



Anatomía Cabeza y Cuello

PET TC -RNM

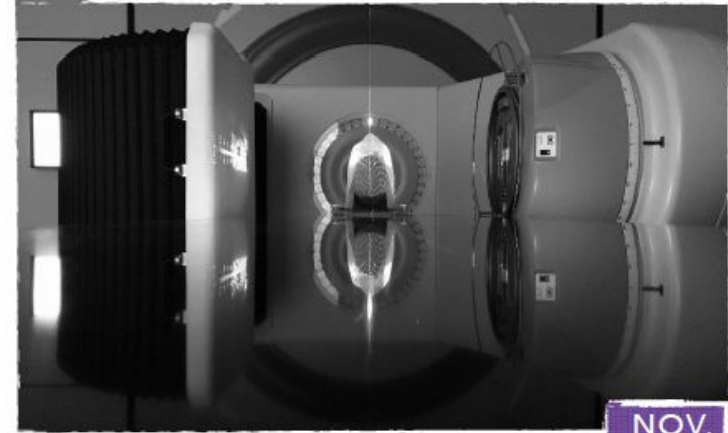
Prof. Agda. Dra. Margarita Garcia Fontes
Noviembre 2019

5ta Jornada Académica de Integración en Radio-Oncología

5ta. Jornada Académica de
Integración en Radio - Oncología
En homenaje a nuestro querido Director



“Prof. Agdo. Dr. Alvaro Luongo Gardi”



Organiza Carrera de Tecnólogos en Radioterapia
EUTM. F. Medicina. UdelaR

Sábado, 16 de Noviembre 2019 - 8:00 a.m.

Instituto Nacional del Cancer. Anfiteatro

Dirección: Joánico 3265. Montevideo. Uruguay

NOV.
16



Licenciatura
en Radioterapia

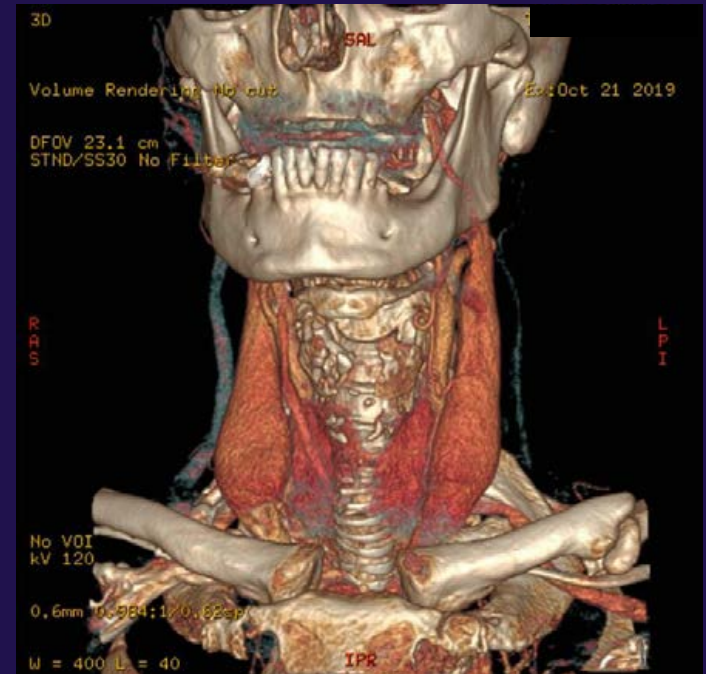
Inscripciones via e-mail: jornadastcert2019@gmail.com



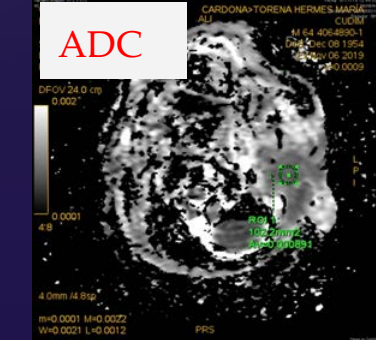
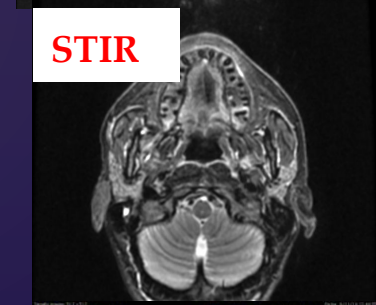
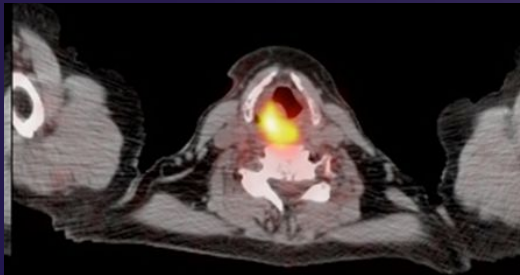
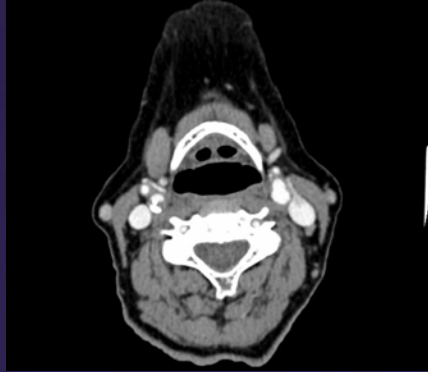
Imagenología de cabeza y cuello

ANATOMIA POR ESPACIOS

- Fascias
- Cartilagos, organos, huesos, vasos
- Glandulas
- Grupos Ganglionares

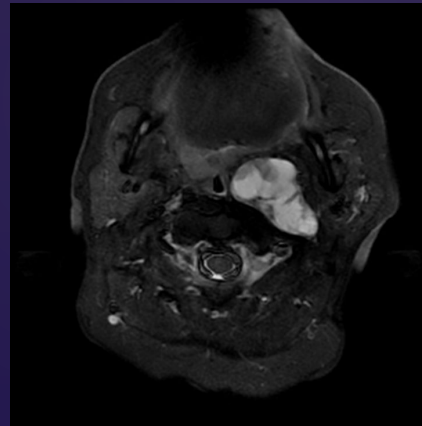
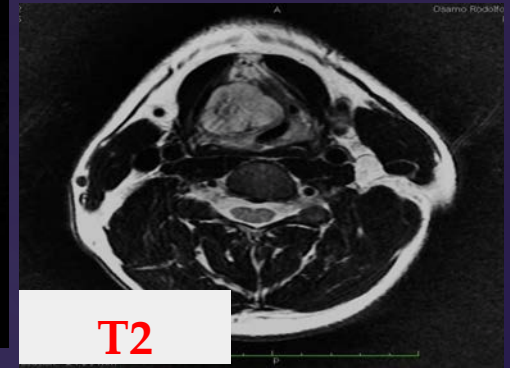
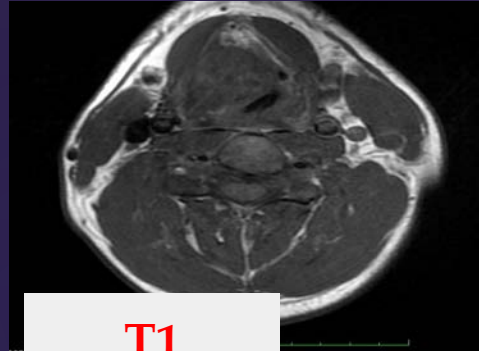


TC - RNM-PET TC



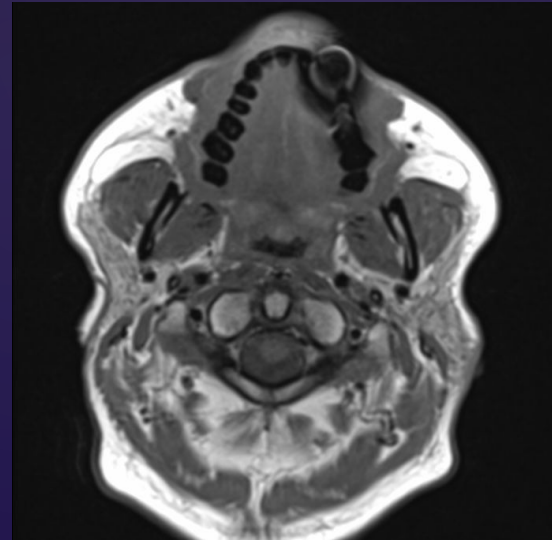
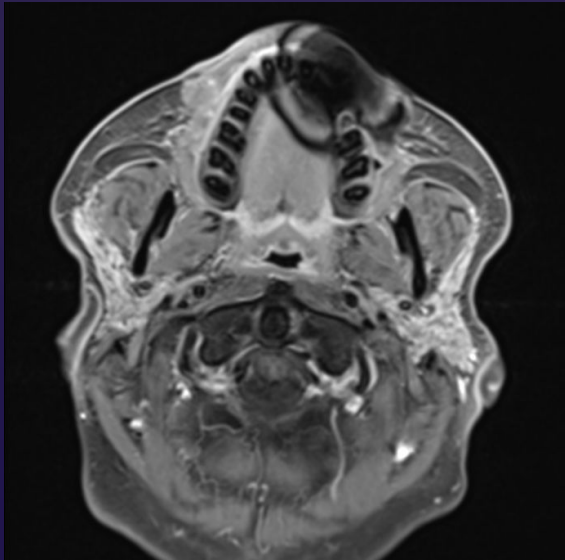
RNM

- Secuencias Morfológicas
- T₁-Anatomico(Axial)
- T₂-Patologico(3 planos)
- STIR(satura intensamente la grasa.Realza patologia)
- T₁ con cte con Saturación grasa
- Secuencias Funcionales:
- Difusion-ADC-Perfusion
- *Limitantes: deglucion, respiración sobretodo cuello infrahioideo*



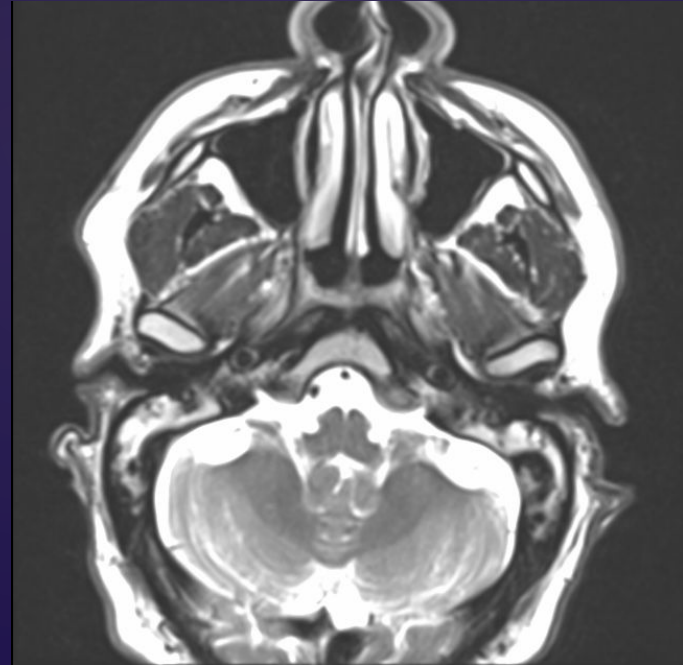
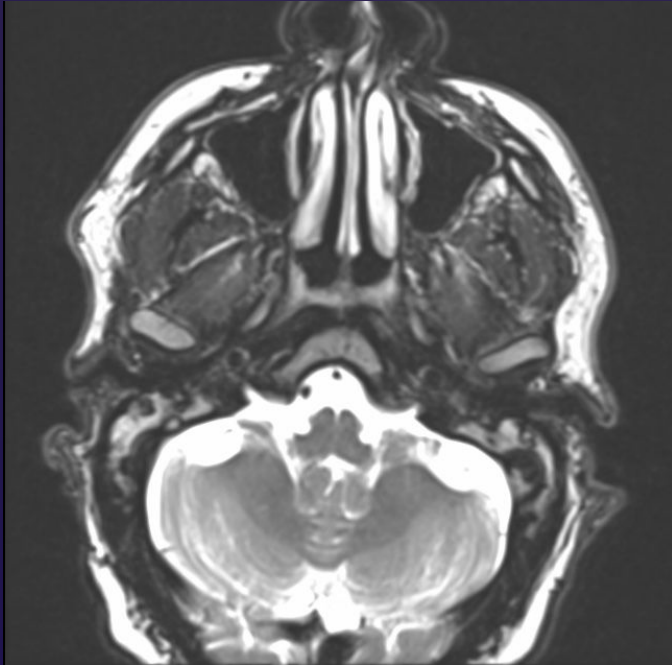
T1

- Ve bien planos grasos para extensión tumoral
- Adenomegalias
- Componente graso, sangre
- Con contraste y saturación grasa: evalúa tumores, adenomegalias



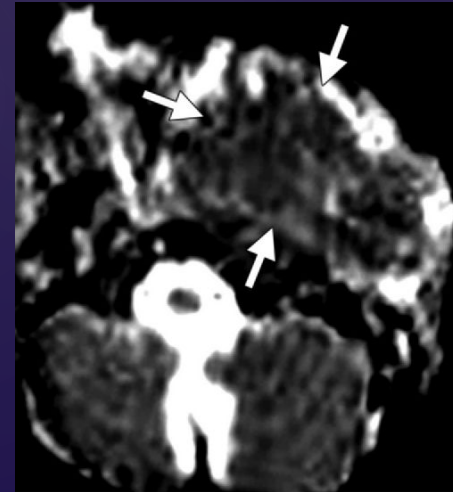
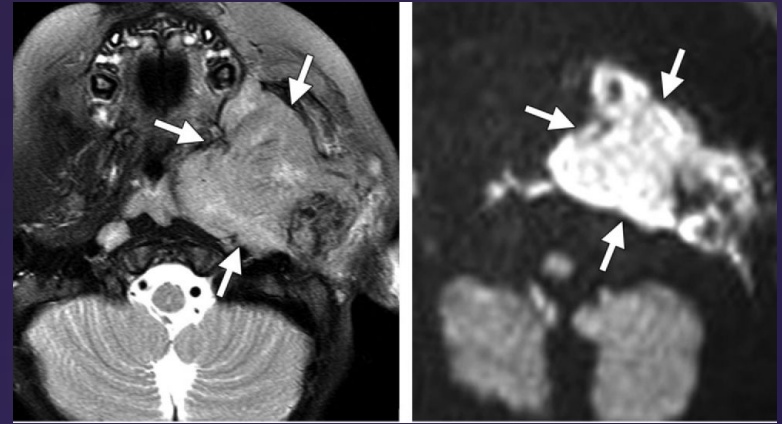
T2

- Ve diferencias de contraste entre los tejidos
- Adenomegalias
- Lesiones quísticas diferencia de solidas
- Secuencia DIXON: saturación selectiva agua, grasa

