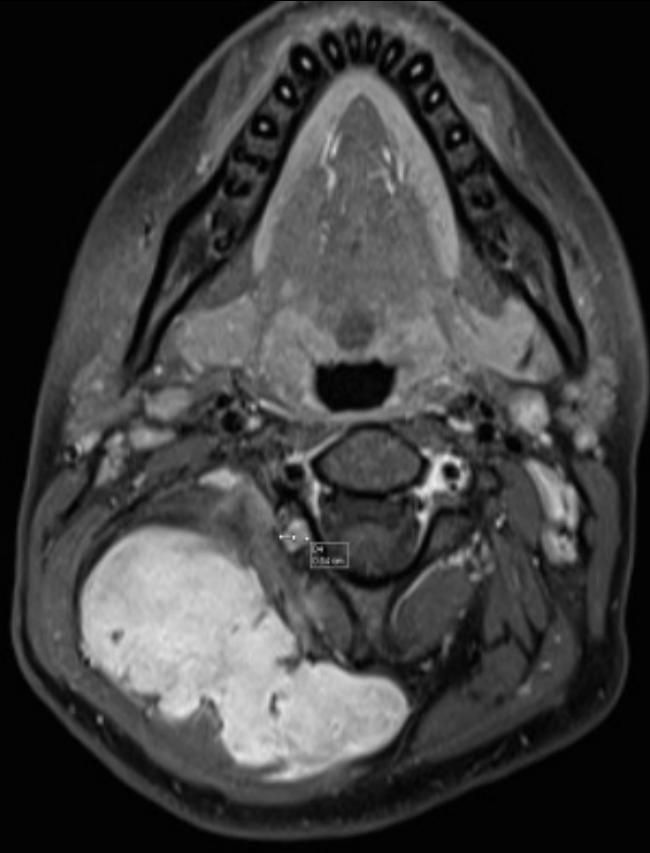
# Osteoblastoma C3

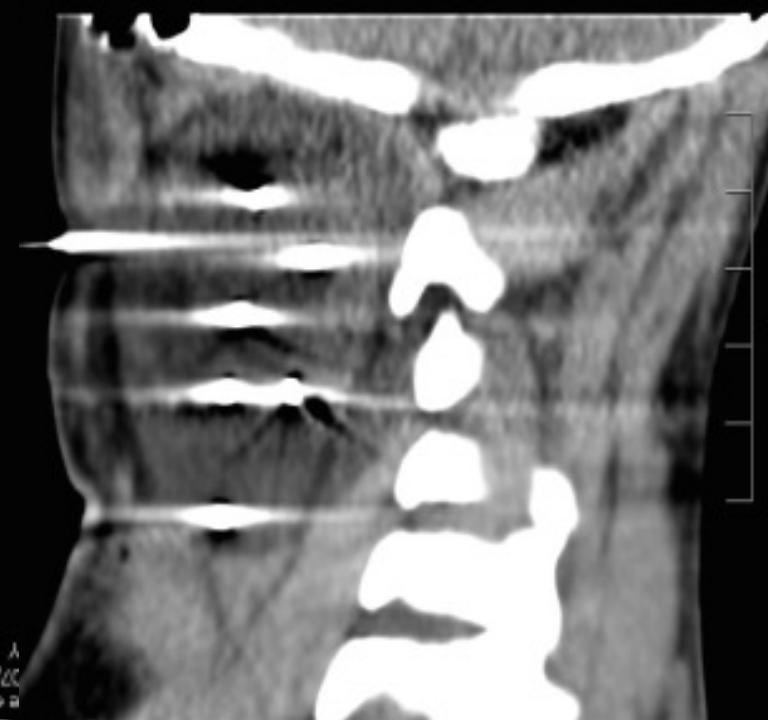
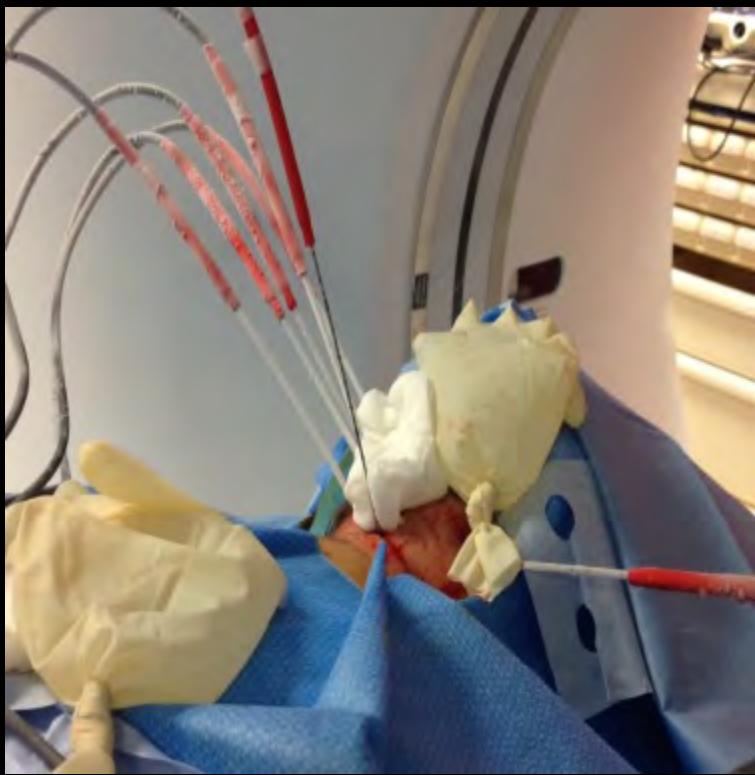


# 15 y.o. Large desmoid Tumours

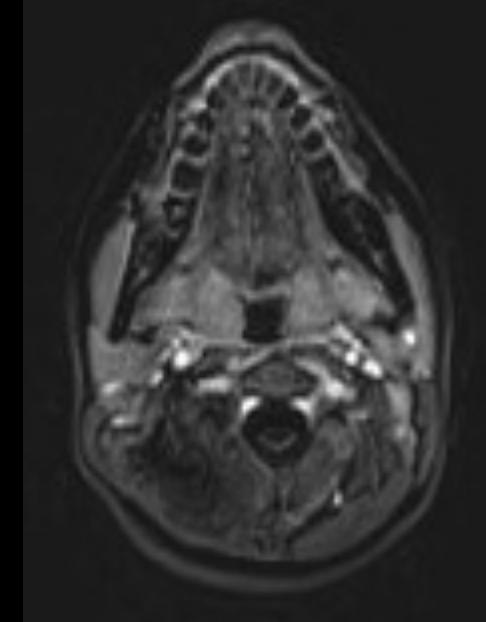
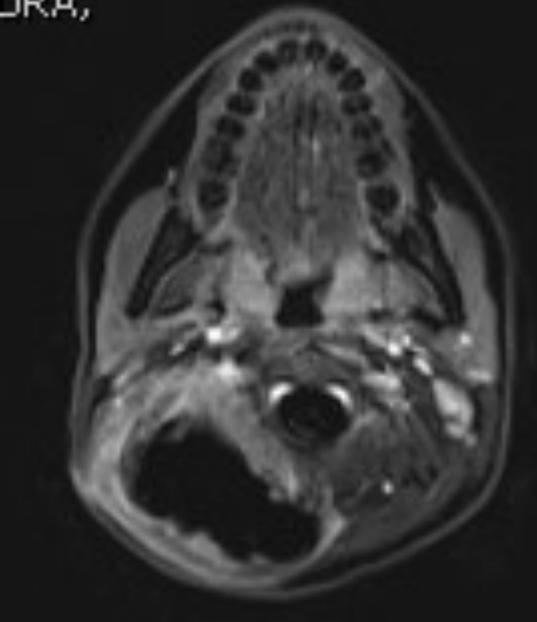
Nexavar

Major Side effects



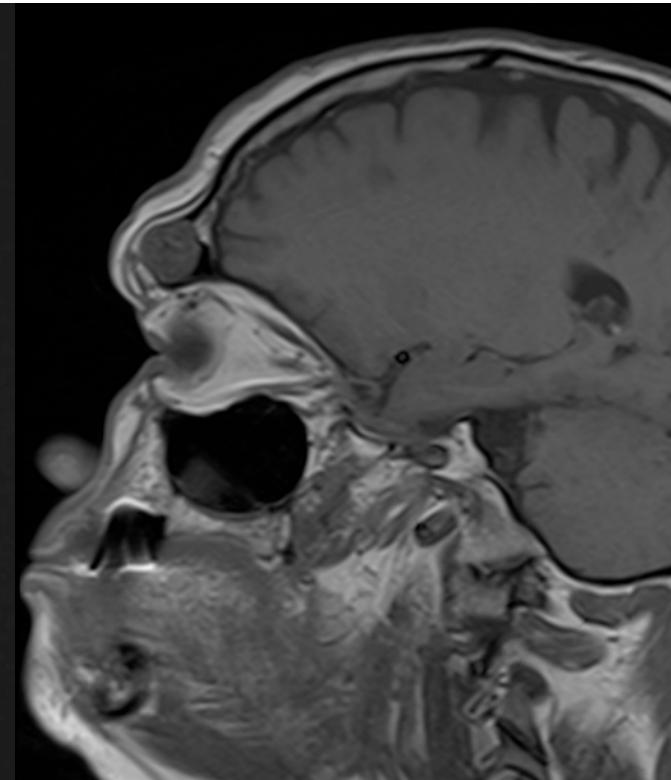
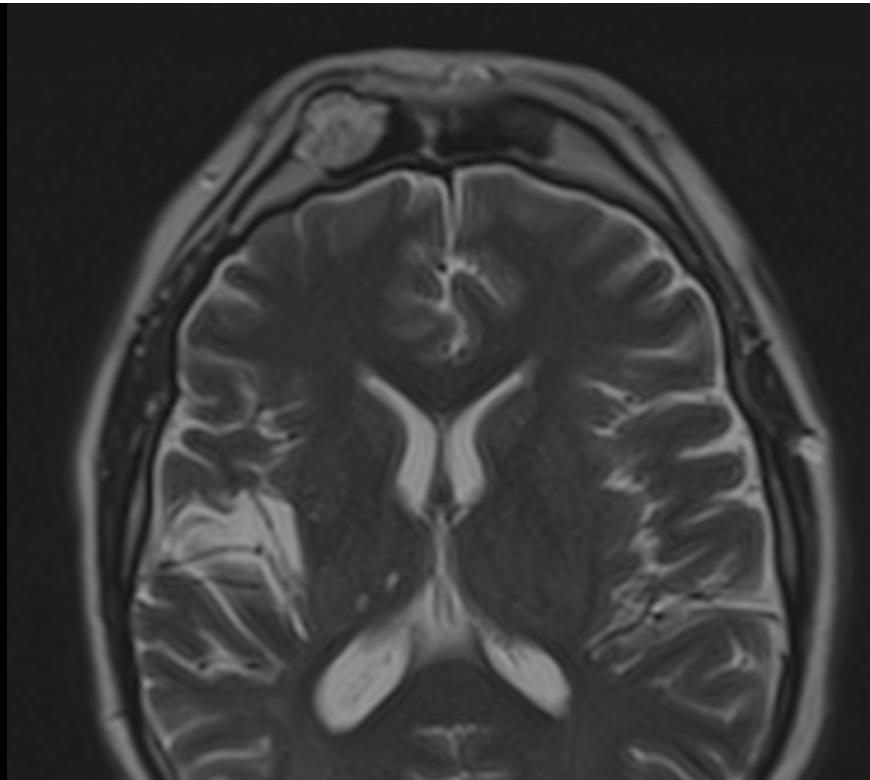
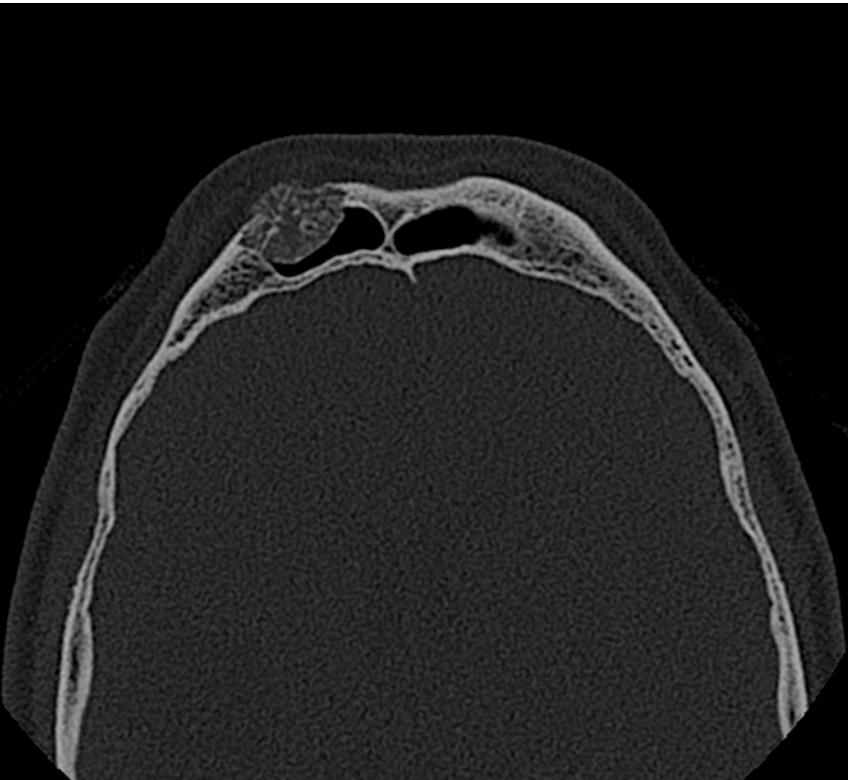