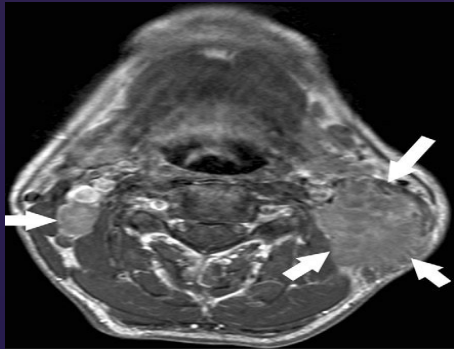


RNM DIFUSION

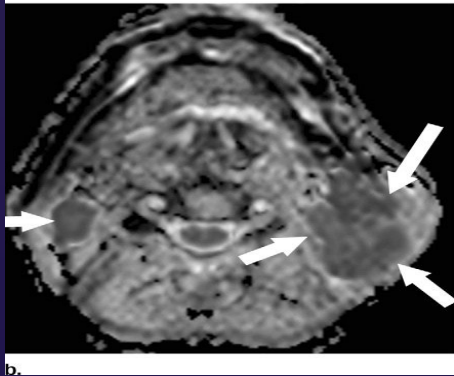
- Registra alteraciones en la difusión del Agua
- Difusión disminuida :en edema celular o tejidos patológicos
- Restricción a la difusión :Alta celularidad, abscesos o sangre
- Mapa ADC (Menor de 1. o M)
- Control de tratamiento (Valor del ADC)



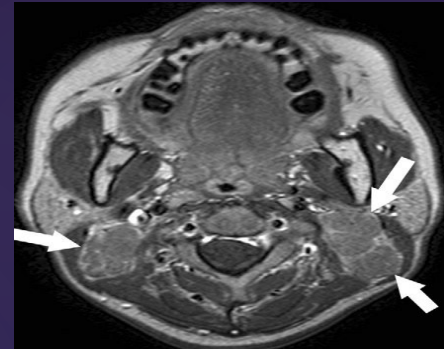
Difusion en Tu Cabeza y cuello



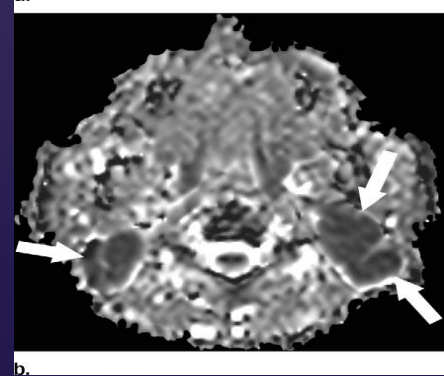
a.



Ca Epidermoide lengua +
ganglios metastasicos 1.1×10^{-3}



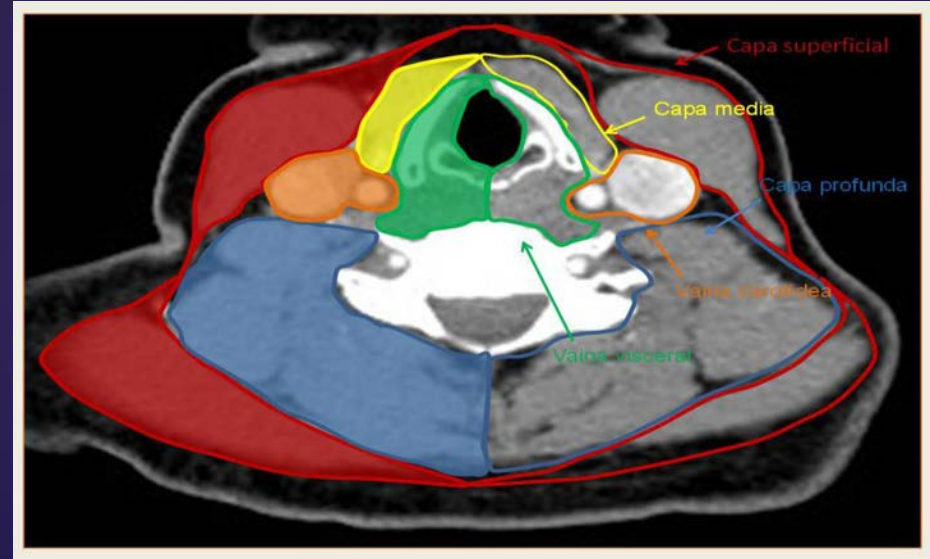
a.



LINFOMA DE HODGKIN
 0.8×10^{-3}

Anatomía por espacios

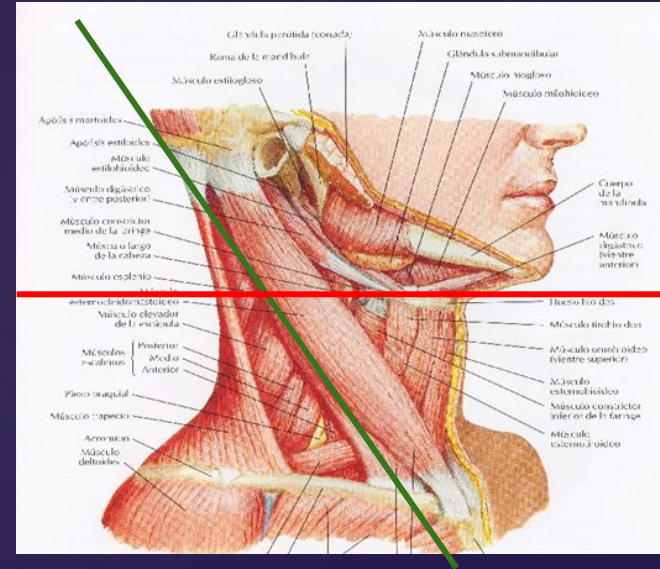
- Espacios divididos por la fascia cervical profunda en 3 capas
- Capa superficial (Muscular)
- Capa media
- Capa profunda(separa anterior de posterior)
- Vainas Visceral y carotidea



Anatomía por espacios

- Region cervical posterior

- Region cervical anterior :



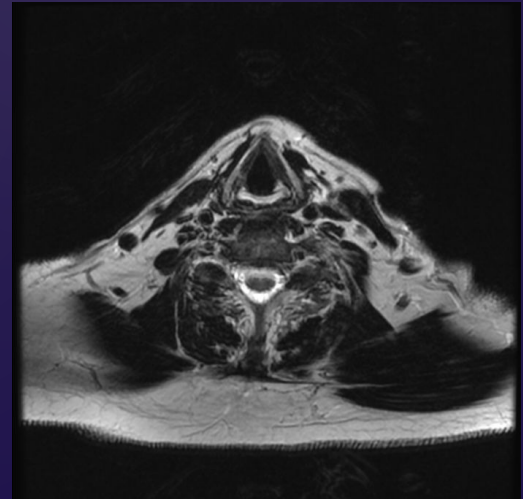
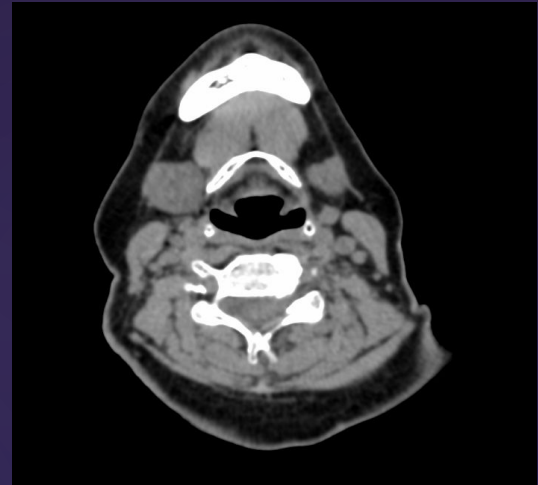
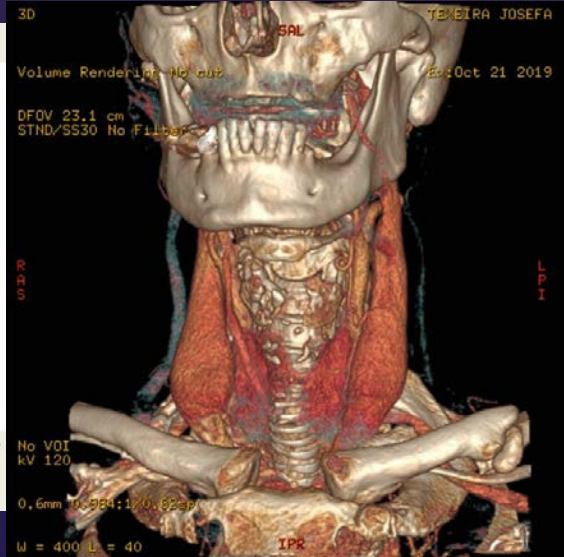
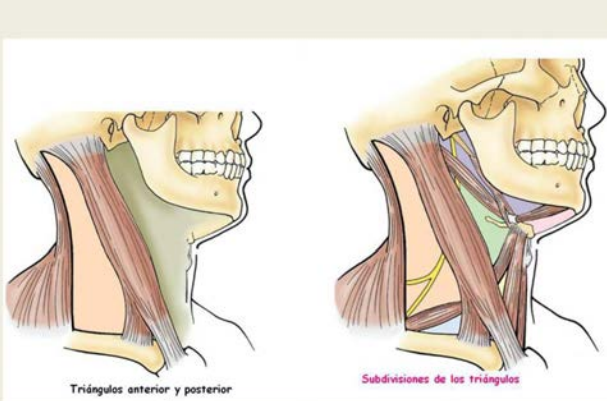
- Suprahioideo:

MUCOSOS -90%-Epidermoides

- Infrahioideo:

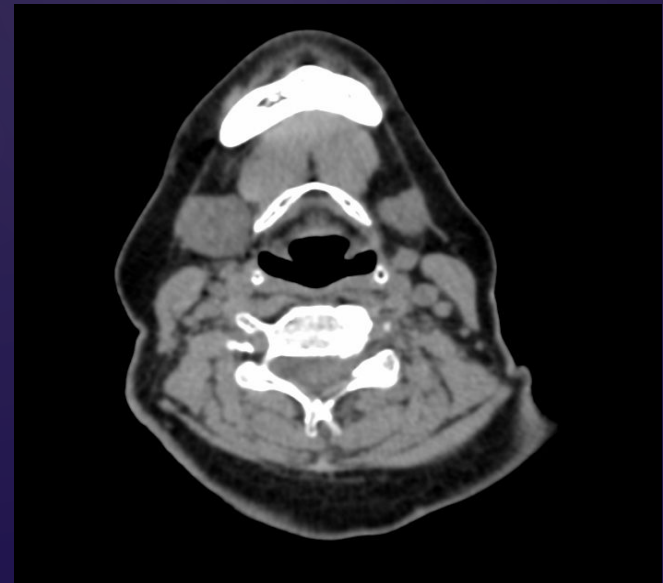
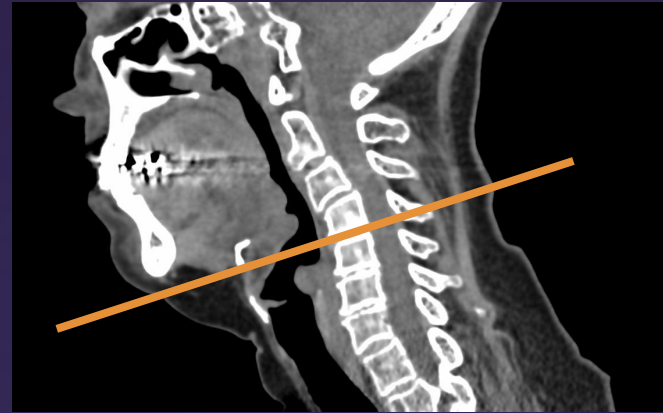
EXTRAMUCOSOS-Histologia variada

Anatomía por Espacios de Cuello

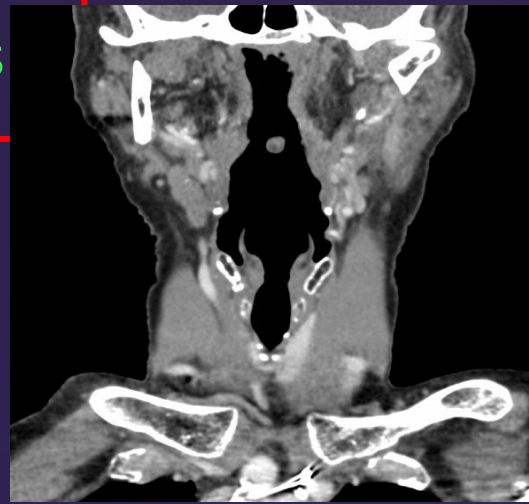
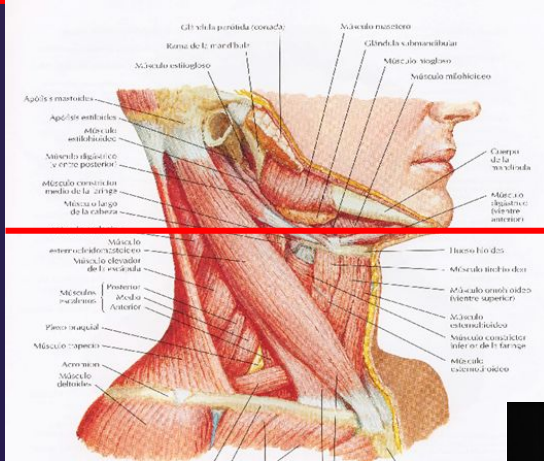


Espacios Suprahioideos

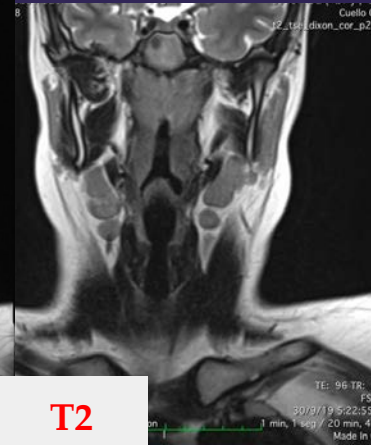
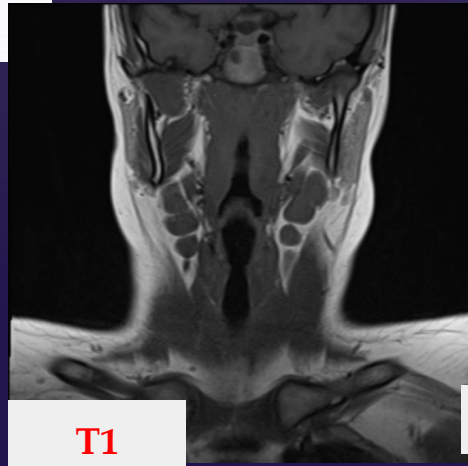
- Espacio parotídeo
- Espacio masticador
- Espacio parafaríngeo
- Espacio faringomucoso
- Cavity oral: Espacio sublingual
submandibular y bucal