JRA,

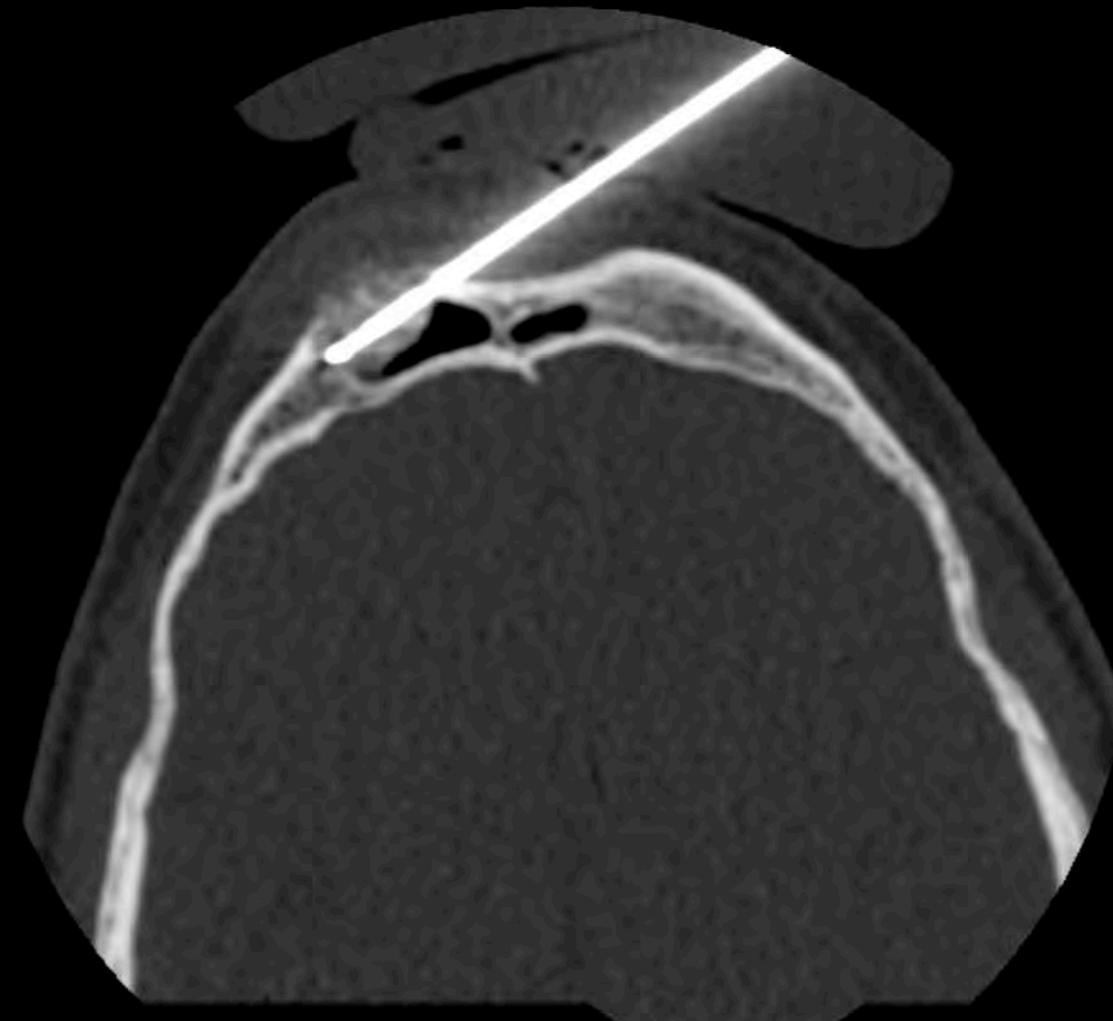


Nexavar stopped

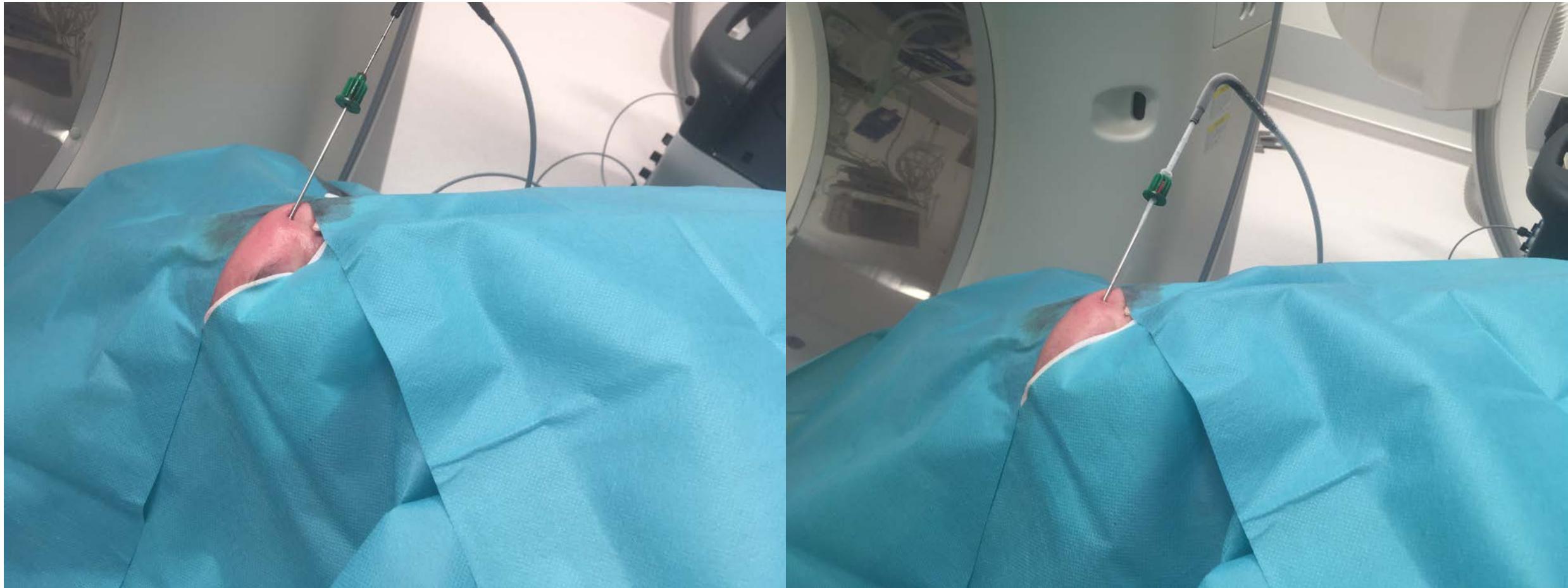
# Imaging



# Percutaneous Cryoablation



# Percutaneous Cryoablation



3 days after Cryo



7 days after cryo



# 11 ENT tumour treated with cryo

- 8 M and 3 F.
- Mean age 65 YO (37-80).
- Mean tumour volume 3.24 cm<sup>3</sup>.
- 4 Squamous cell carcinoma, 4 adenocarcinoma1 muco-epidermoid carcinoma, 1 adenoid cystic carcinoma and one esthesioneuroblastoma
- 10/11 previous surgery, 7/11 previous chemo, 3/11 prior radioT
- 16 Cryoablation were performed, 10 for complete ablation. Mean Follow-up 11.7 months

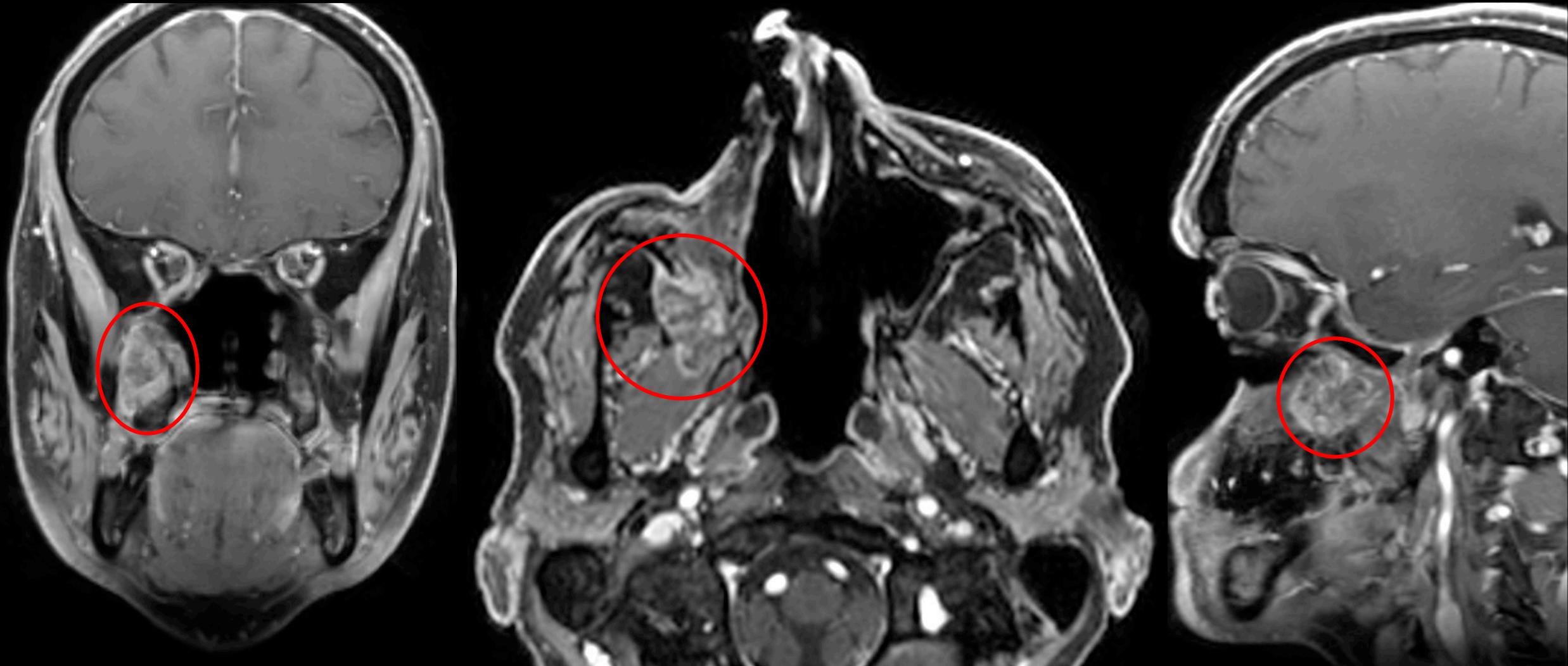
# RESULTS

- 5 treated with no recurrence: local control rate of 45.4%.
- 3 tumours 25% local control was not obtained.
- 1 patient died before MR control.
- Two major complication: inhalation pneumopathy and one dysphonia due to recurrent nerve injury

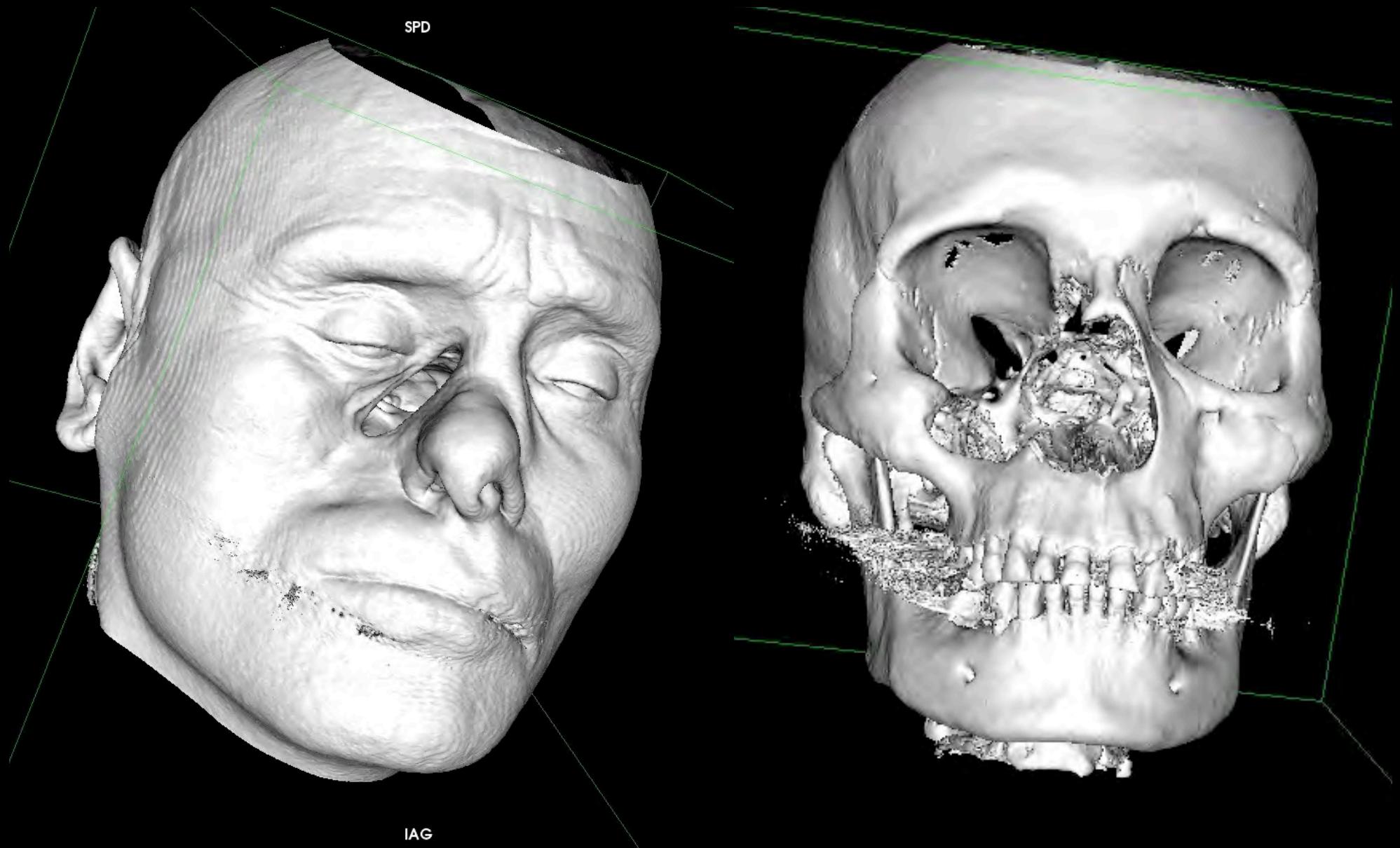
# Intra sinusal frontal hemangioma

- 54 year old male
- Painful frontal angioma, pain level 4-5 / 10 with paroxysm at 7-8 / 10 on VAS
- Increase in height over the last year with increased pain