Espacios Supra e Infrahioideos

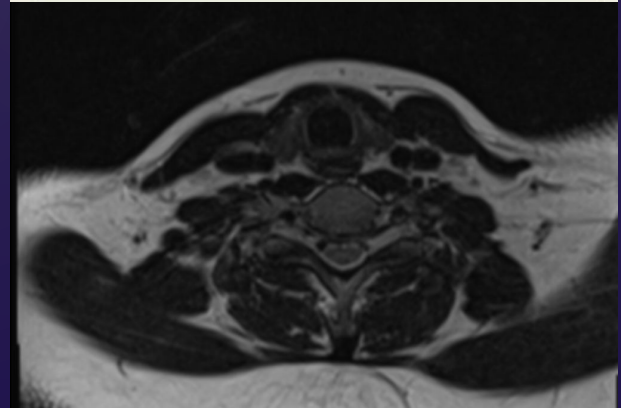
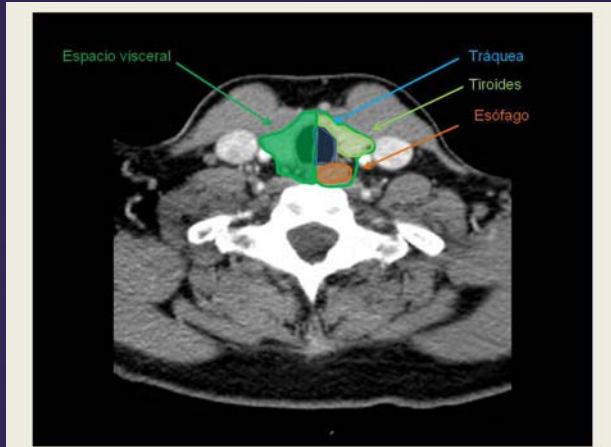


- Espacio Carotideo
- Espacio retrofaringeo y parafaringeo
- Espacio prevertebral



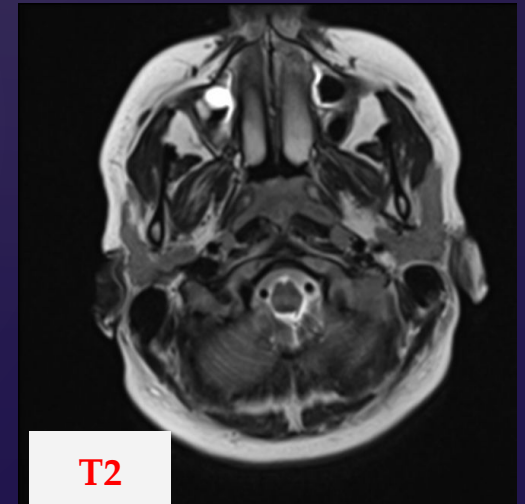
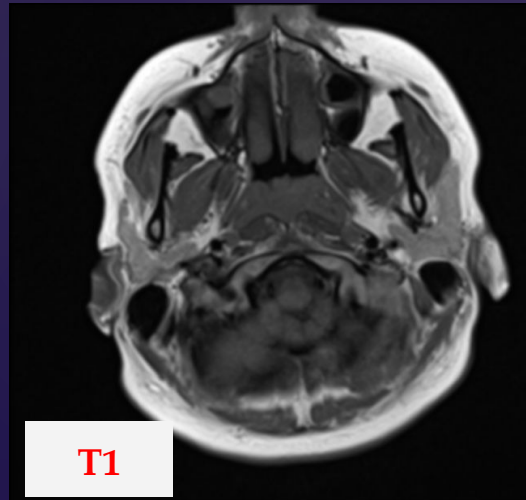
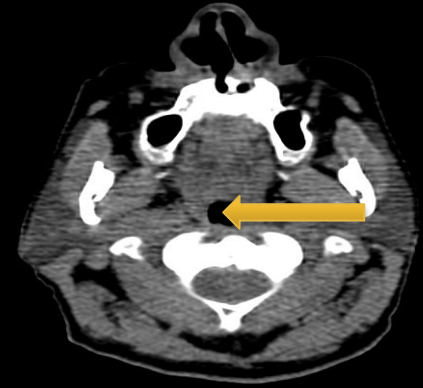
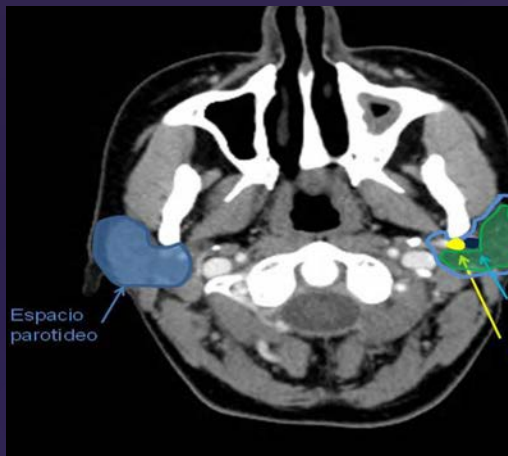
Espacios Infrahioideos

- ESPACIO CERVICAL POSTERIOR
- ESPACIO VISCERAL Y GLANDULAR
- Laringe
- Hipofaringe
- Glándula tiroides y paratiroides
- Tráquea
- Esófago

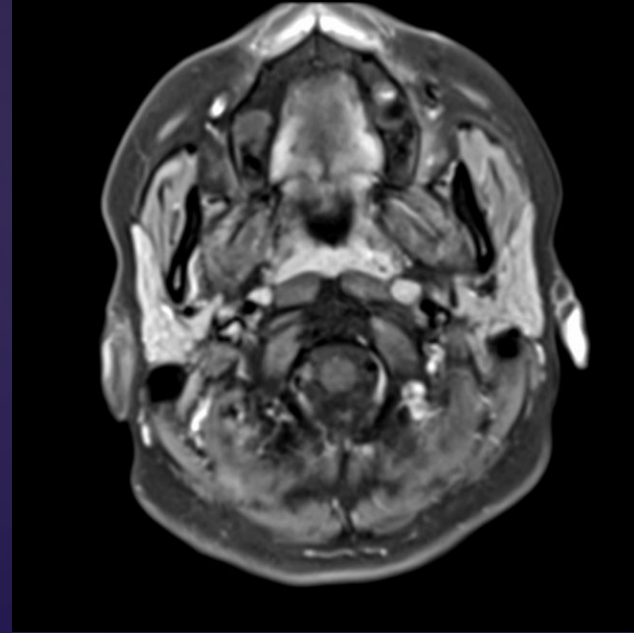
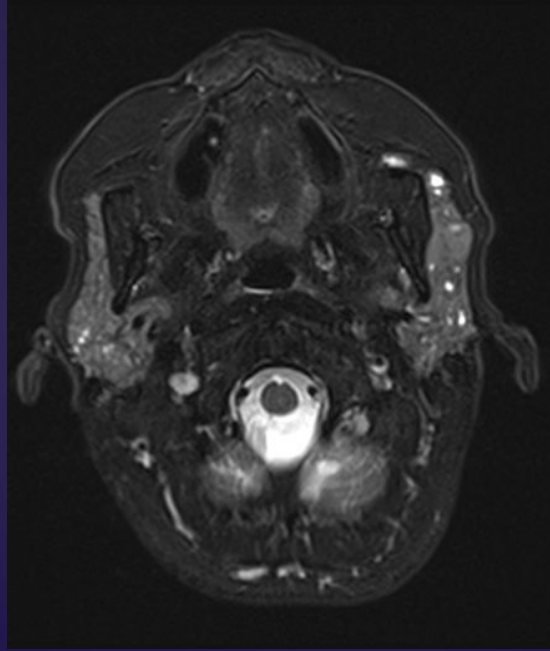
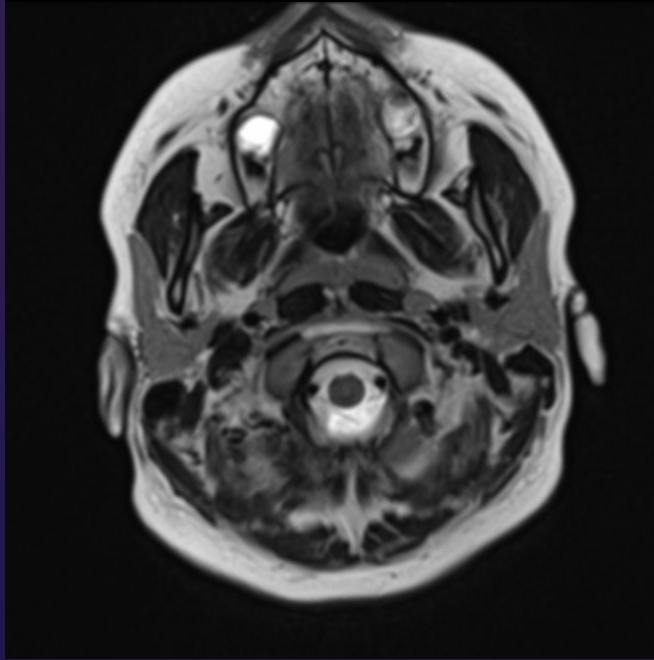


Espacio Parotideo

- Ganglios parotideos
- Tumores :Benignos 80%
Malignos:Linfomas,
Carcinomas
- *Desplazan la grasa parafaringea hacia adentro*

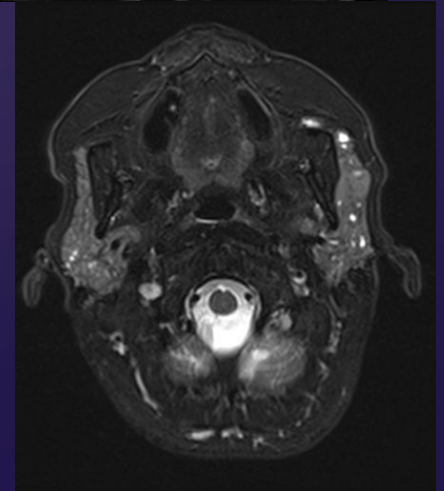
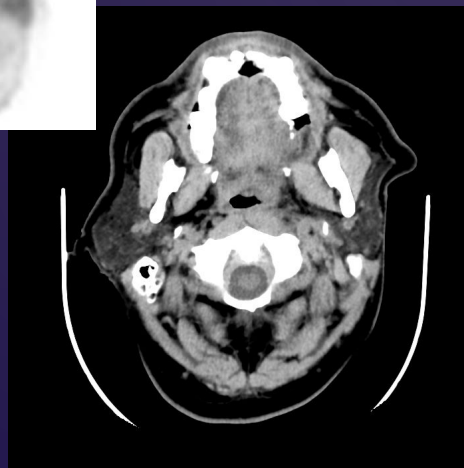
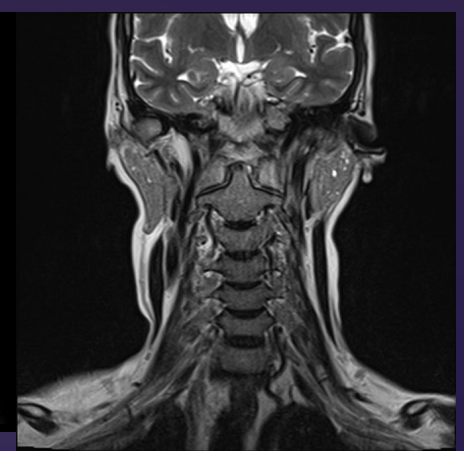
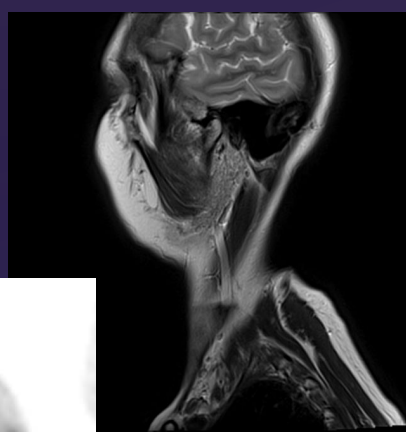
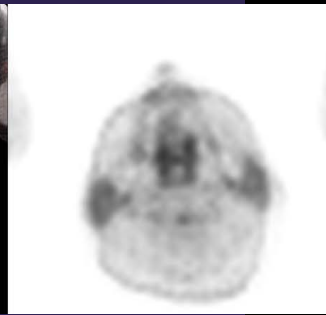
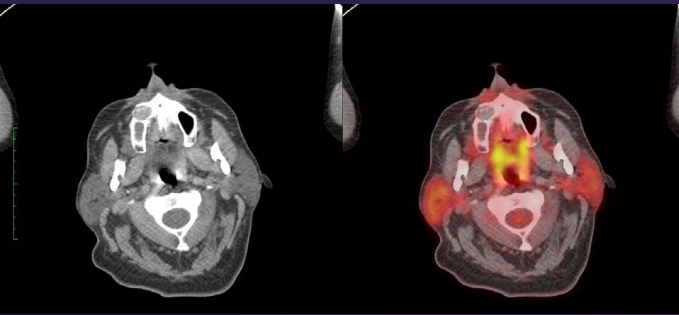


ESPACIO PAROTIDEO

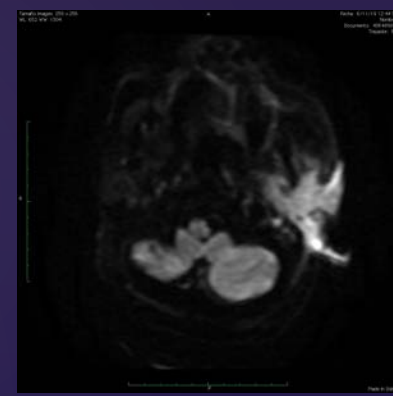
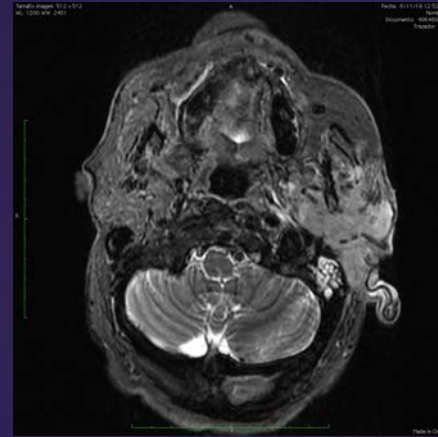
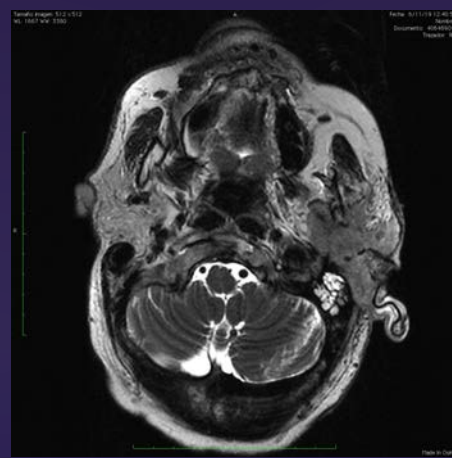
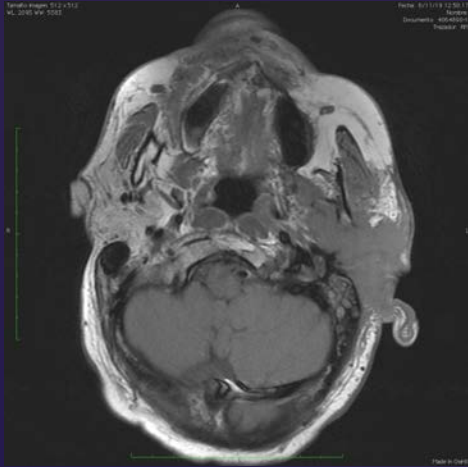