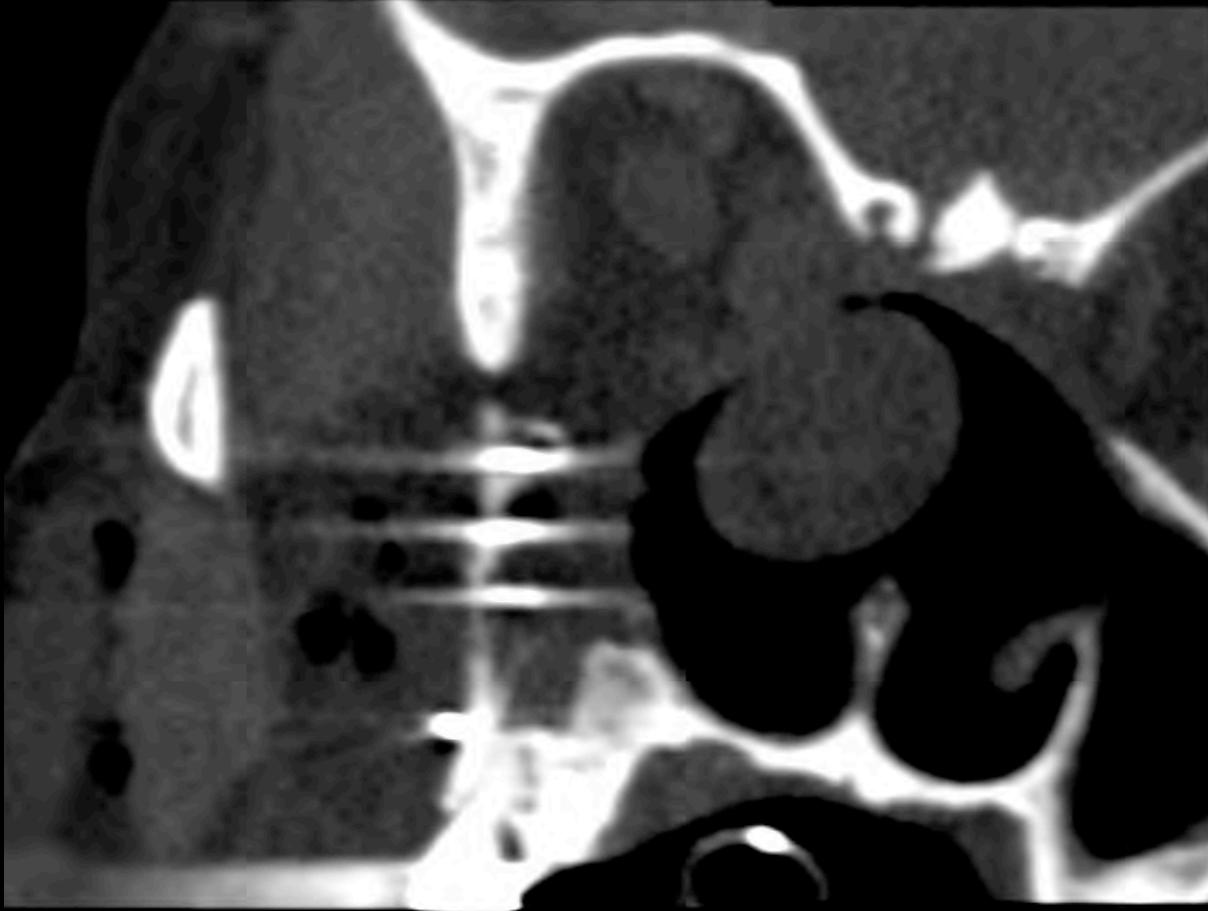
# Ablation of Skull base Tumour

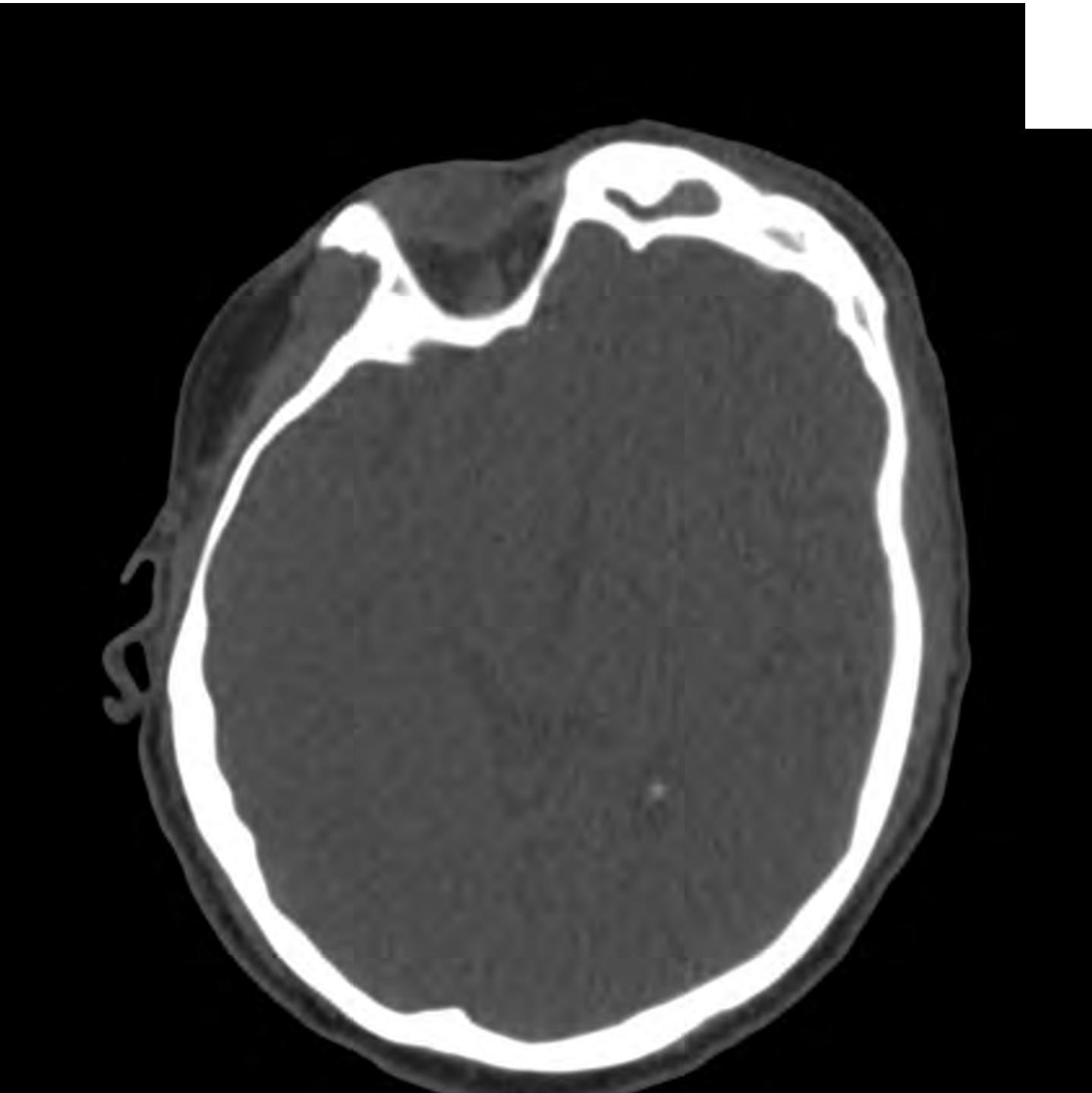
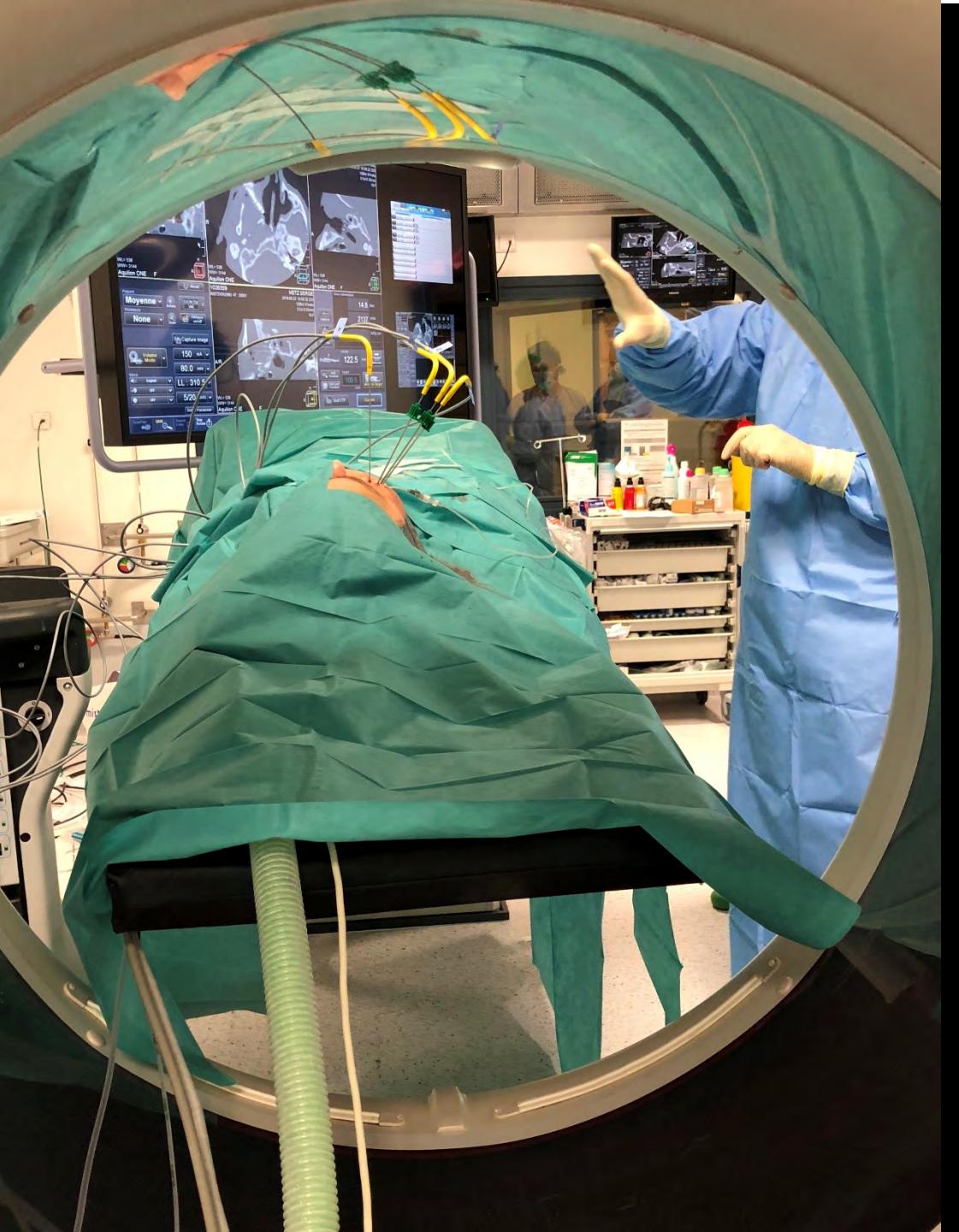