Parotidas

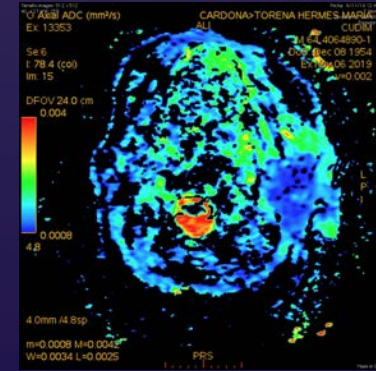
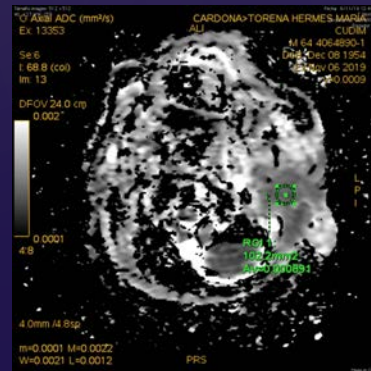
TC- RNM-PET



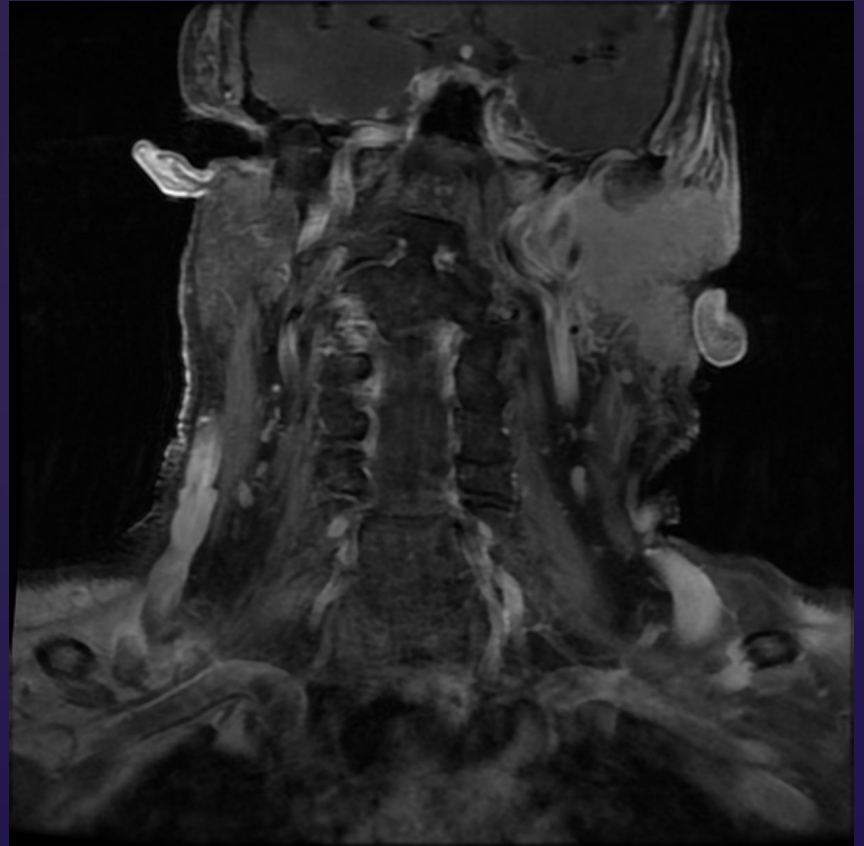
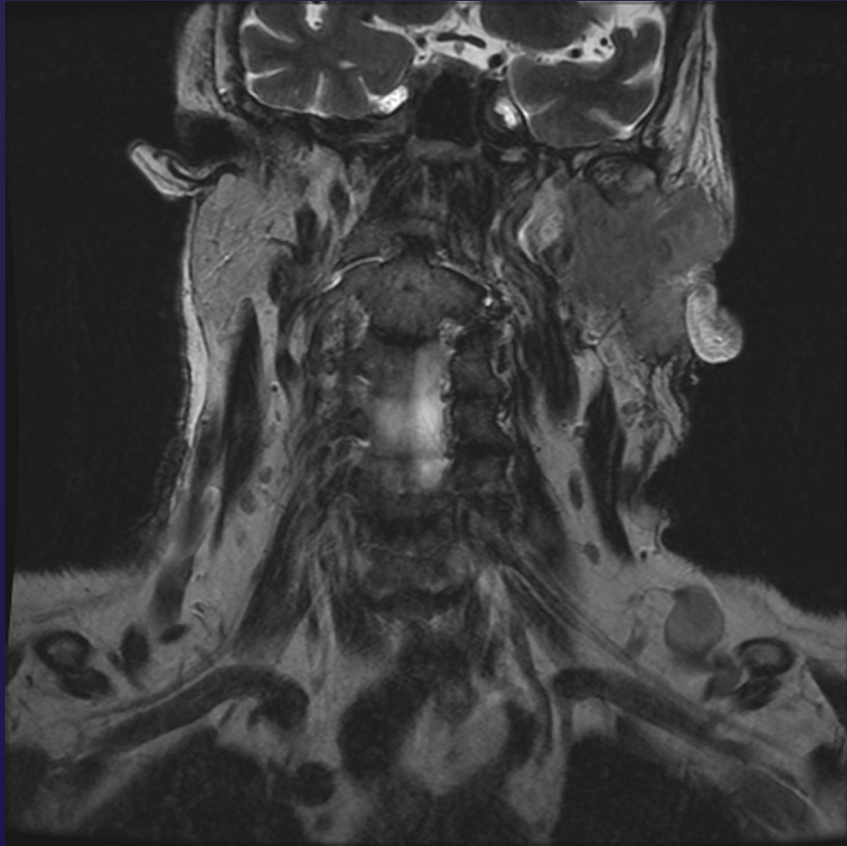
TUMOR PAROTIDEO



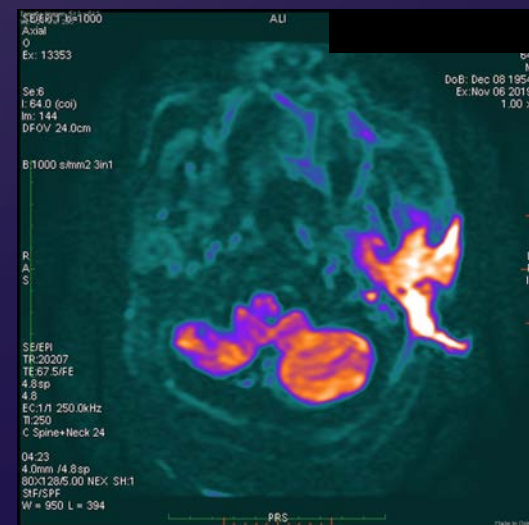
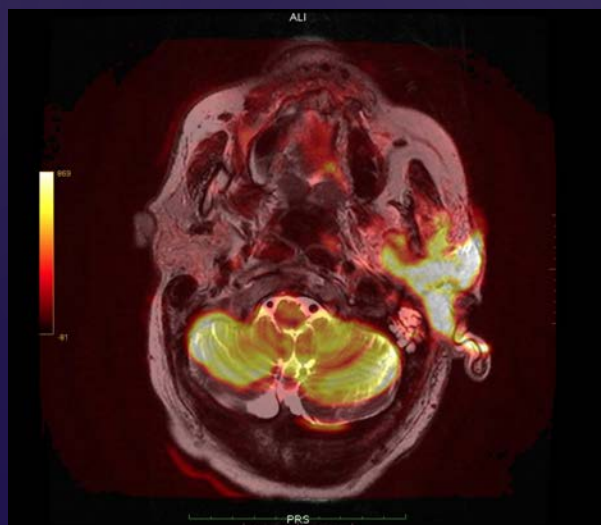
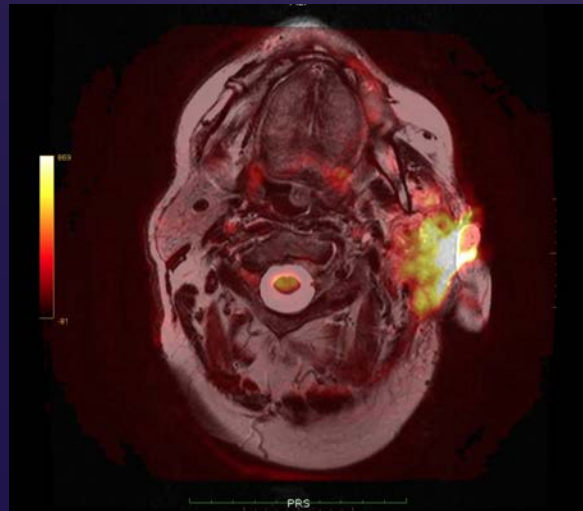
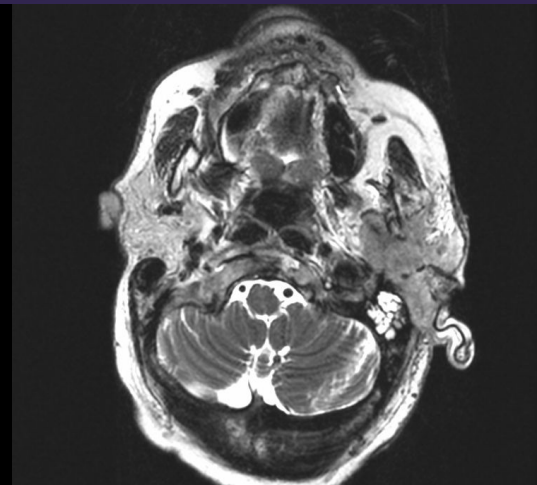
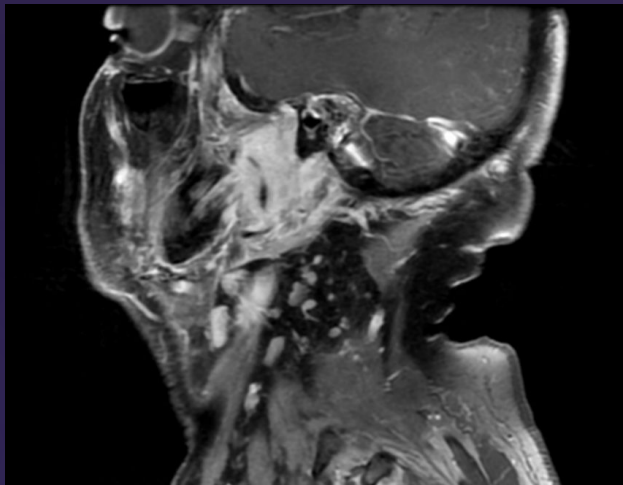
Valor ADC-Control de
tratamiento



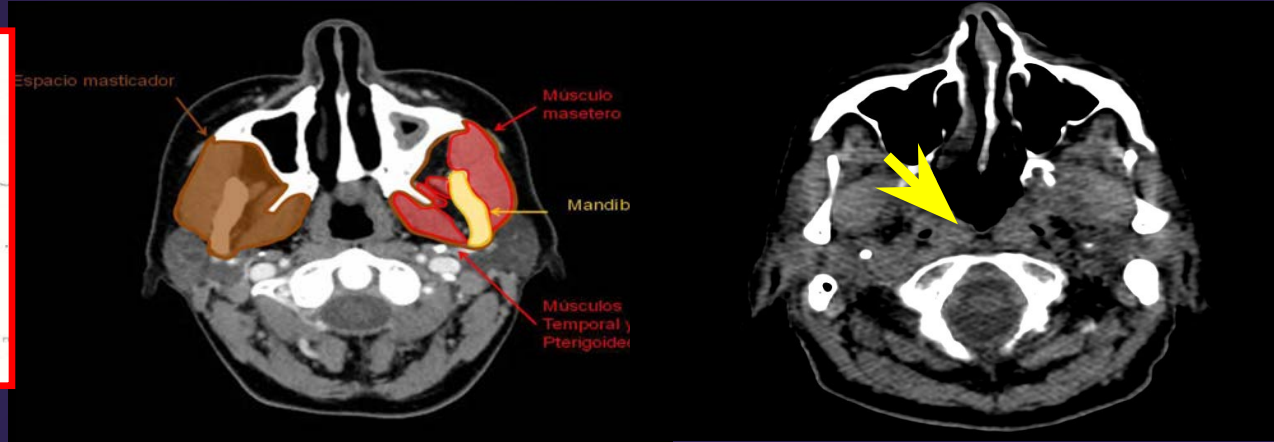
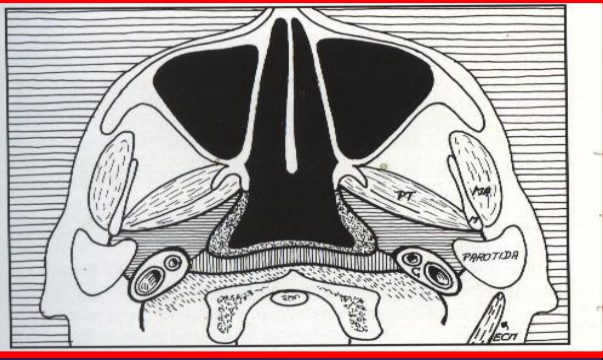
Invasion fosa craneal ?



Mayor Restricción en
Difusión mayor celularidad

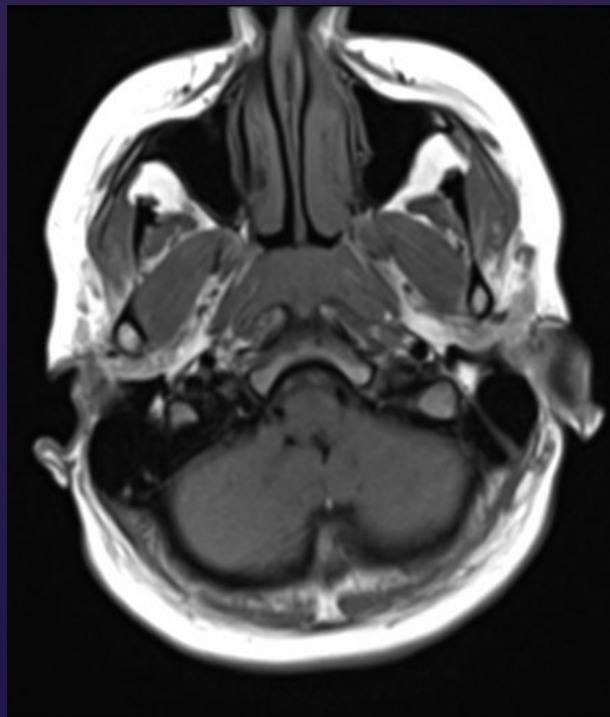


Espacio Masticador

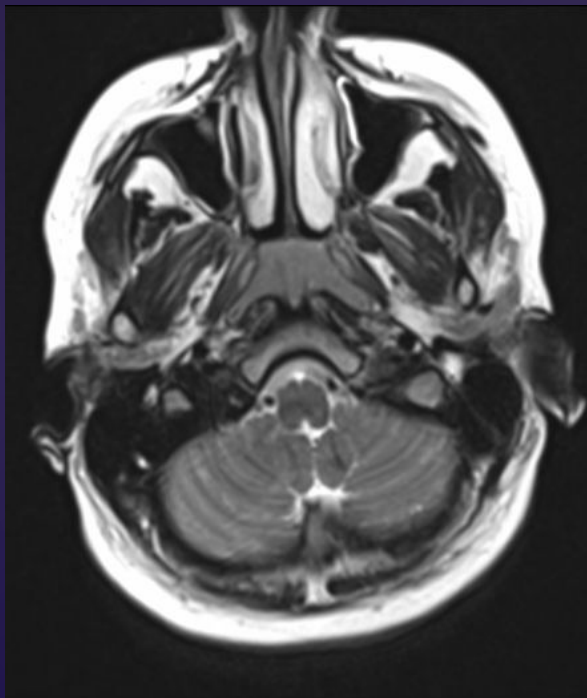


- Incluye la rama mandibular del nervio trigemino: comunica este espacio con la cavidad craneal :extensión tumoral perineural
- Tumores :carcinomas, neurogenicos ,por invasión de otros espacios
- *Desplaza la grasa parafaríngea hacia atrás y adentro*

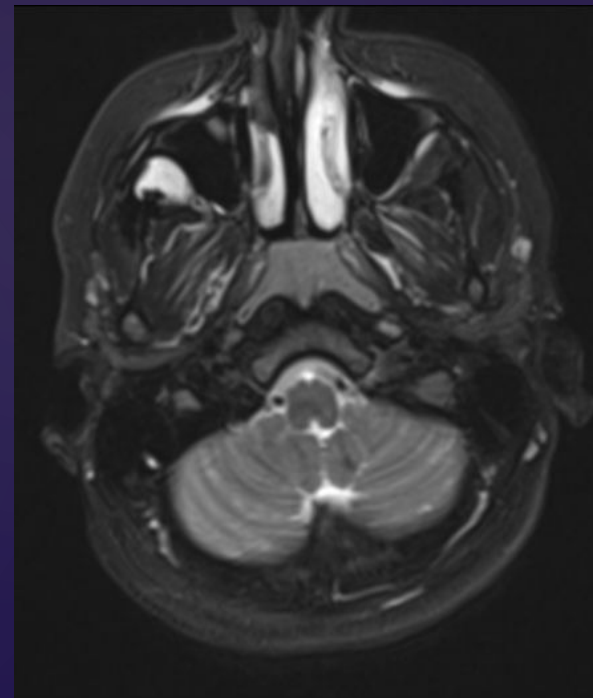
Espacio Masticador -Pterigoideos



T1

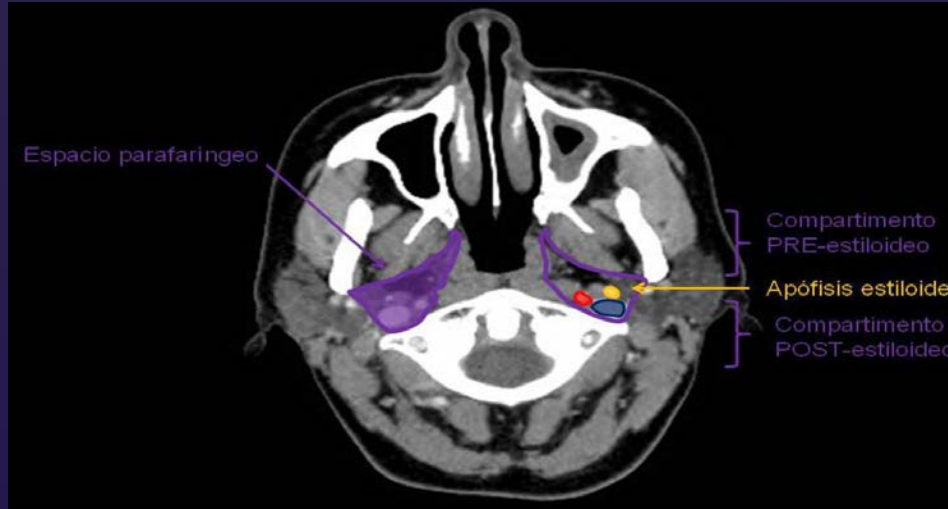


T2



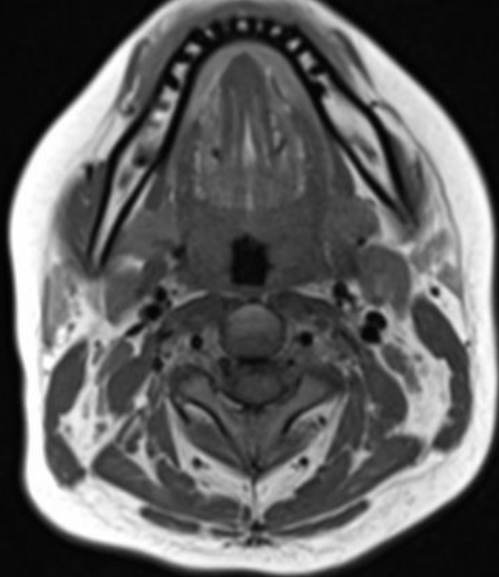
T2 FAT SAT

Espacio Parafaríngeo

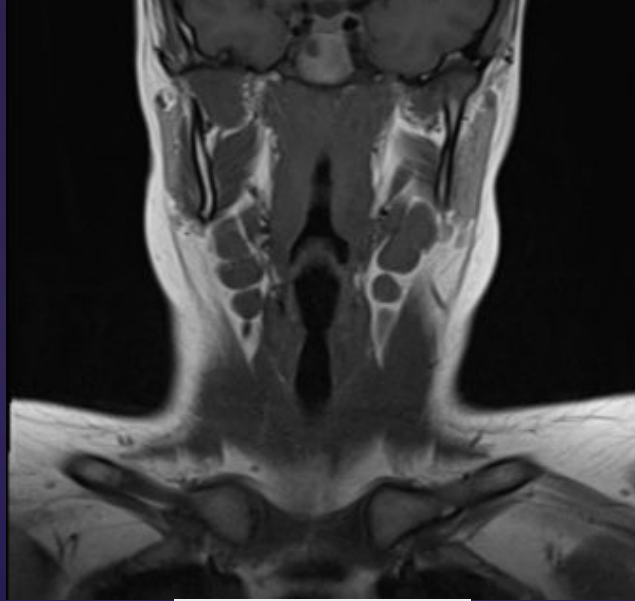


- Tumores del espacio parafaríngeo: se extienden supra e infrahioideo
- Adenomegalias, tumores neurogenicos, invasion de tumores de parotida o amígdala
- *Desplazan grasa parafaríngea hacia medial*

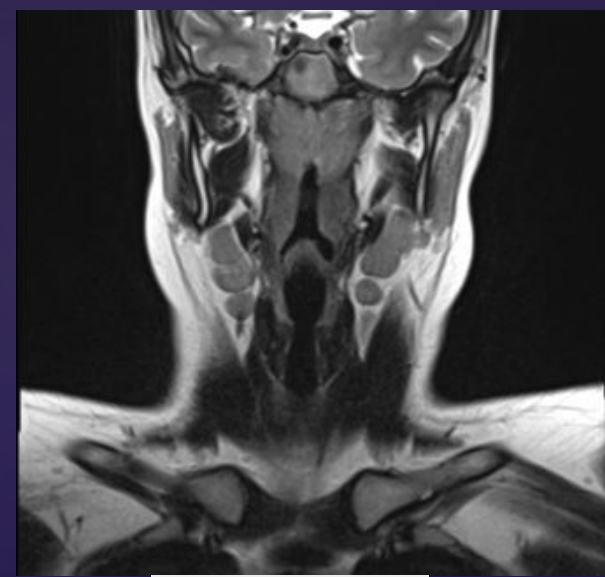
Espacio Parafaríngeo



T1

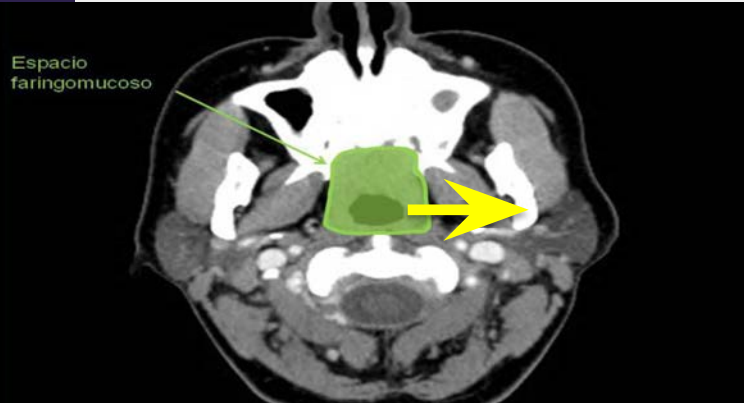


T1

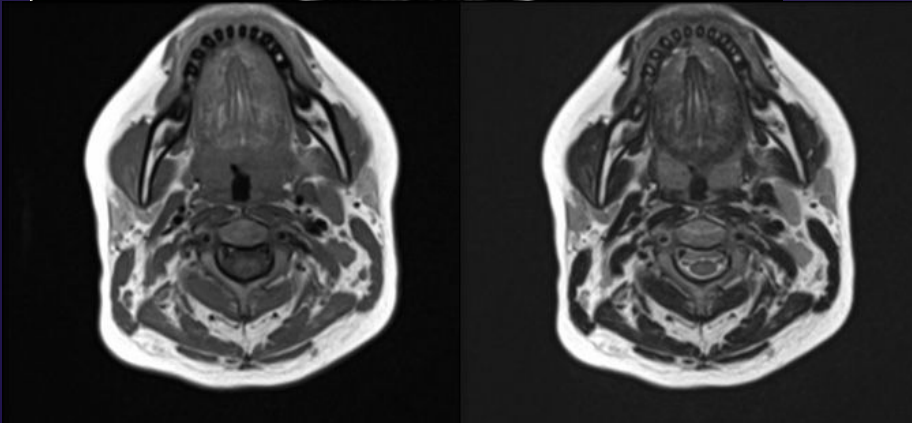


T2

Espacio Faringomucoso



- • Mucosa de naso y orofaringe
 - • Tejido linfoide del anillo de Waldeyer: adenoides y amígdalas
 - • Fascia faringobasilar
 - • Músculos constrictores faríngeos
 - • Músculo salpingofaríngeo
- Tumores: amigdalita, orofaringe, cavidad oral



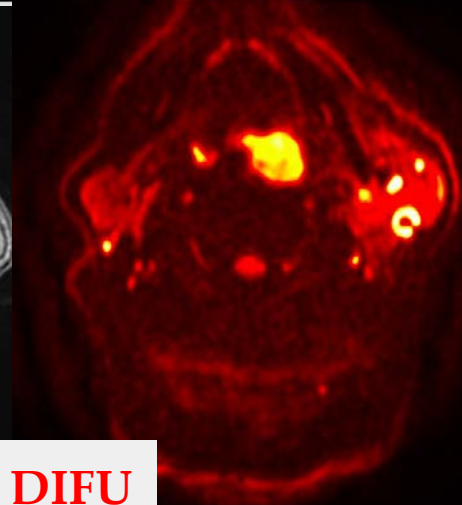
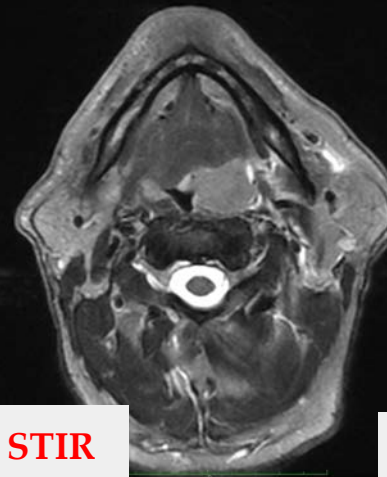
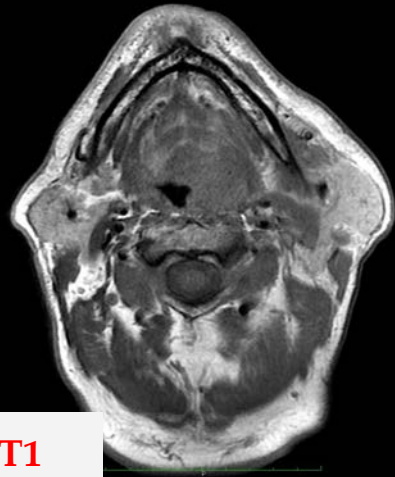
✓ *Desplaza la grasa parafaríngea hacia fuera*