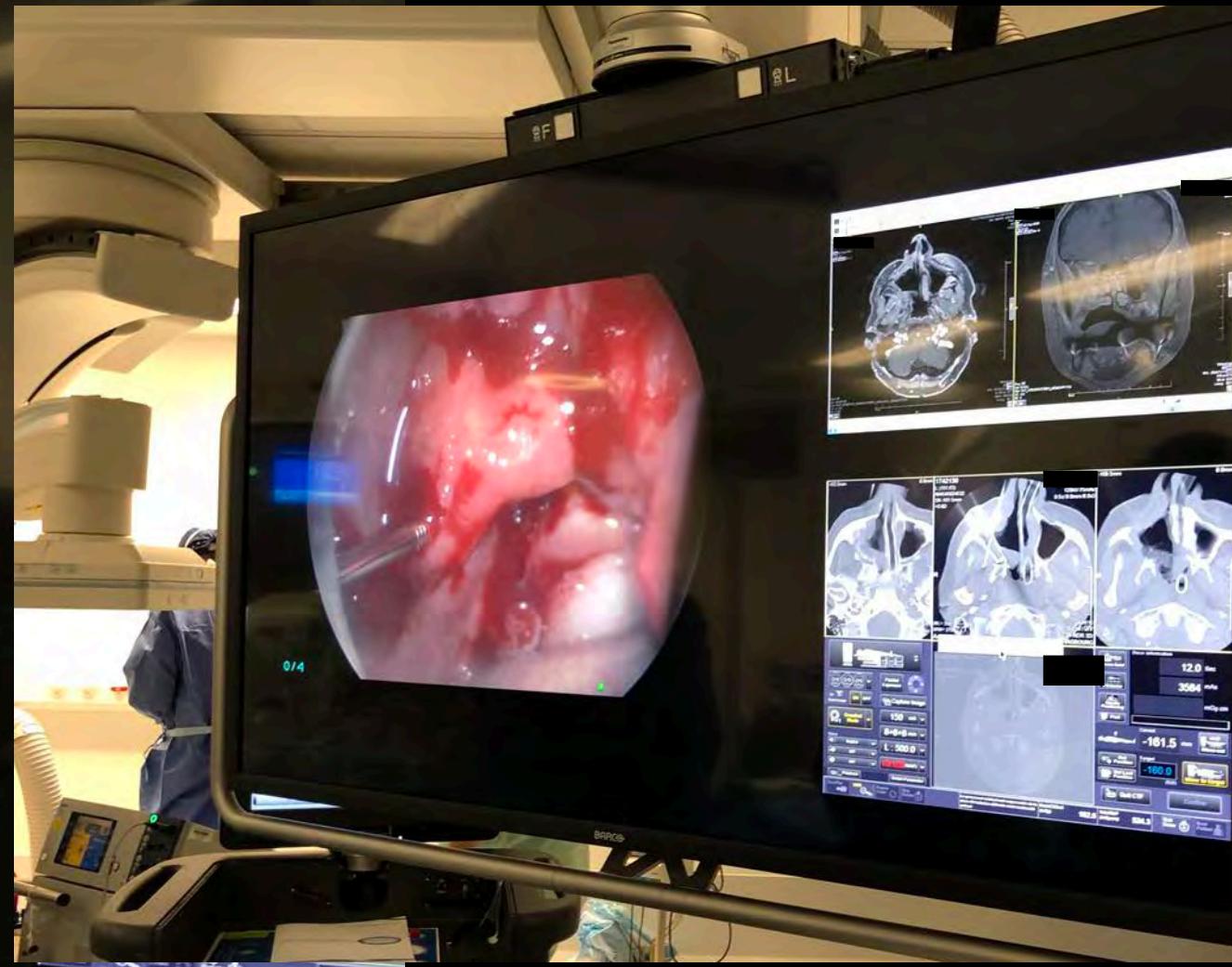
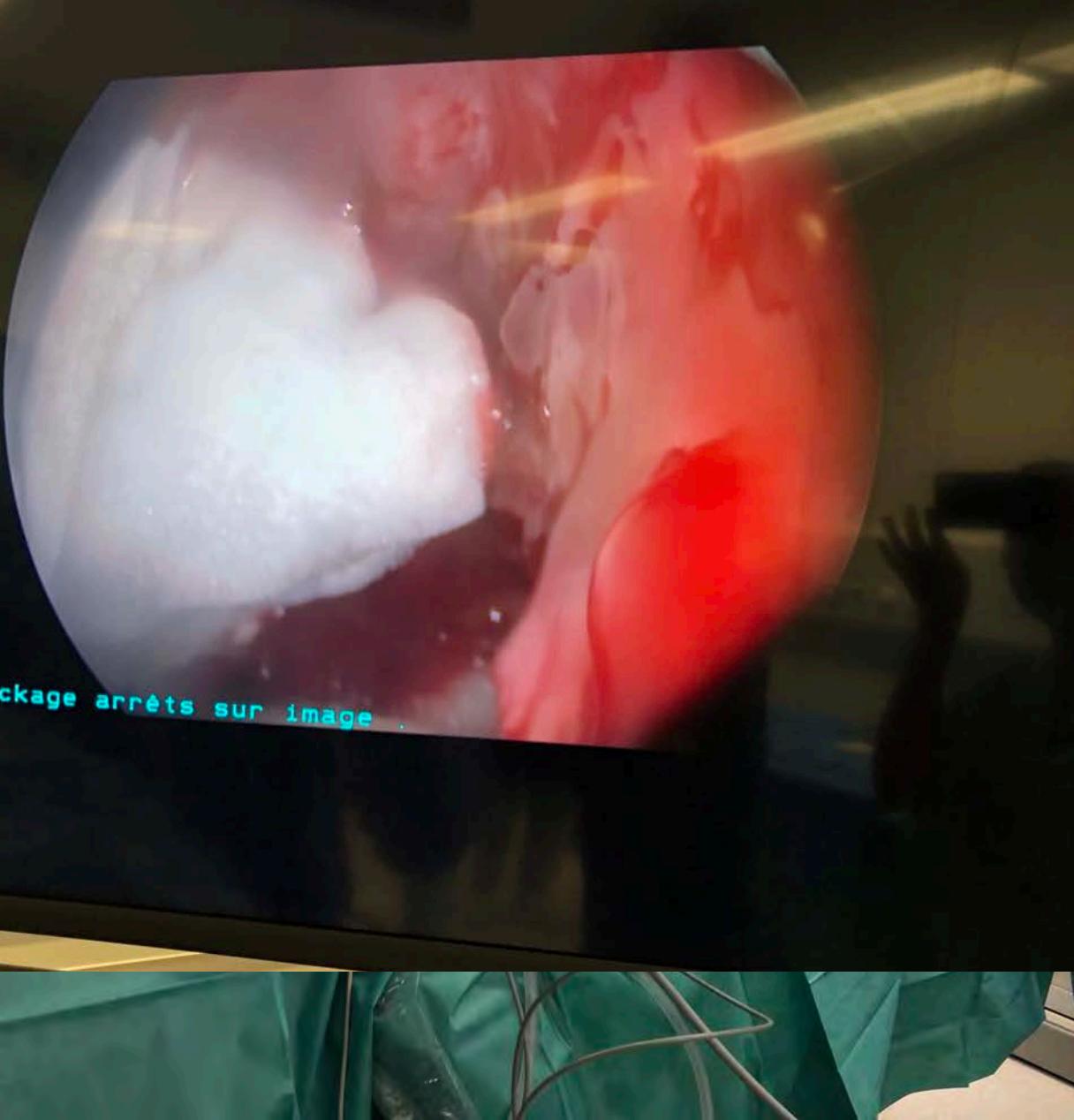
# Ablation of Skull base Tumour



# Ablation of Skull base Tumour







e: 512 x 512  
886 x 886  
851

A

1026359 / 55a  
image: 512 x 512  
X T2 CUB vue: 886 x 886  
3518LF: 1298  
50

BEFORE Cryo



A

1026359 / 55a  
image: 512 x 512  
X T2 CUB vue: 886 x 886  
3518LF: 1298  
301

One year after Cryo



Angles G-D: 0°, S-I: -87°  
I (S → I)  
LosslessOnly  
0 mm Position : -37.60 mm

TE: 46.45 TR: 2073% Angles G-D: 0°, S-I: -87°  
FS: 228 I (S → I)  
04/05/2018 10:58:0 LosslessOnly  
Made In OsiriX: 2.00 mm Position : -49.12 mm

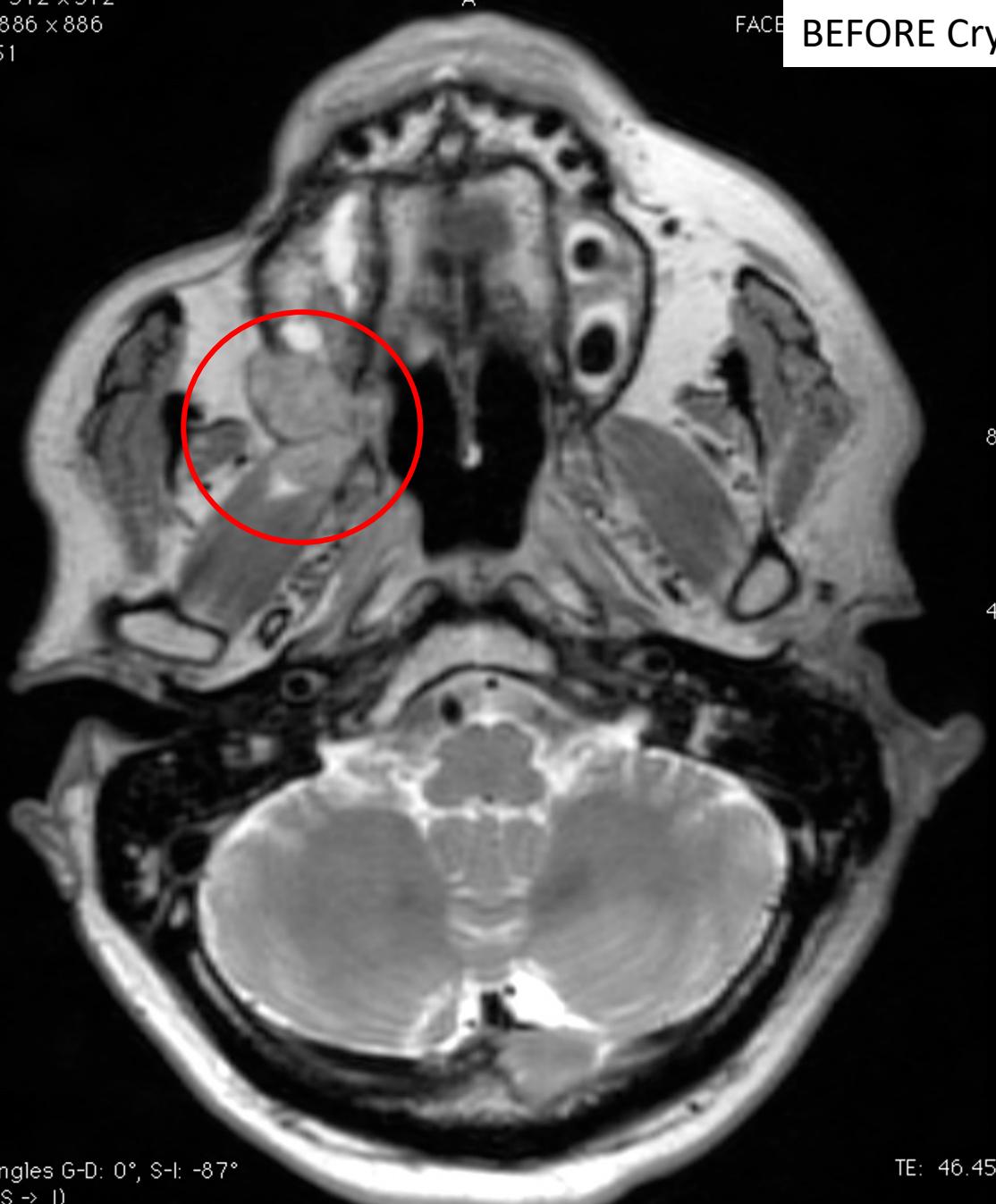
TE: 44.691 TR: 2000  
FS: 3  
18/01/2019 12:13:37  
Made In OsiriX

ge: 512 x 512  
e: 886 x 886  
851

A

1026350 / 552  
FACE  
BEFORE Cryo

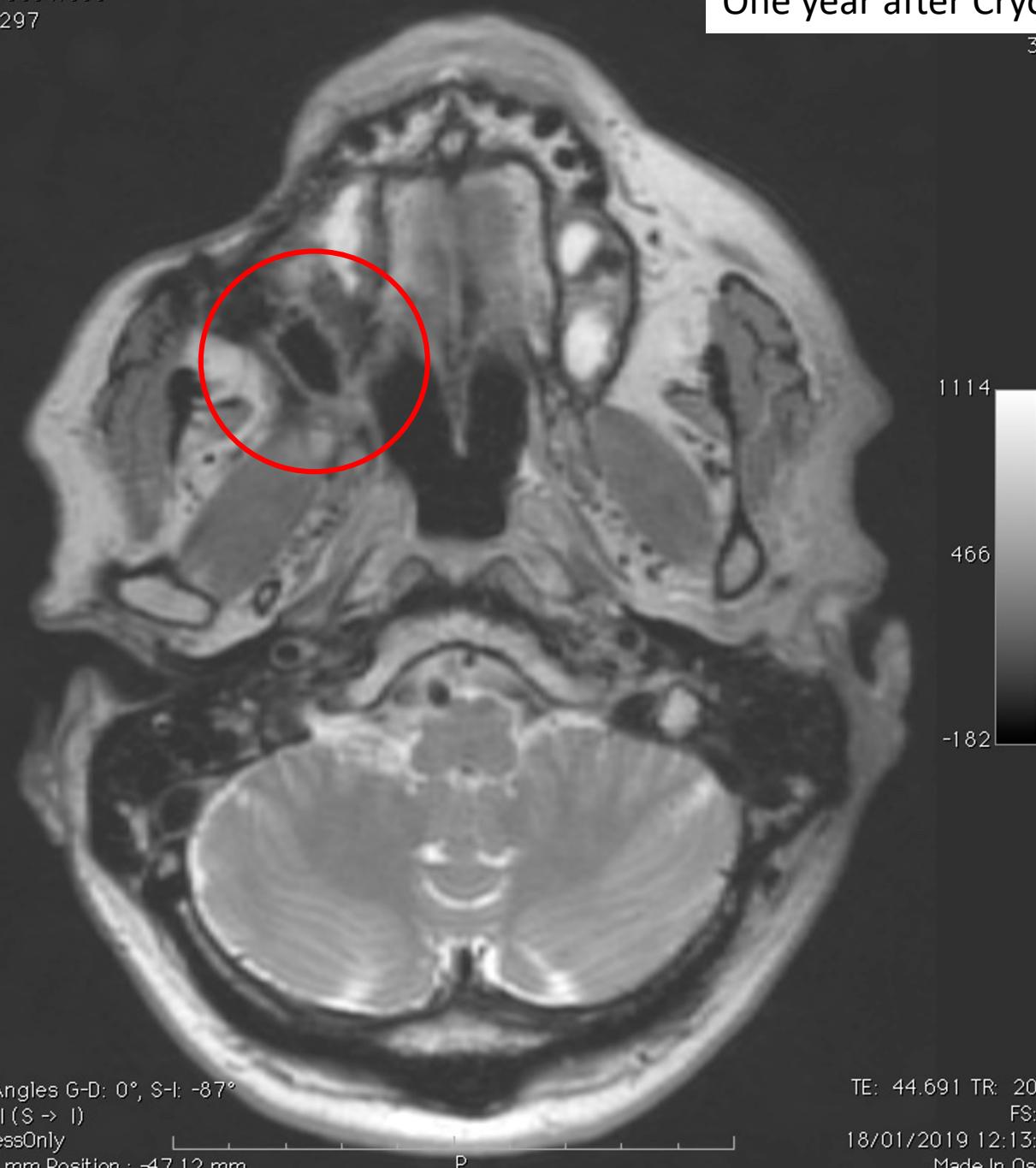
55a ) ge: 512 x 512  
CUBE e: 886 x 886  
5186 1297  
501