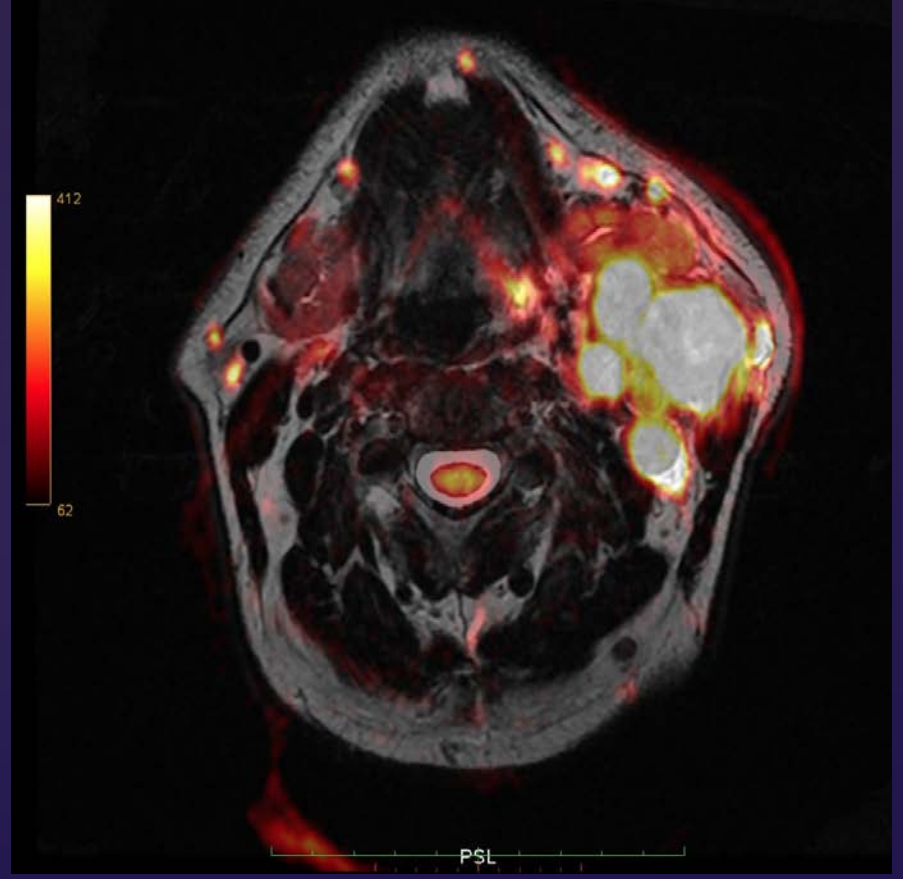
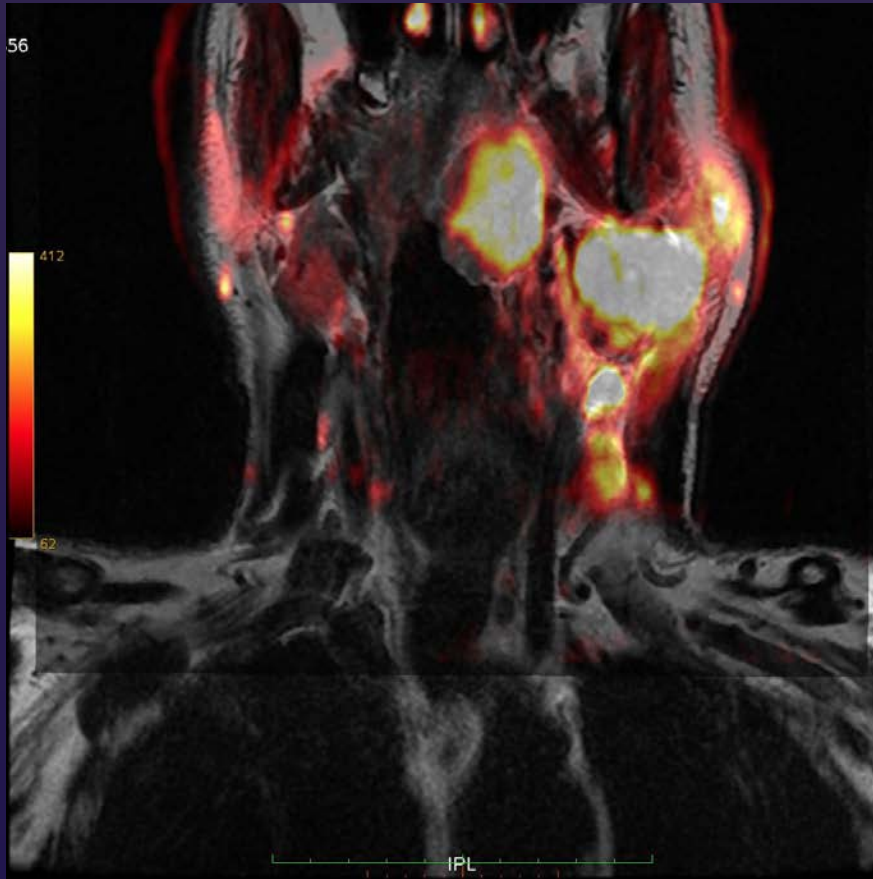
Tumor de amígdala



Tumor de Amígdala

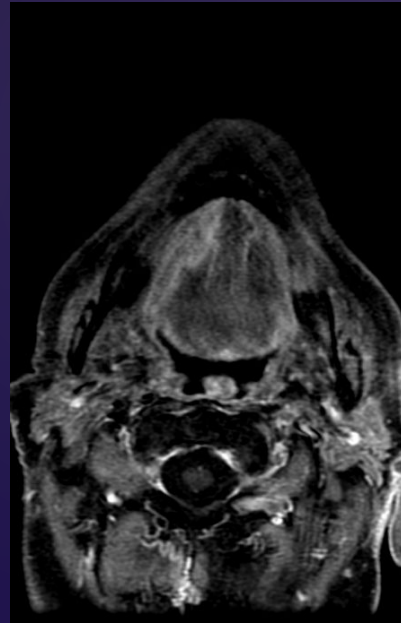
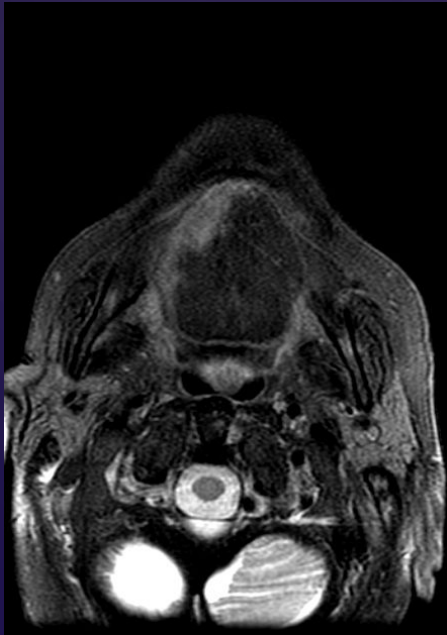
- Tumor de amígdala
- Invasión Vascular ?





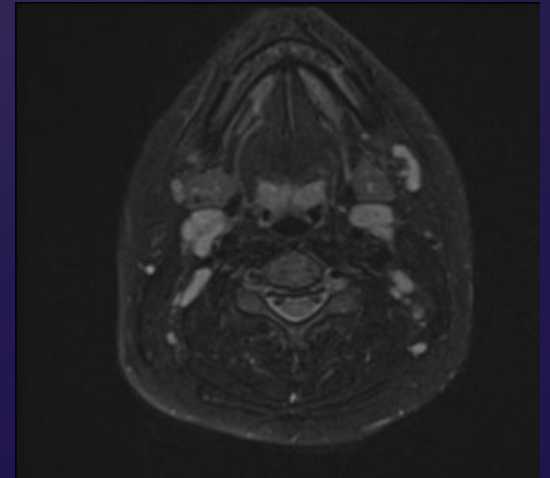
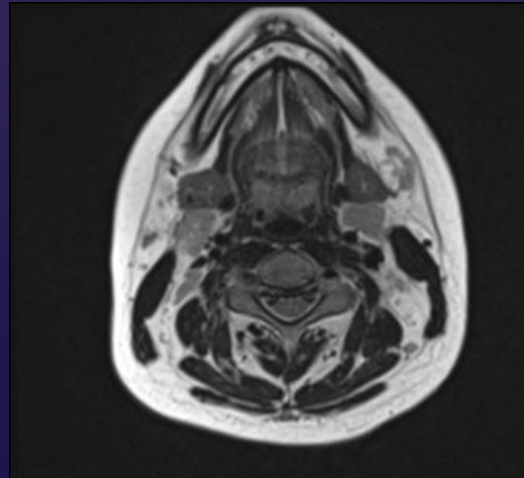
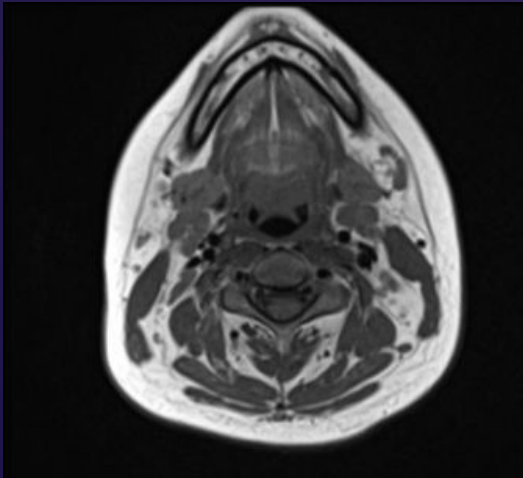
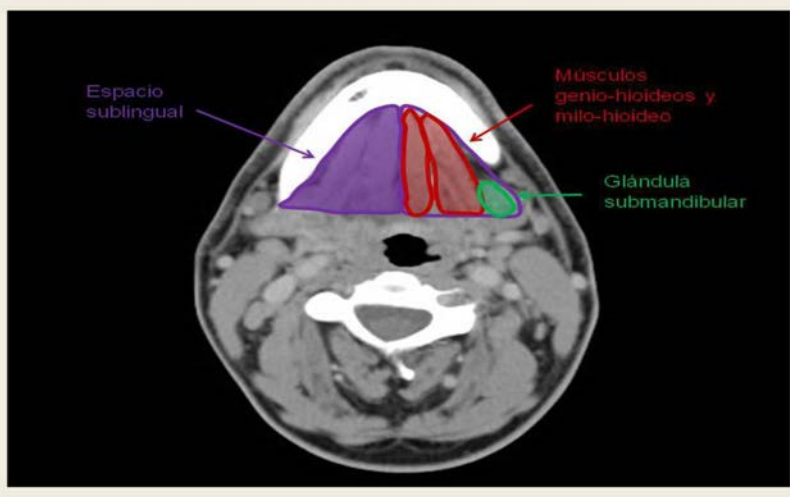
Tumor de lengua

- RNM: excelente resolución de contraste
- Diferencia entre tejido fibroso y recidiva
- Control de tratamiento: Pet,RNM o fusion Pet/RNM

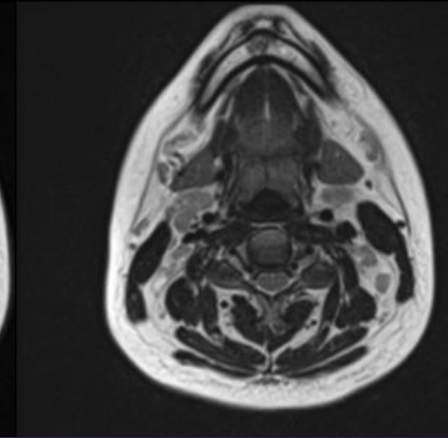
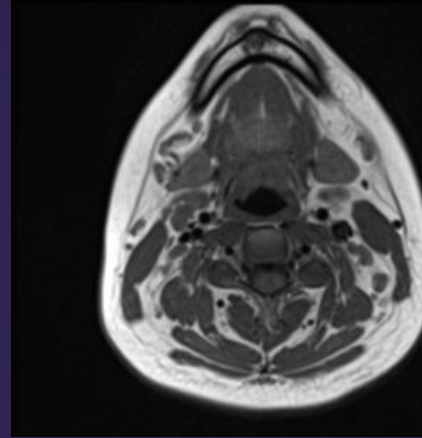
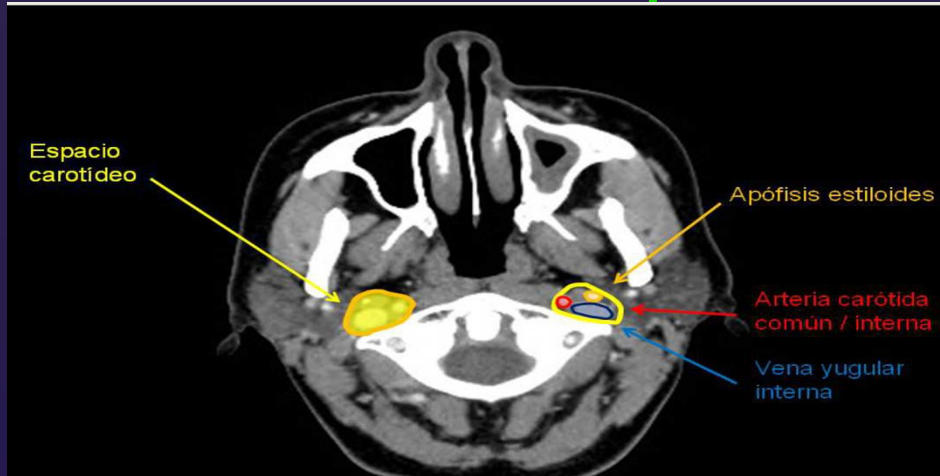


Espacio Sublingual

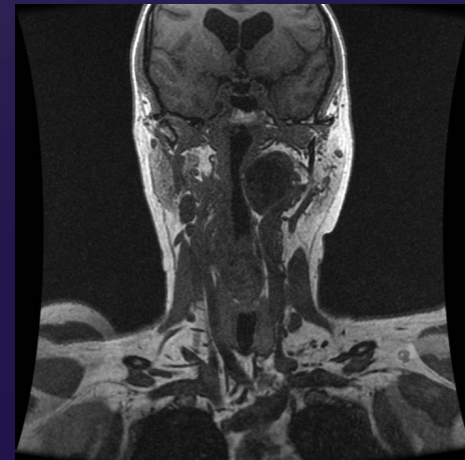
- Tumores de glándulas salivales
- Tumores de partes blandas
- Adenomegalias



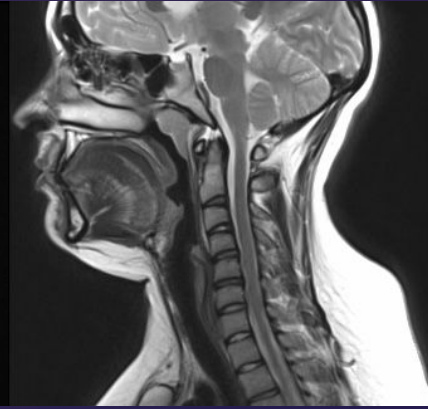
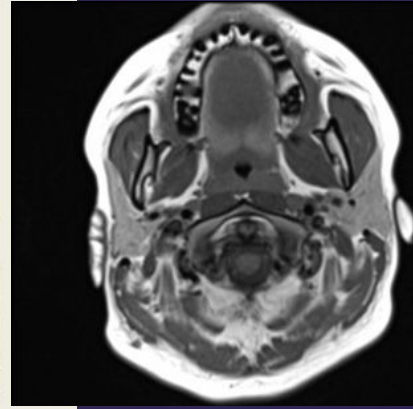
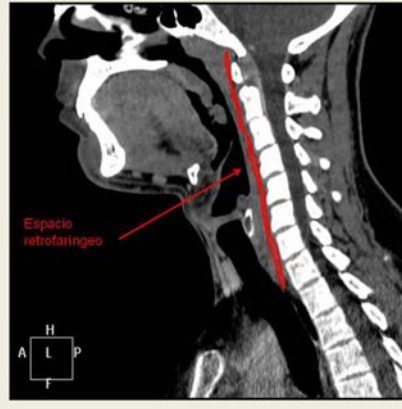
Espacio carotideo



- Arteria carótida común e interna
- Tumores
- Tumores vasculares, neurogenicos, adenomegalias
- **Desplaza la grasa parafaríngea hacia adentro**



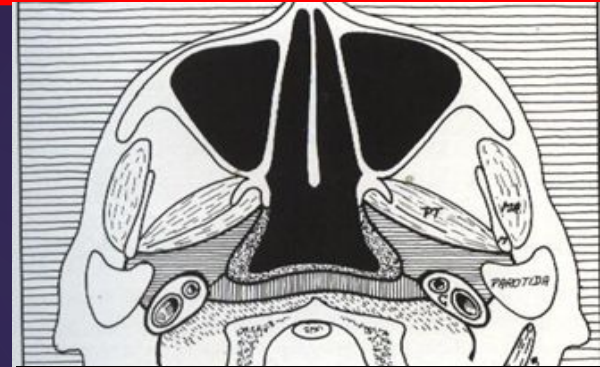
Espacio prevertebral



- Plano graso delgado entre los músculos constrictores de la faringe y músculos prevertebrales
- Se extiende desde la base del craneo hasta D3
- Suprahoideo: ganglios:mediales y laterales y grasa
- Infrahoideo: grasa