A

1026350 / 552  
One year after Cryo

301



3 Angles G-D: 0°, S-I: -87°  
I (S → I)  
lessOnly  
00 mm Position : -35.60 mm

TE: 46.45 TR: 2000 ; Angles G-D: 0°, S-I: -87°  
FS: 38 I (S → I)  
04/05/2018 10:58:07 lessOnly  
Made In OsiriX 00 mm Position : -47.12 mm

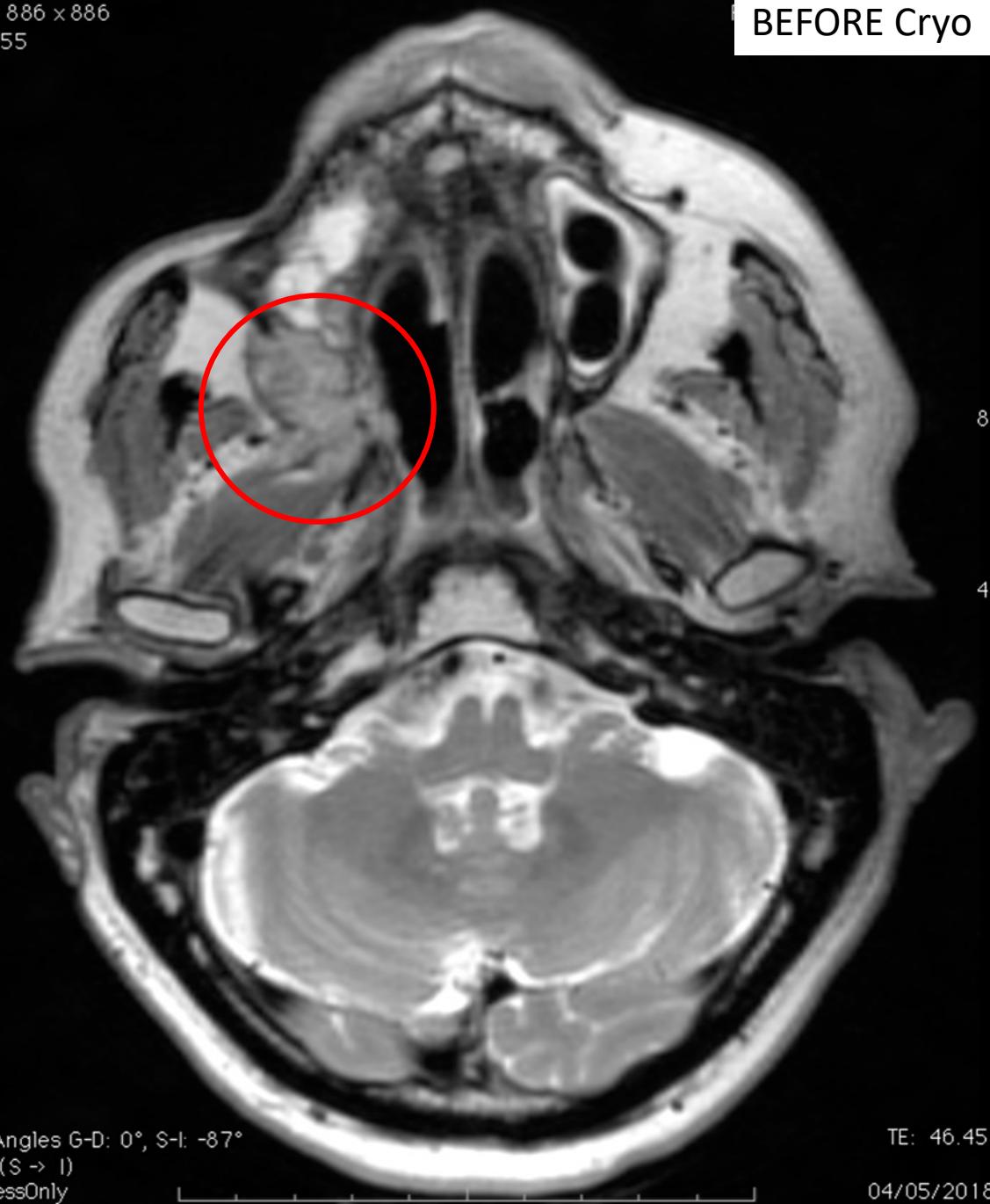
TE: 44.691 TR: 2000  
FS: 3  
18/01/2019 12:13:37  
Made In OsiriX

l'image : 512 x 512  
la vue : 886 x 886  
3 LF : 855

A

1026350 / 55  
taille de l'image : 512 x 512  
taille de la vue : 886 x 886  
F : 465 LF : 1299

BEFORE Cryo



A

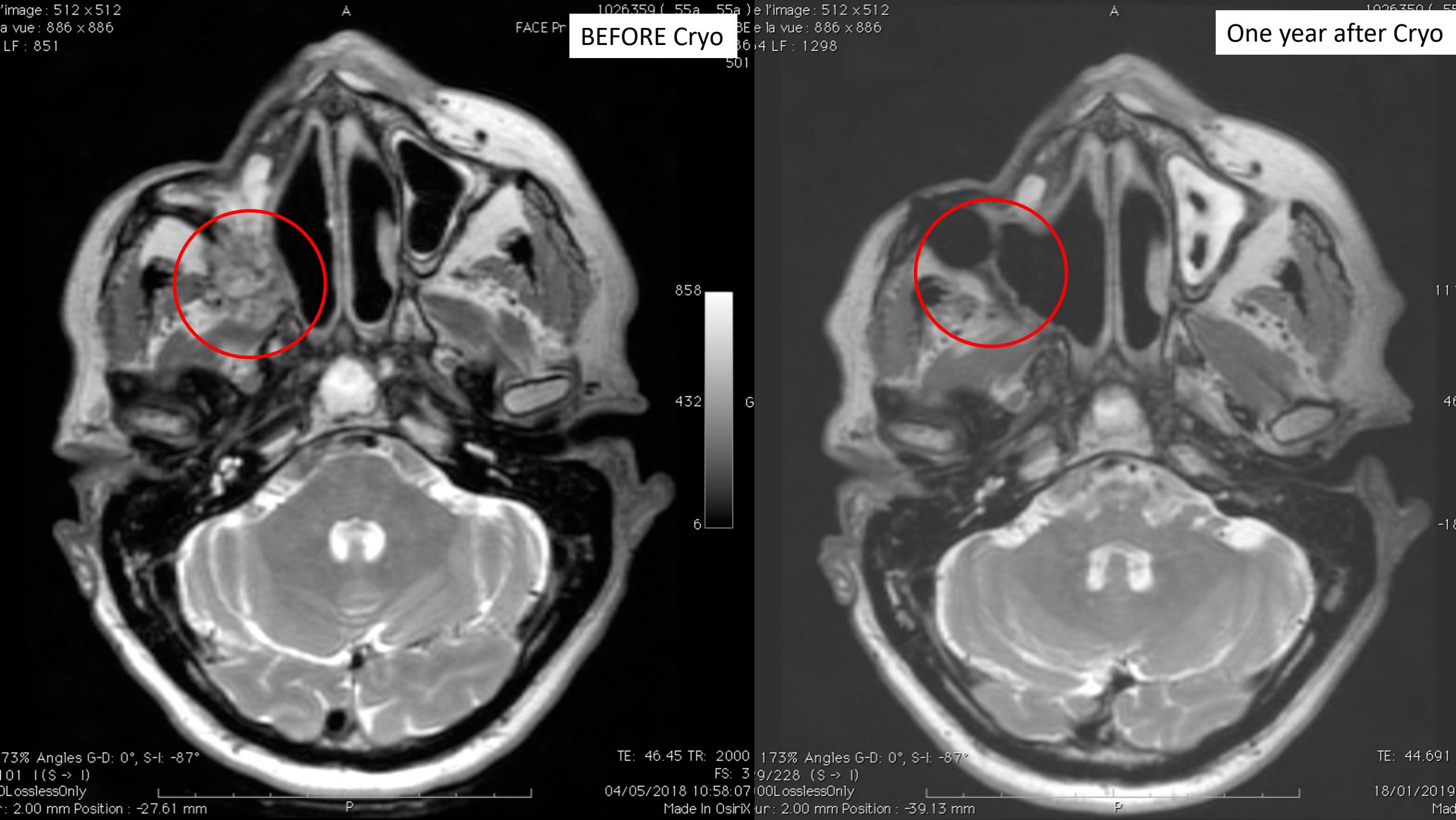
1026350 / 55  
taille de l'image : 512 x 512  
taille de la vue : 886 x 886  
F : 465 LF : 1299

One year after Cryo



1026350 / 55

TE: 44.691 T  
18/01/2019 1  
Made

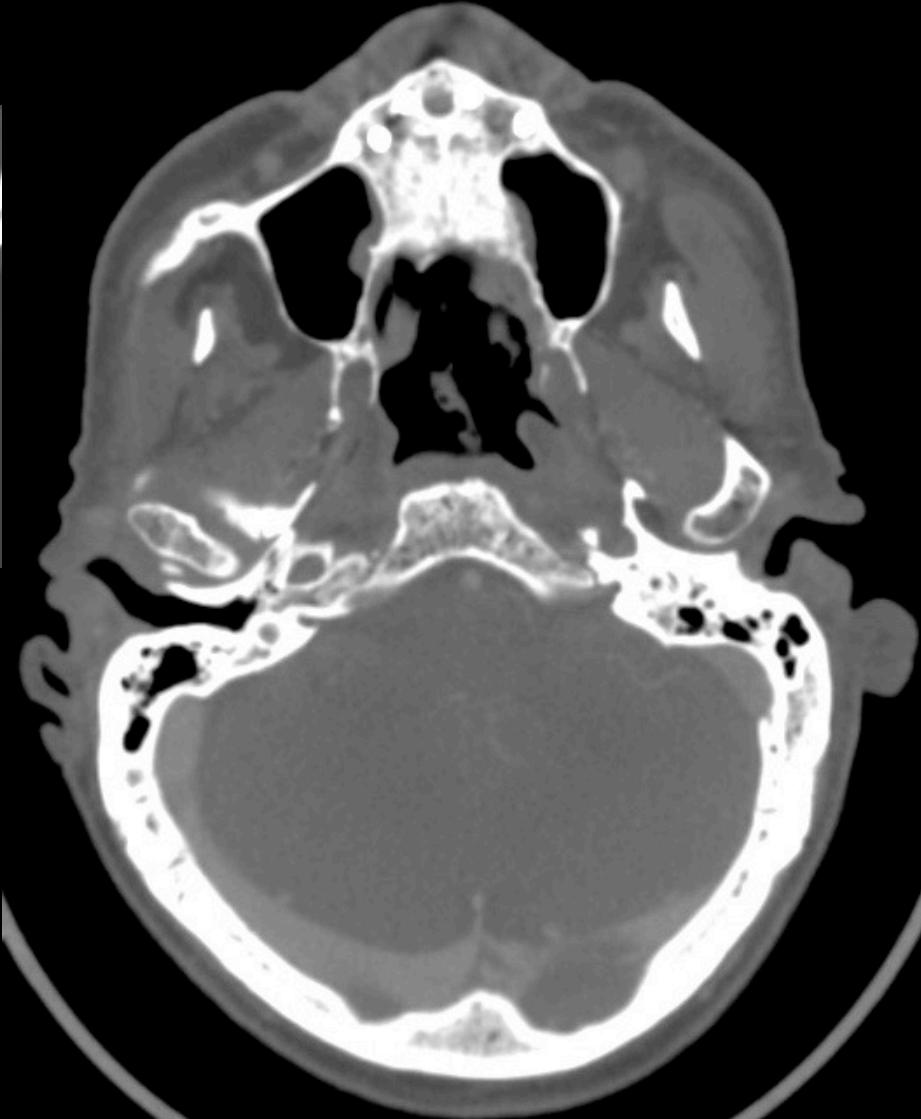
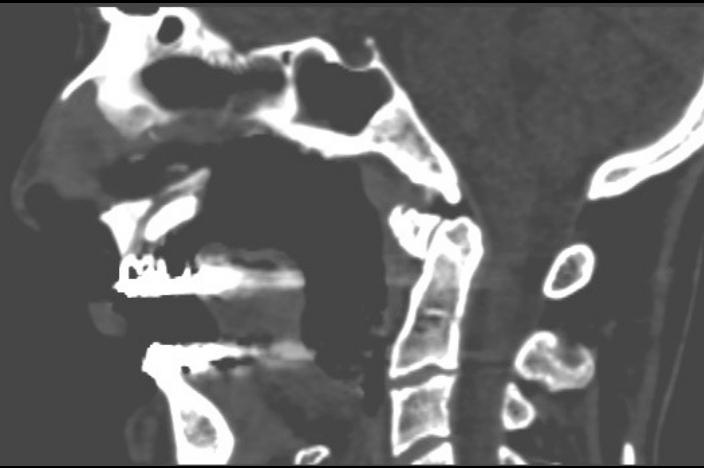