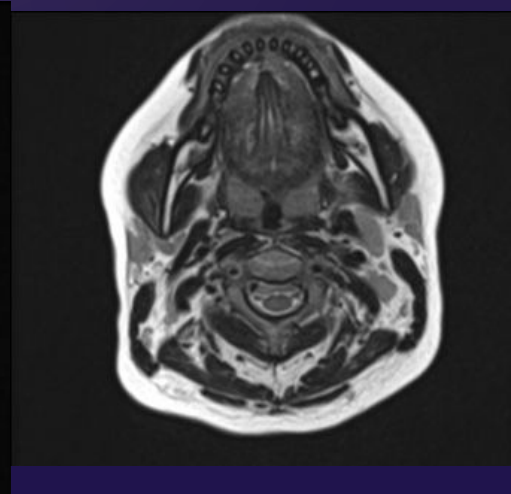
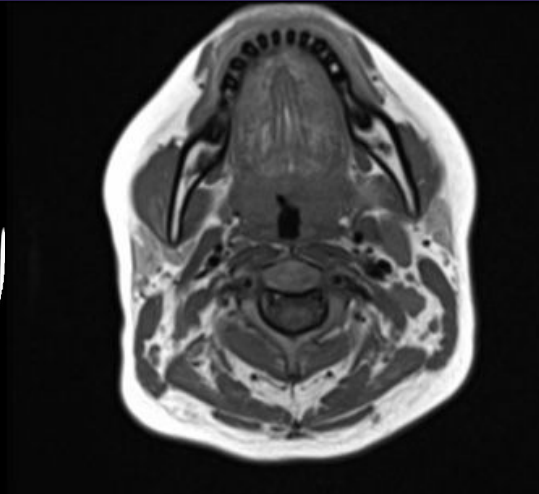
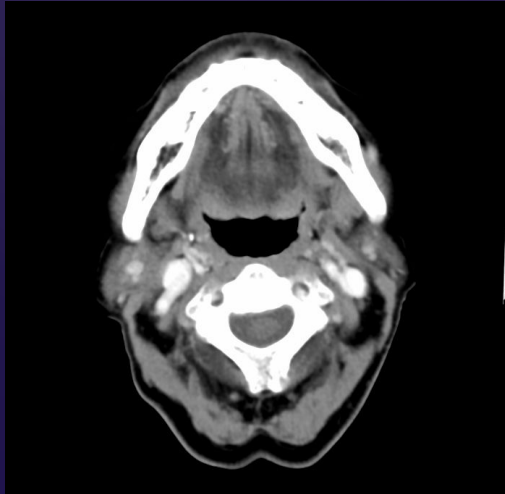
ESPACIO RETROFARINGEO Y PREVERTEBRAL

- Adenopatias
- Linfomas
- Tumores vertebrales
- Patología tumoral o inflamatoria del cavum o rinofaringe
- ***Desplaza grasa prevertebral hacia adelante***

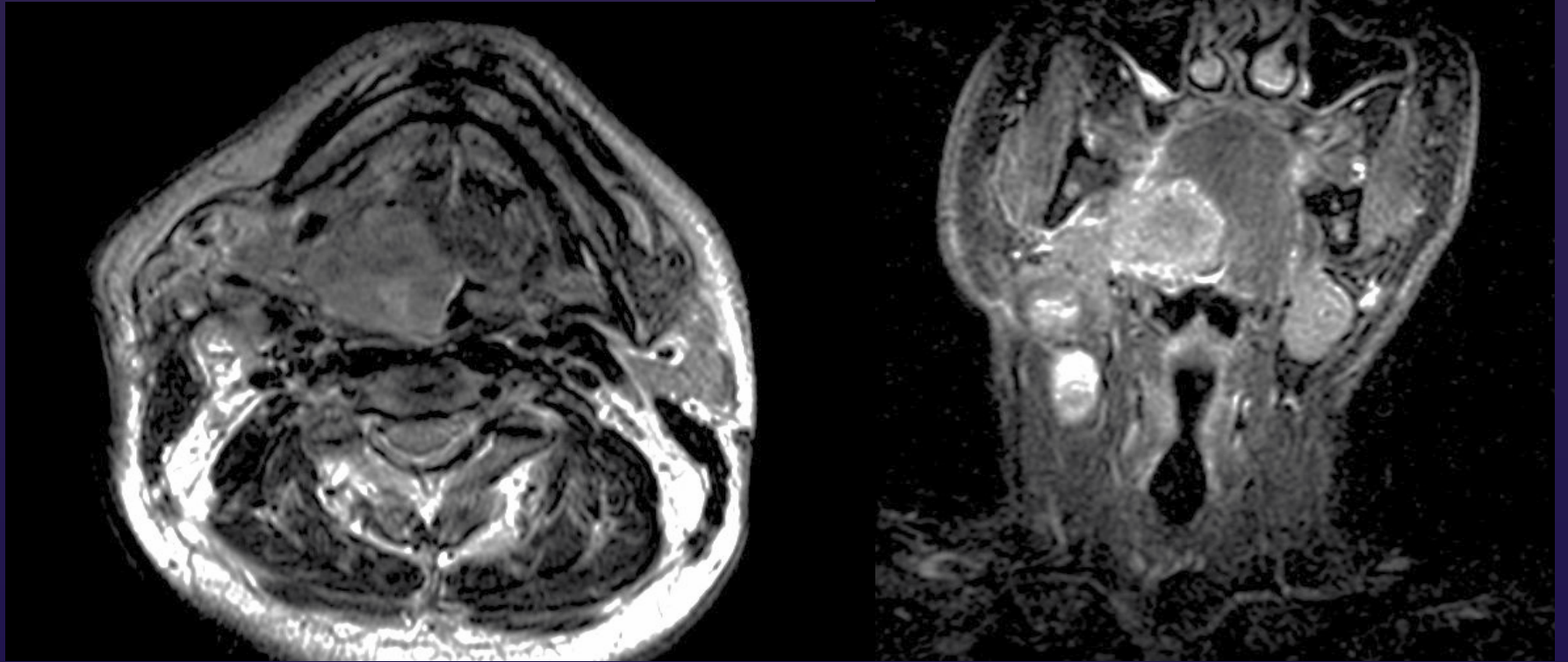


Trigono retromolar

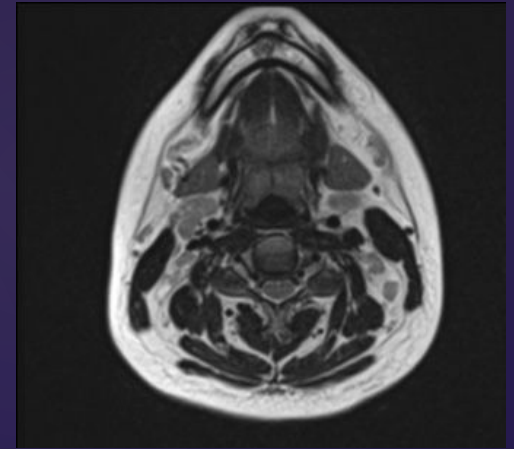
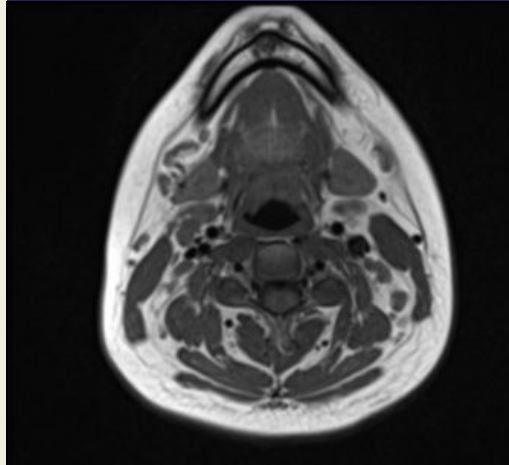
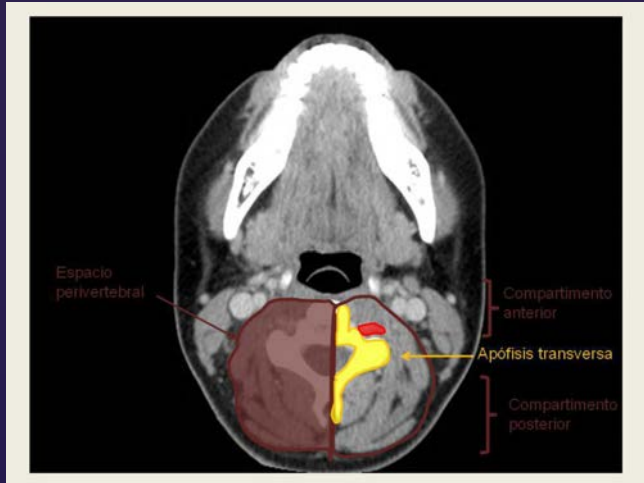
- Limite entre cavidad oral y orofaringe
- Zona de invasion de tumores de piso de boca y amigdala



Tumor del trigono y mucosa yugal



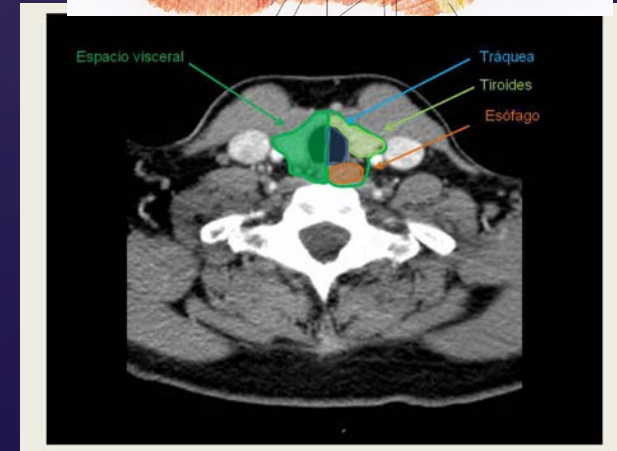
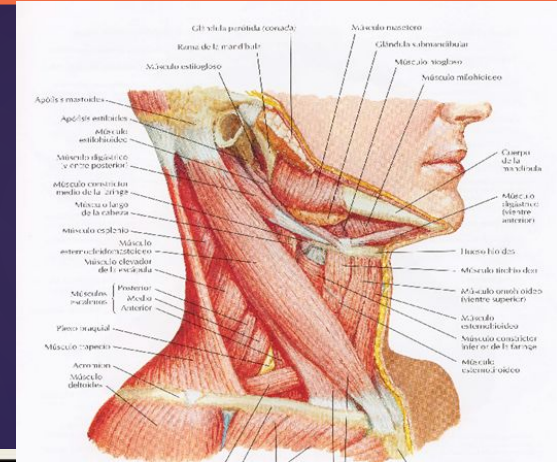
Espacio Perivertebral



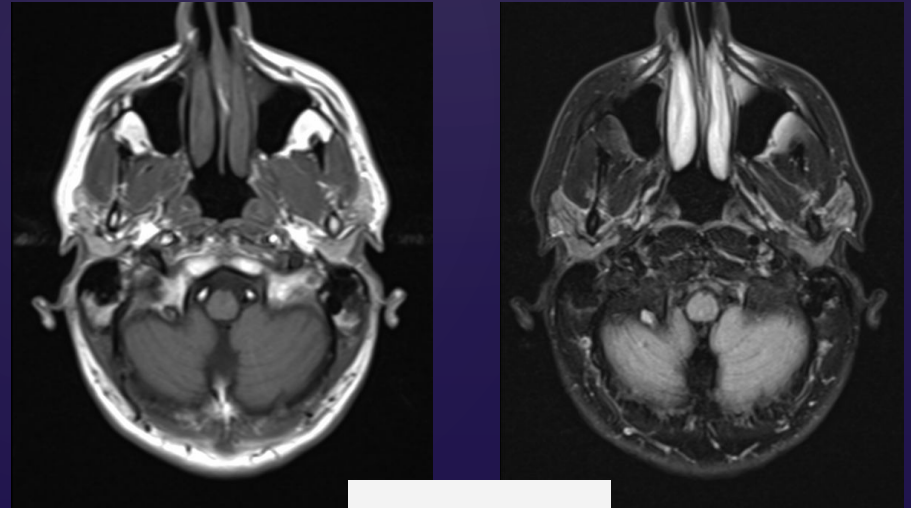
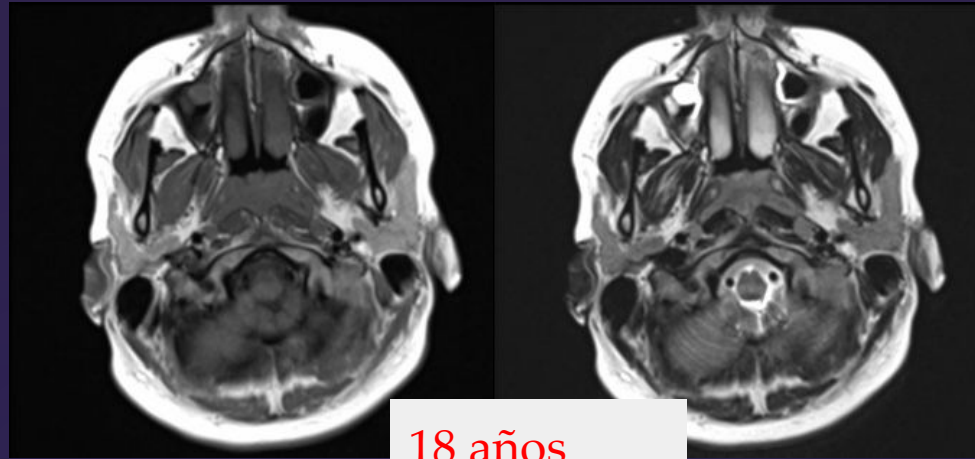
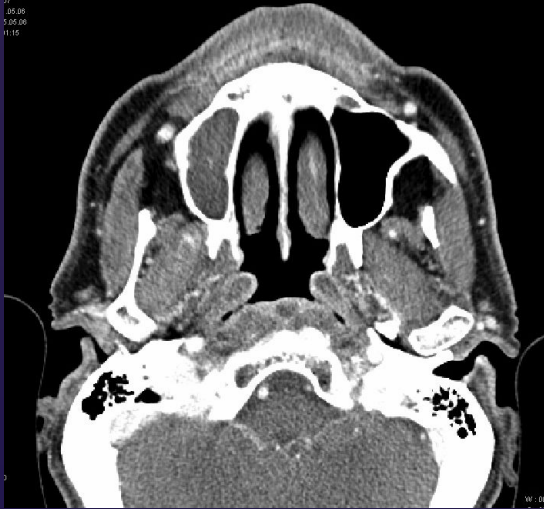
- Delimitado por la fascia cervical profunda
- Sector anterior y posterior
- Tumores mesenquimaticos ,neurogenicos

Espacios VISCERAL e INFRAHIOIDEOS

- ESPACIO VISCERAL Y GLANDULAR
- Laringe
- Faringe (Naso, oro e hipofaringe)
- Glándula tiroides y paratiroides
- Tráquea
- Esófago