# *HISTORY OF palate carcinoma of nasopharyngeal carcinoma treated with RT*

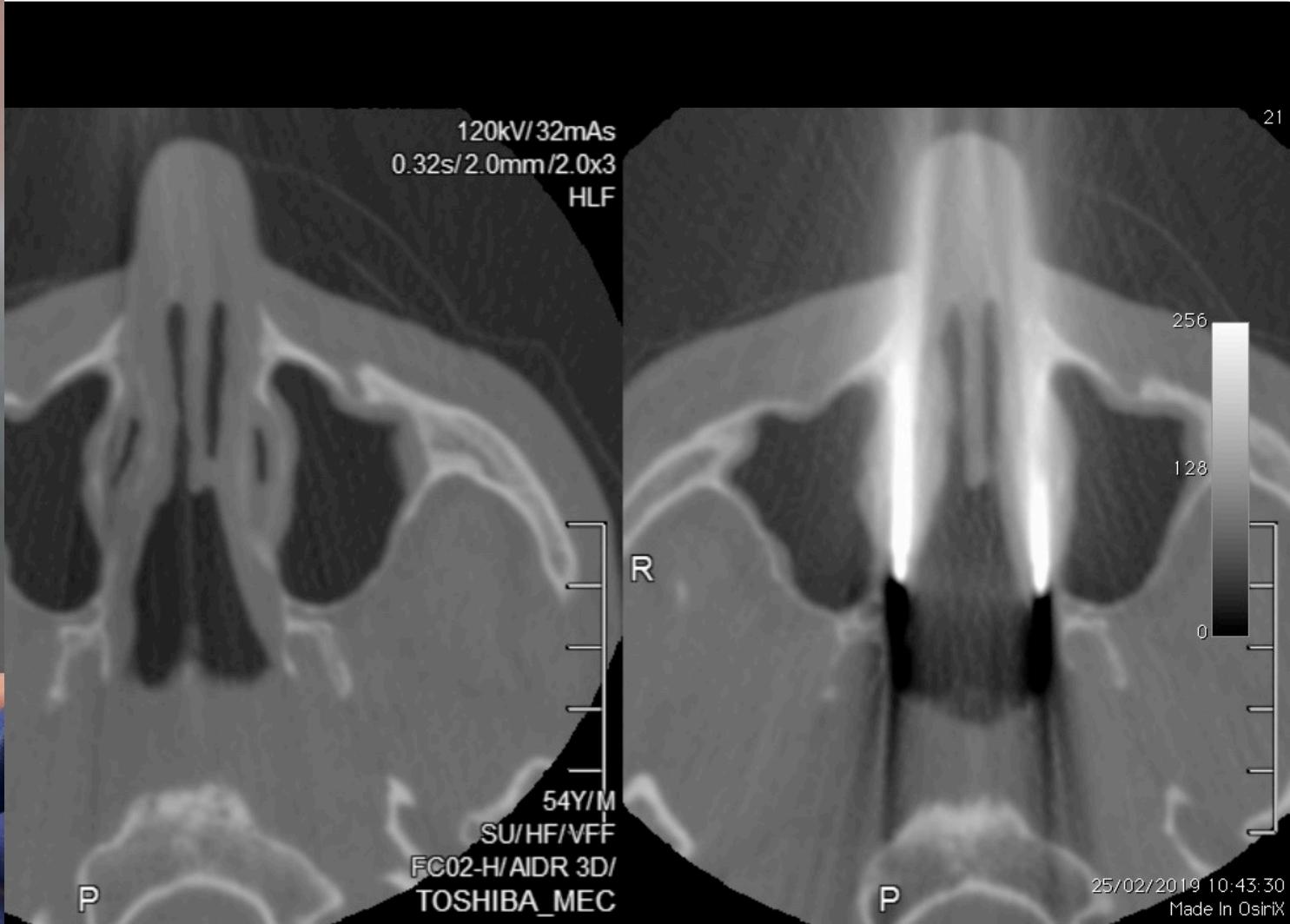


Squamous cell carcinoma of the bony palate treated by maxillectomy.

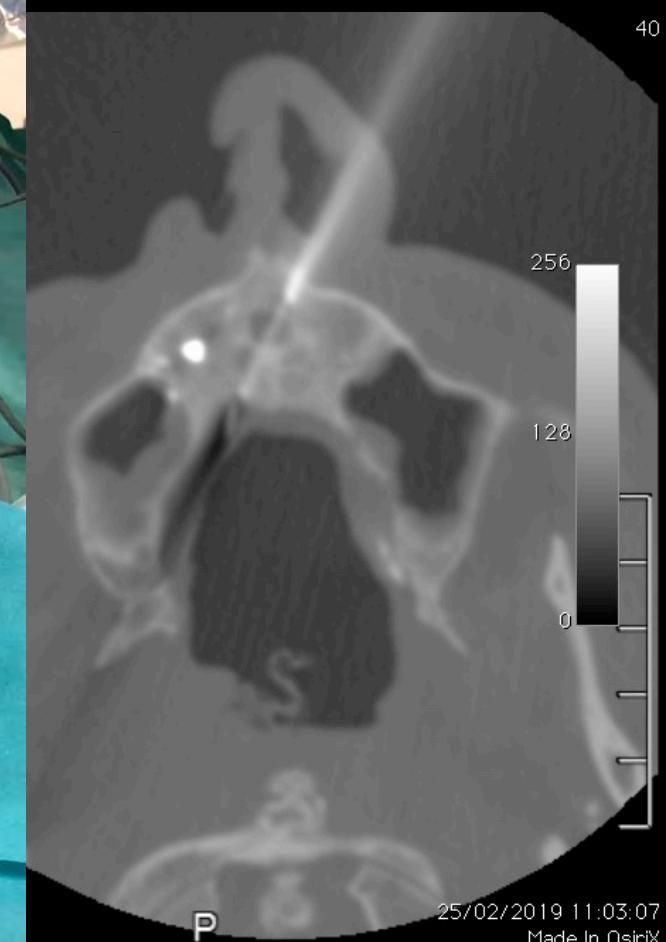
Biopsies performed after SURGER STILL positive => Cryoablation





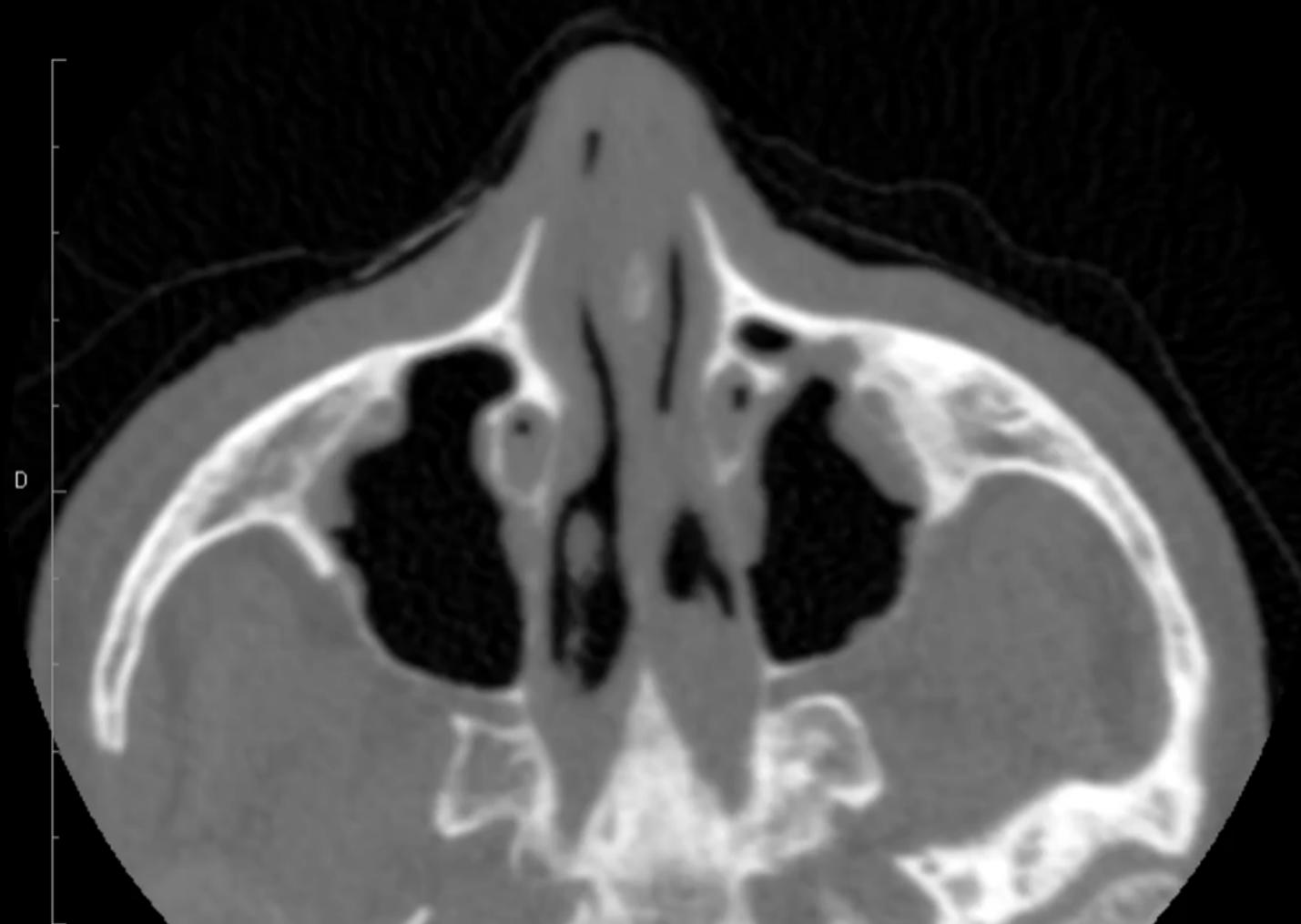






25/02/2019 11:03:07  
Made In OsiriX





Zoom : 173% Angles G-D: 0°, S-I: -90°

Im : 546/1200

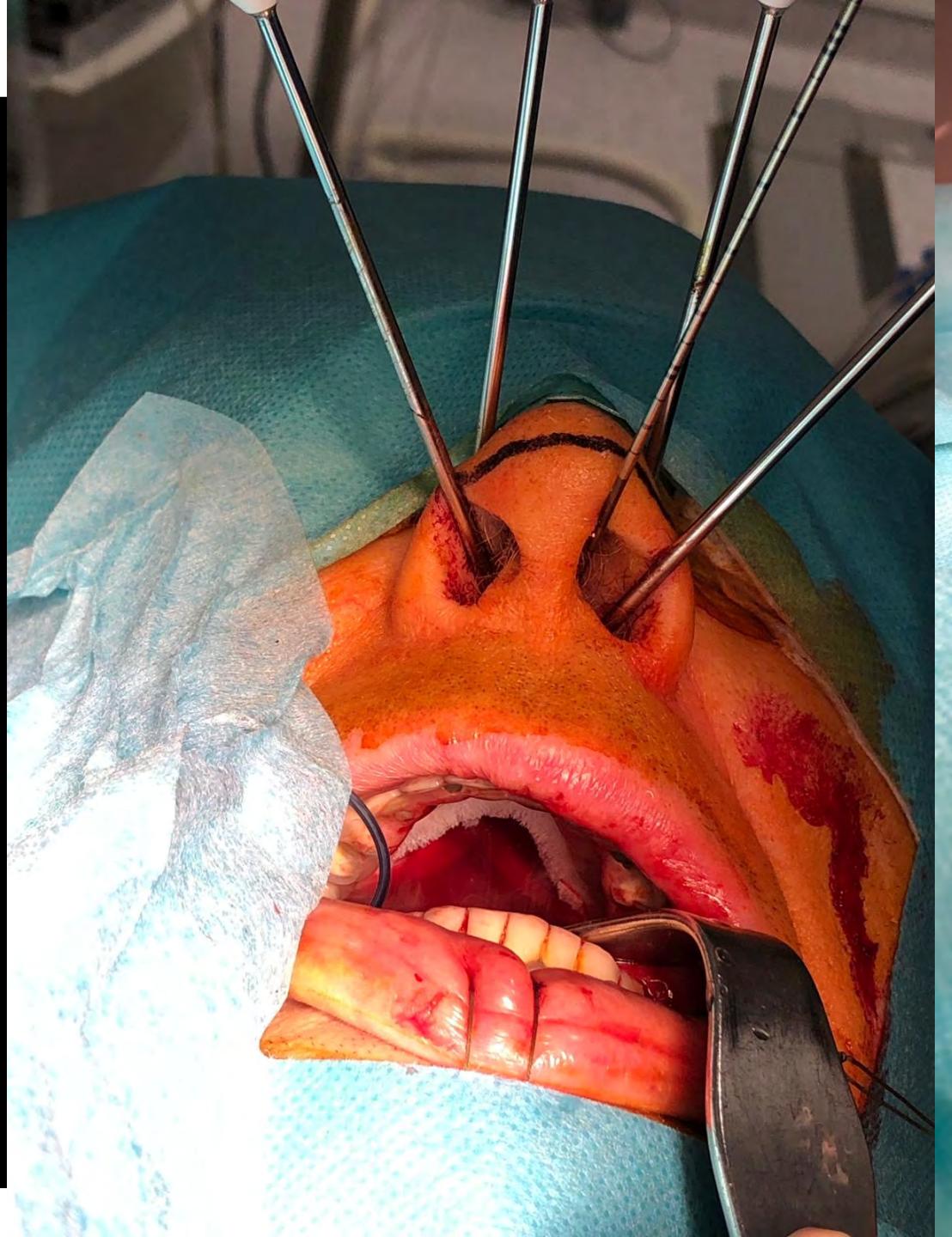
JPEG2000LosslessOnly

Épaisseur : 500.00  $\mu\text{m}$  Position : -1252.25 mm

P

25/02/2019 11:30:53

Made In OsiriX



BEFORE Cryo



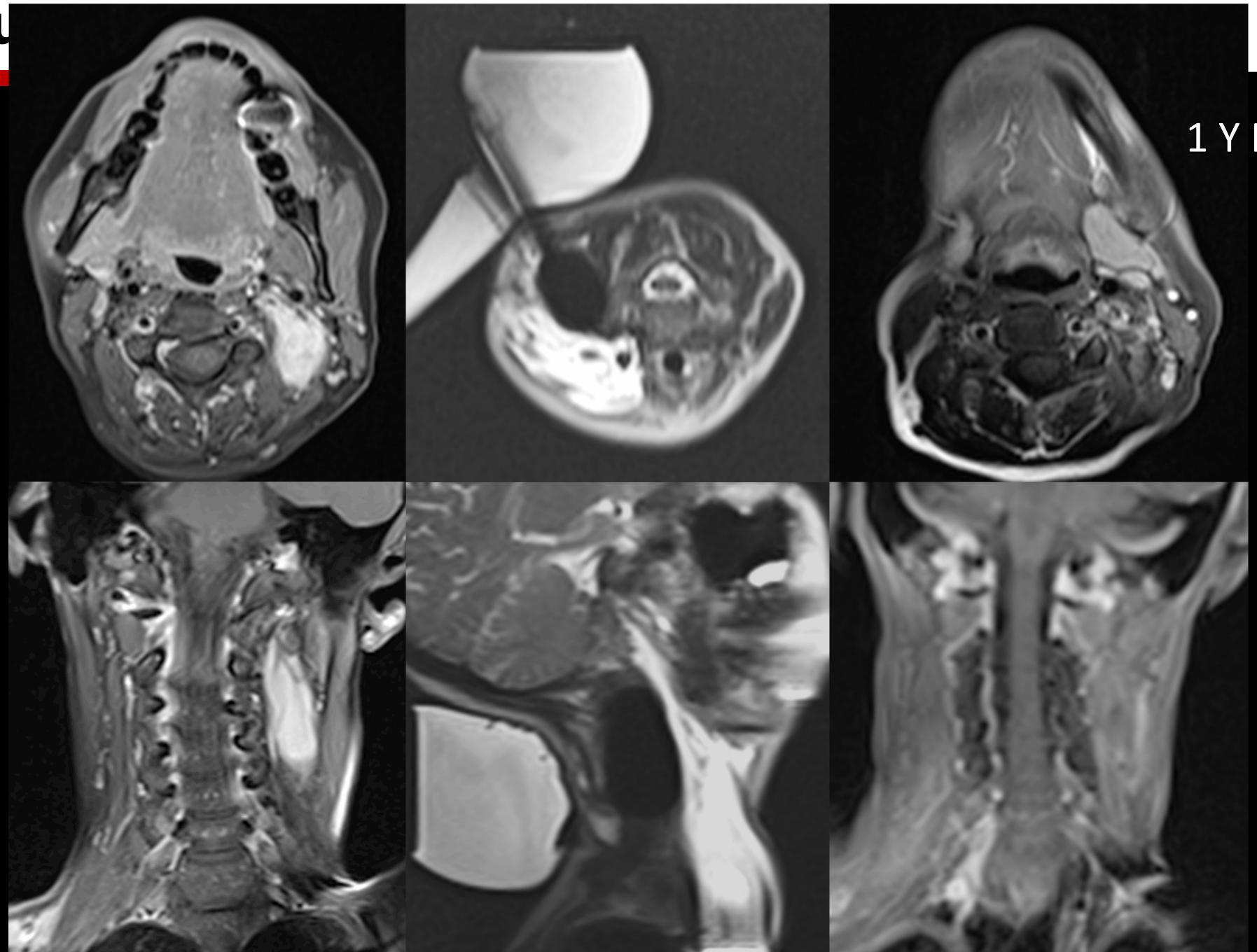
One year after Cryo



# MR Guided Interventions



# Desmoid Tumor

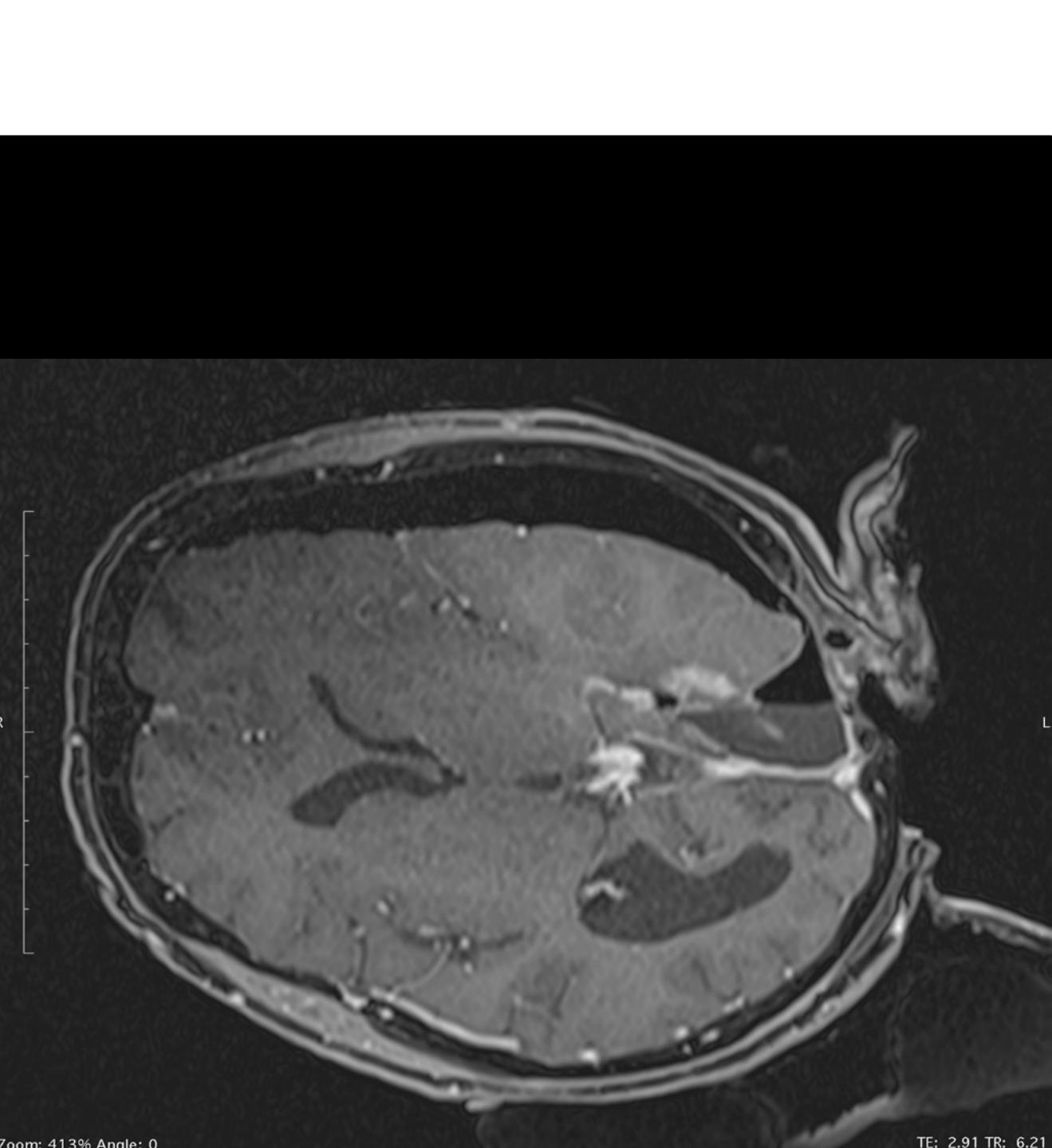
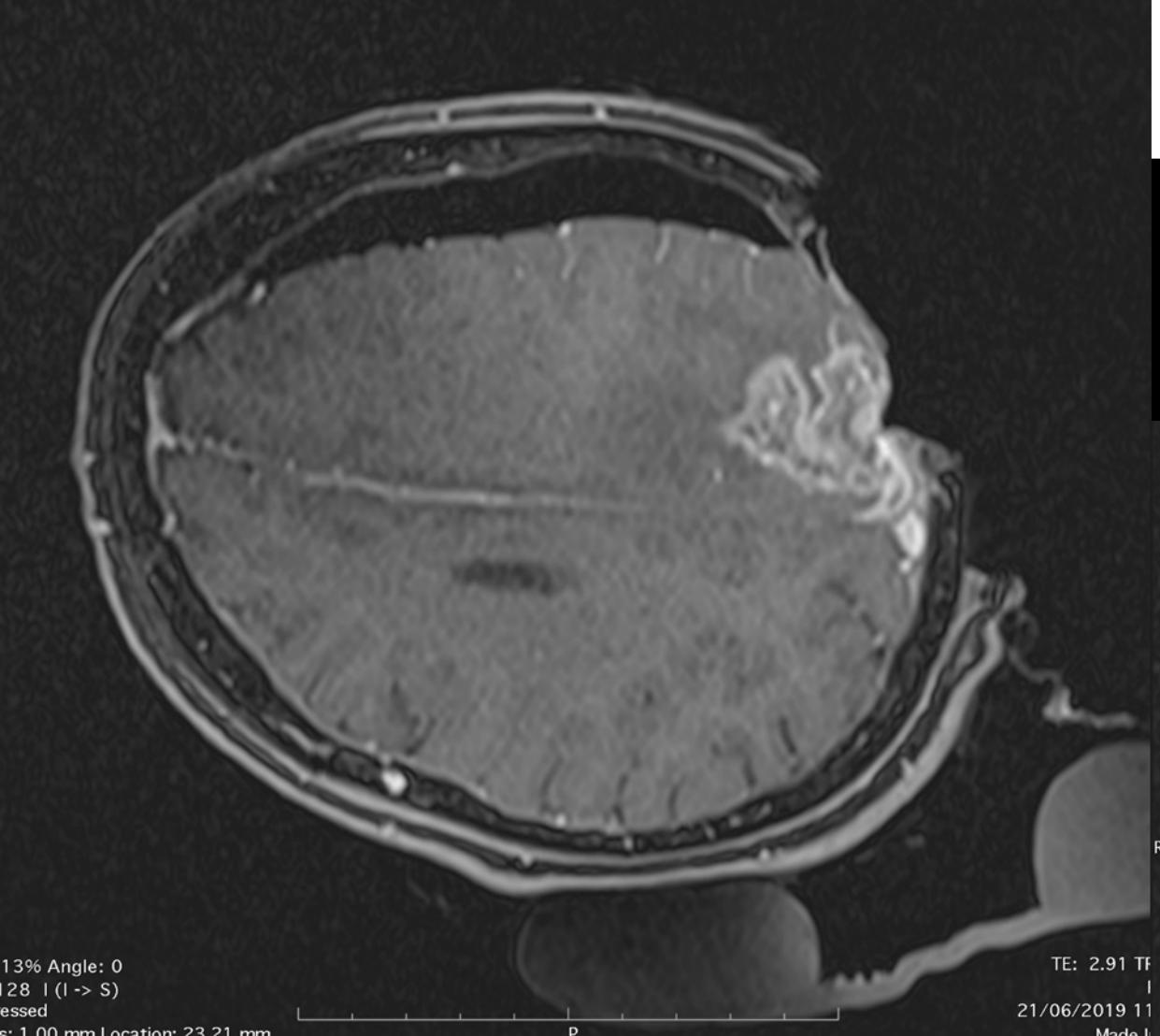


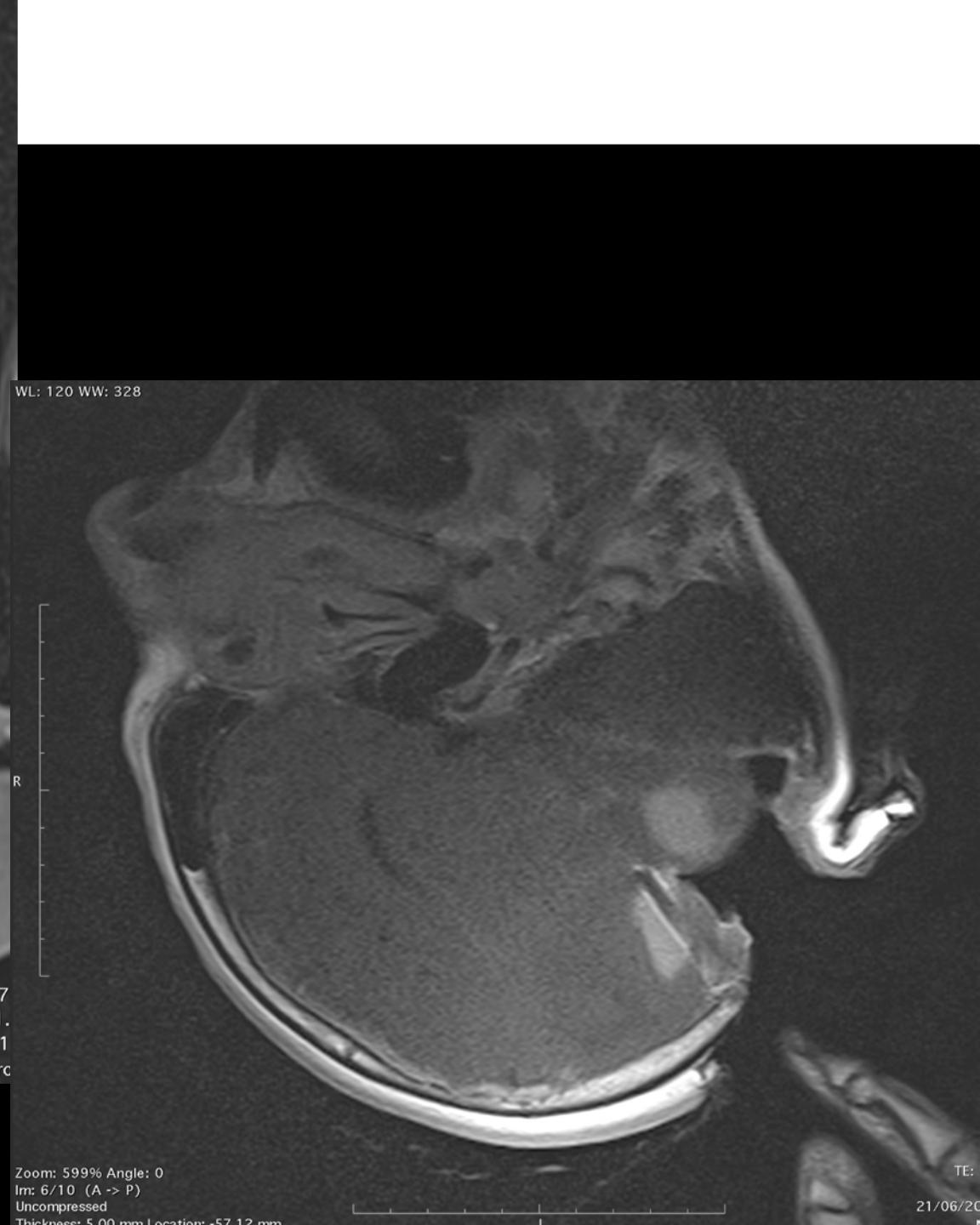
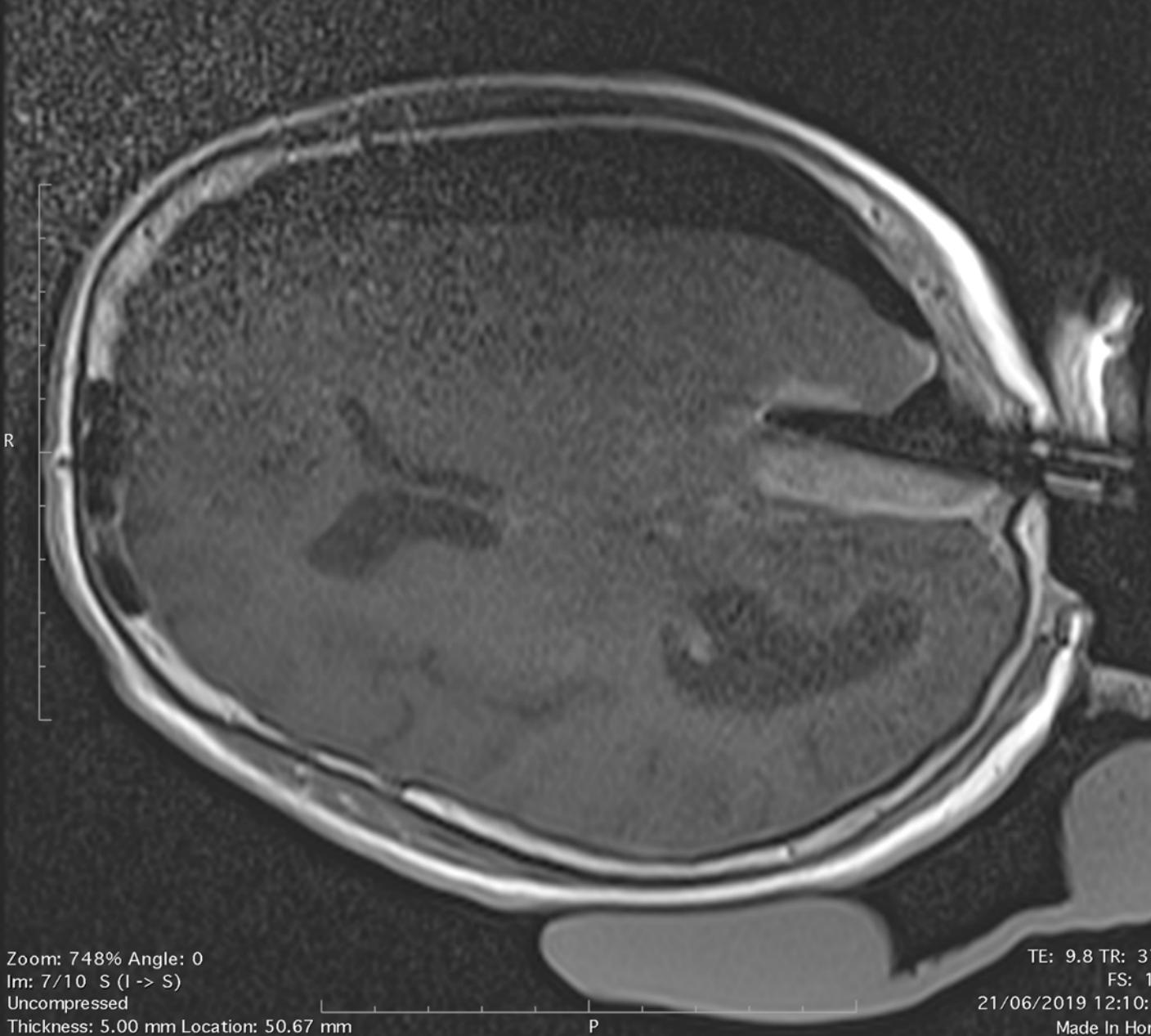
# Glioblastoma

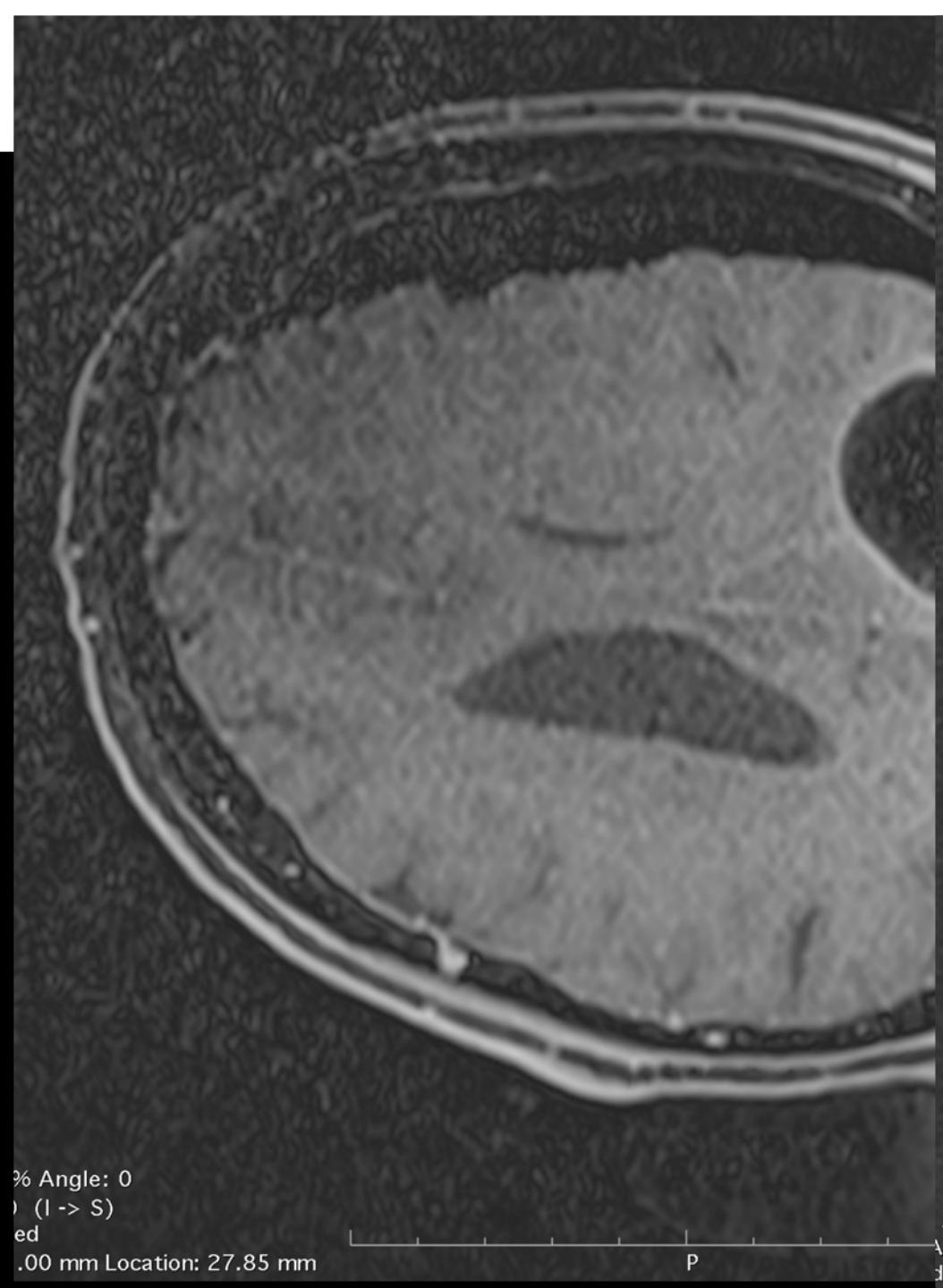
- 6 patients with recurrent glioblastoma
- Age range 54 to 70 YO, Gender ratio 1:1
- Tumor location: Frontal in 4 cases, Temporal one case, parietal one case
- A single freeze protocol
- Median OS was 22.5 months.
- At present two patient remain alive after 12 and 17 months.

Glioblastoma recurrence 71YO  
lady  
patient number 4

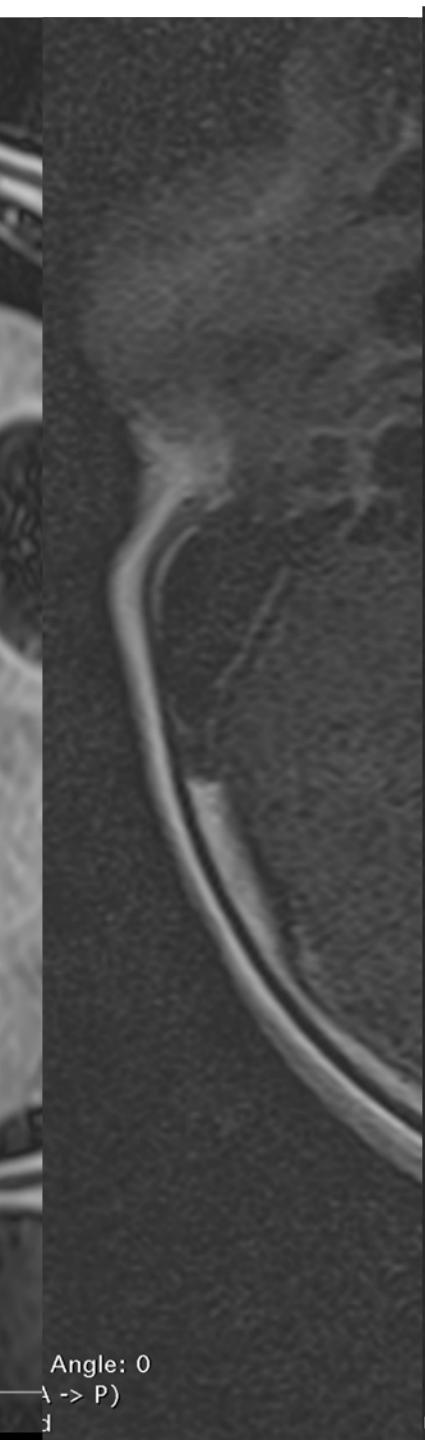
Previous surgery and radiotherapy



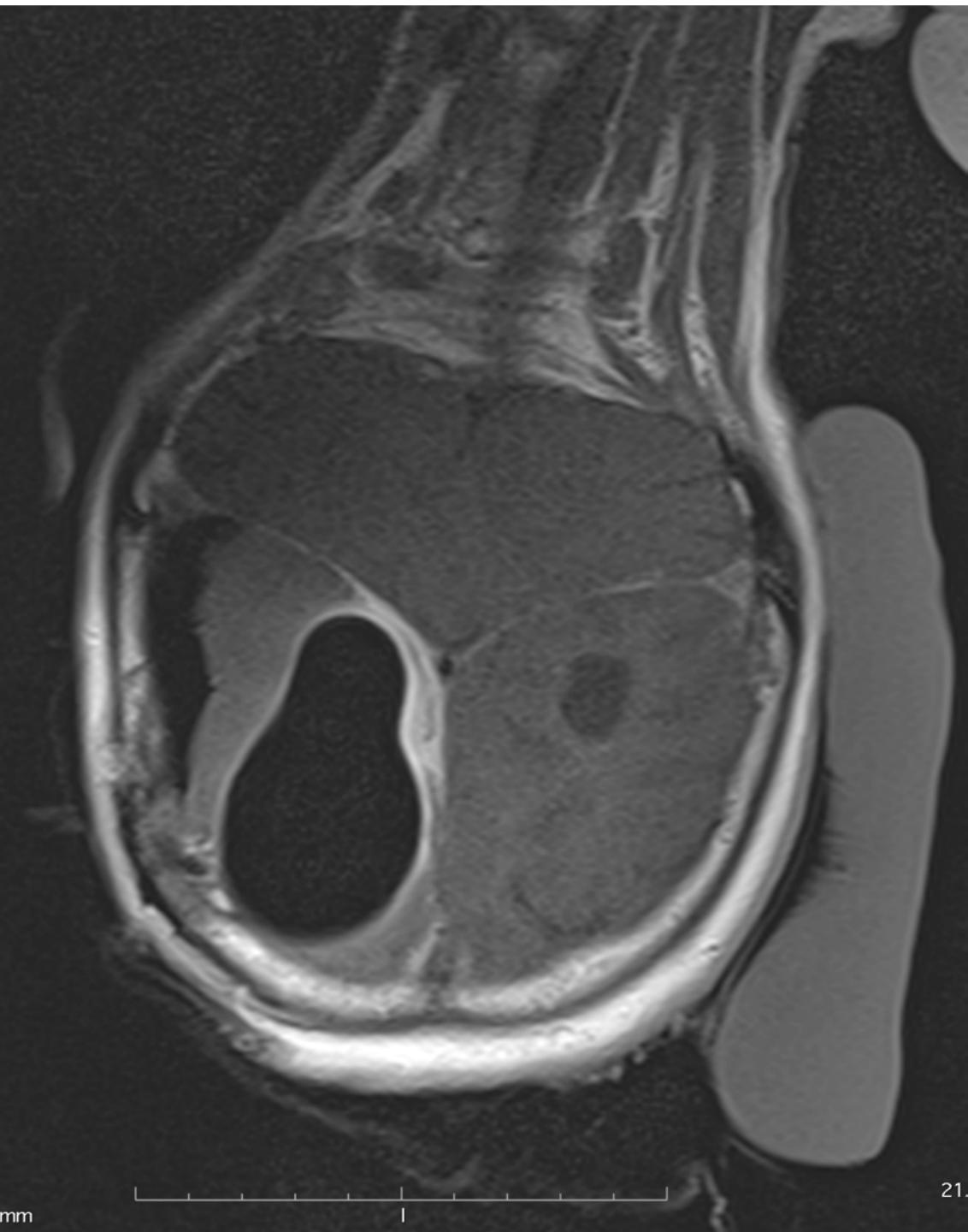




% Angle: 0  
0 (I -> S)  
ed  
.00 mm Location: 27.85 mm



Angle: 0  
(A -> P)



mm

# CONCLUSION

IR is one of the fastest growing clinical speciality