EJE VISCERAL NASOFARINGE



LARINGE

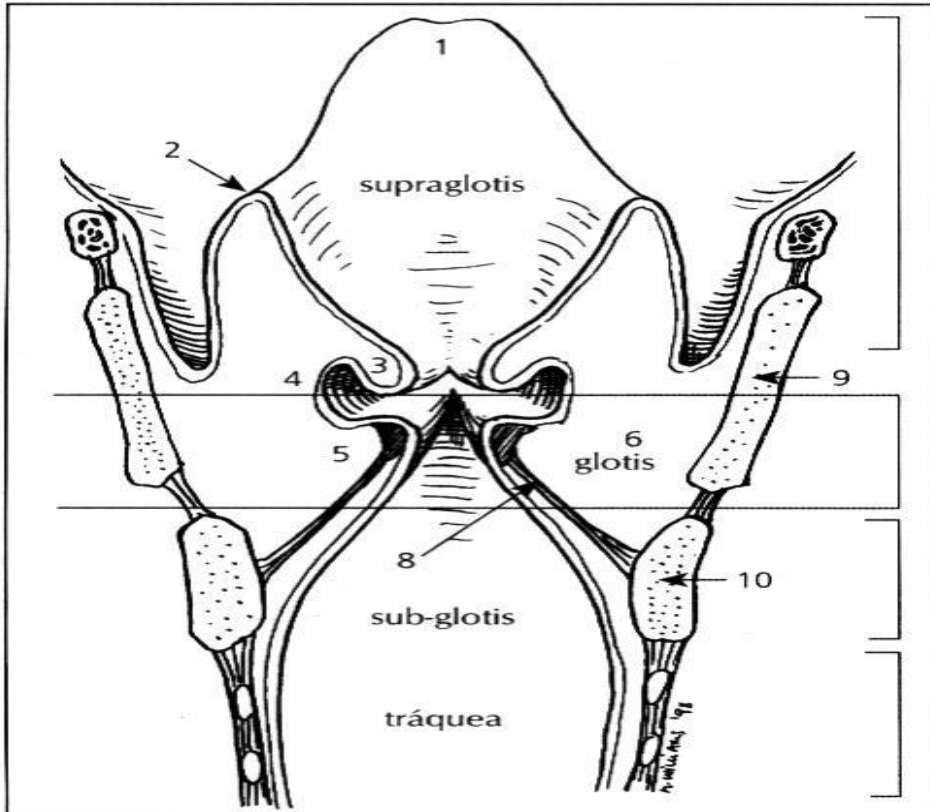
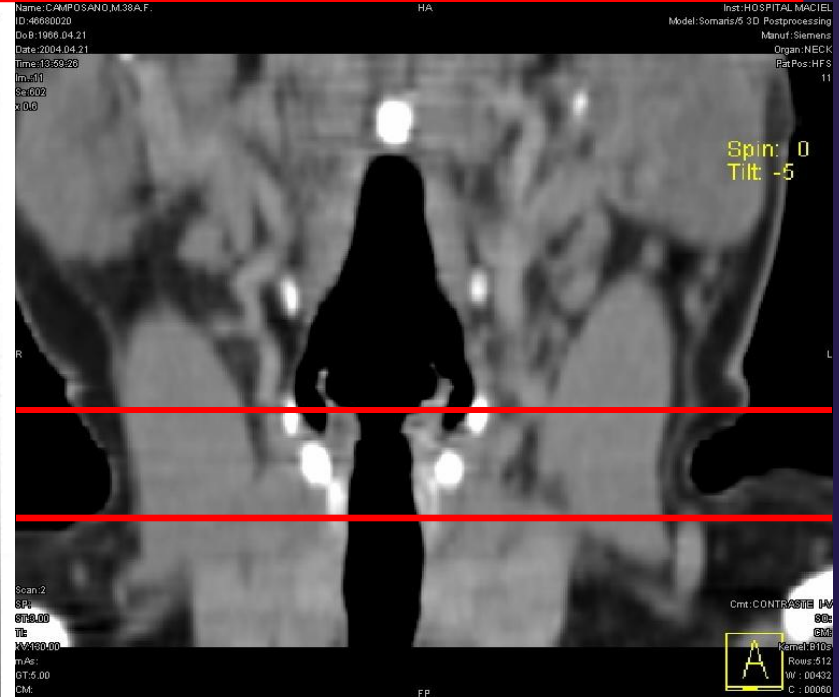
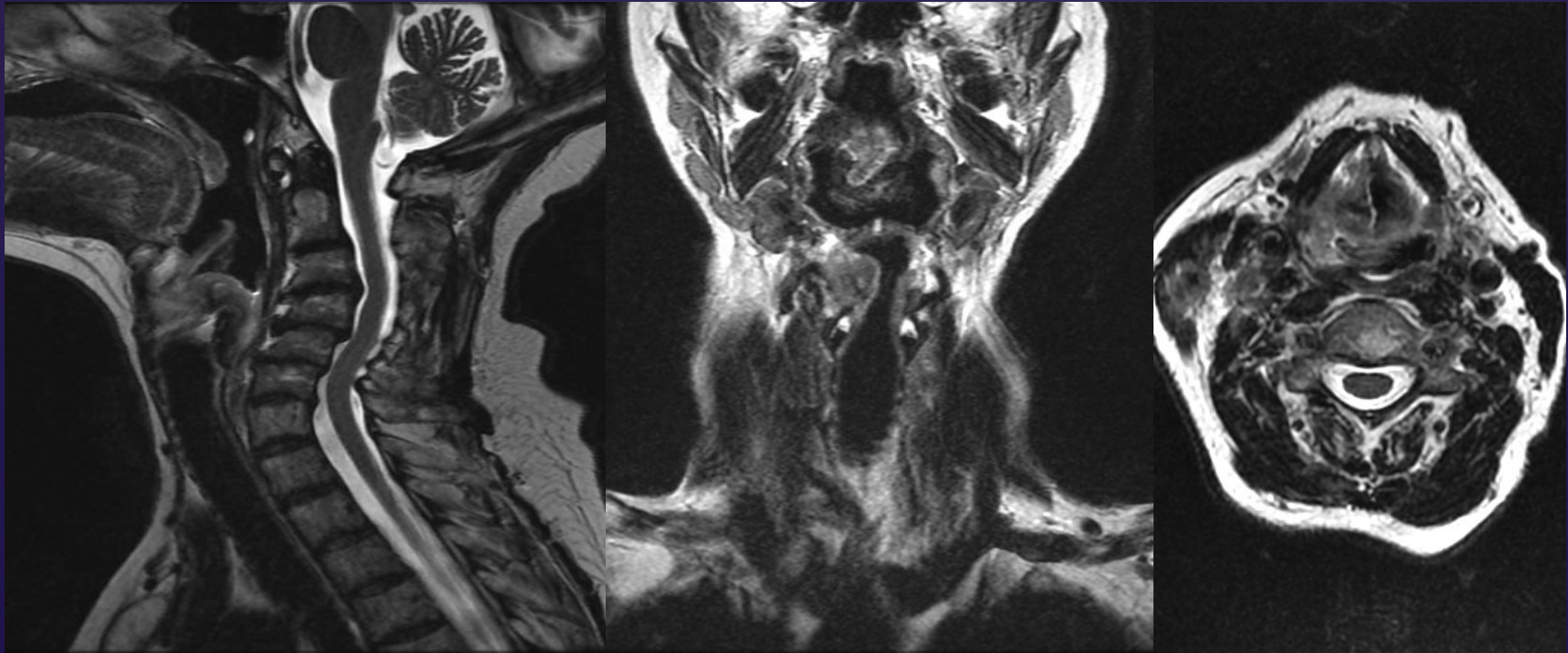


Figura 1: Los tres planos de la laringe.

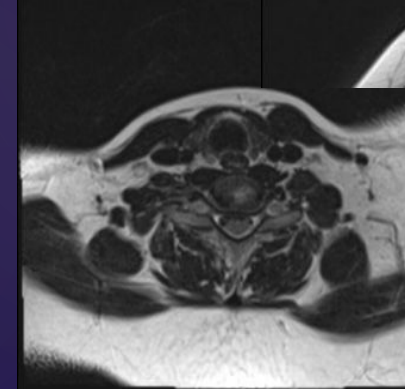
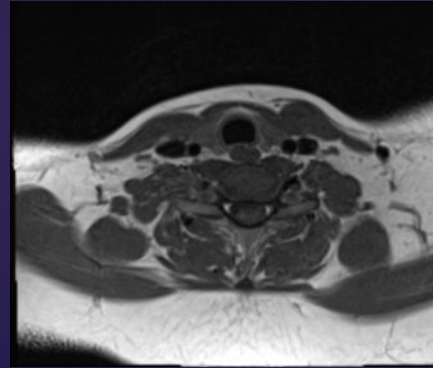
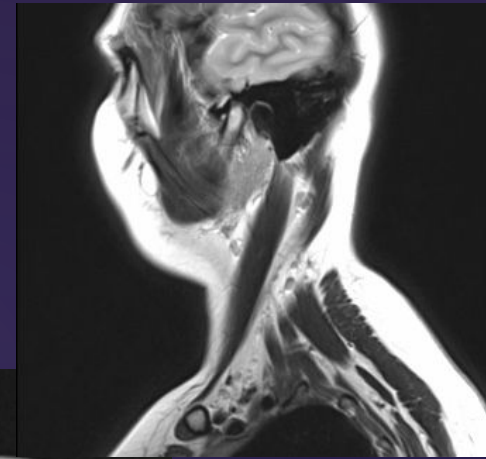
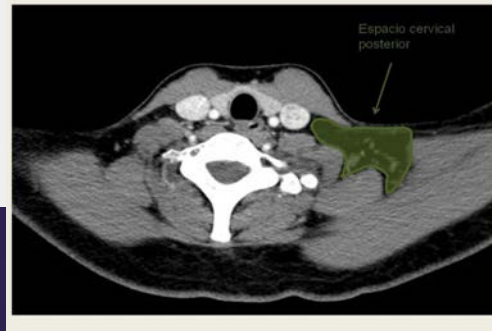
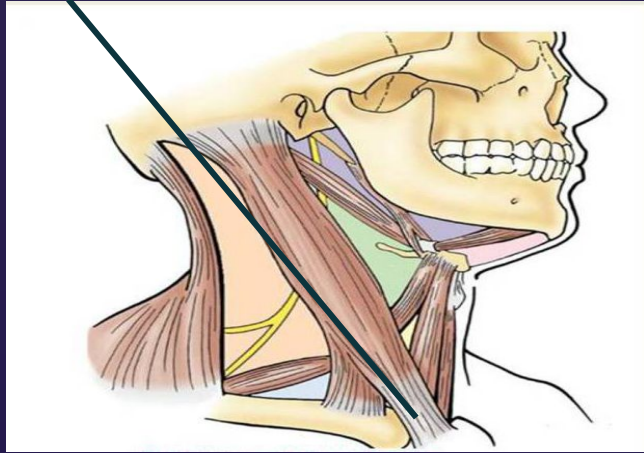


Rnm Tumor Glotico y seno piriforme

APORTE RNM: invasiòn de espacios paraglòticos
Recidivas

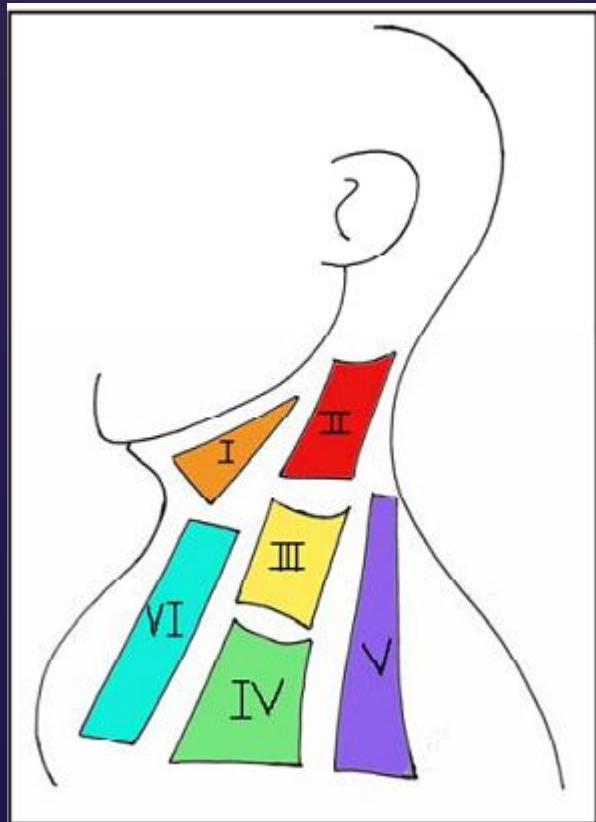


Espacio Cervical Posterior



- Triangulo de base inferior por fuera y detrás del musculo esternocleidomastoideo
- Grasa, ganglios , nervios accesorio espinal y escapular

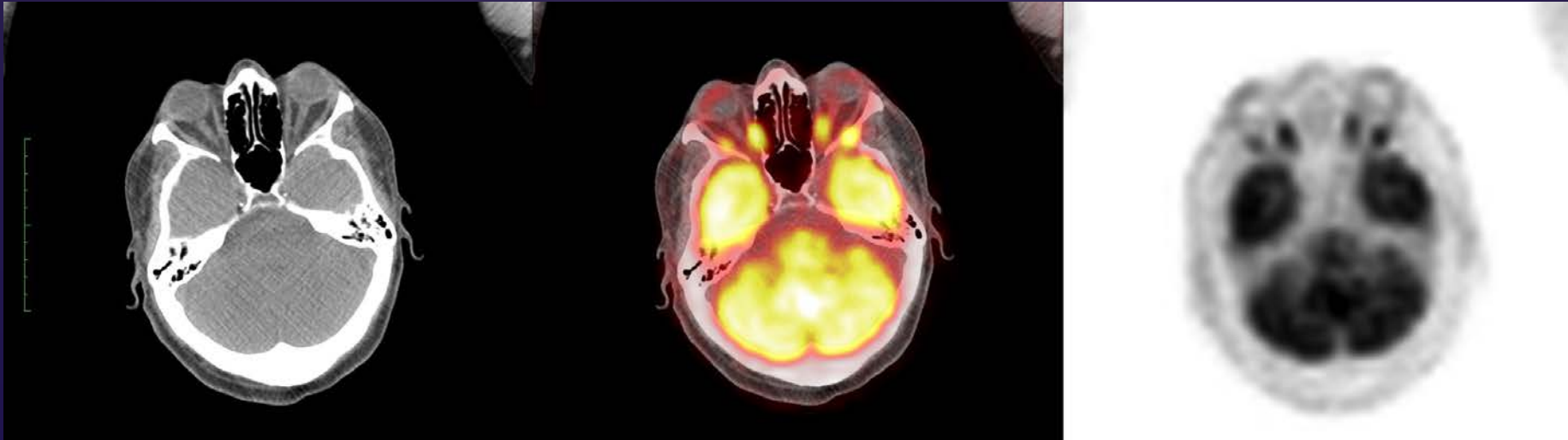
ADENOMEGALIAS

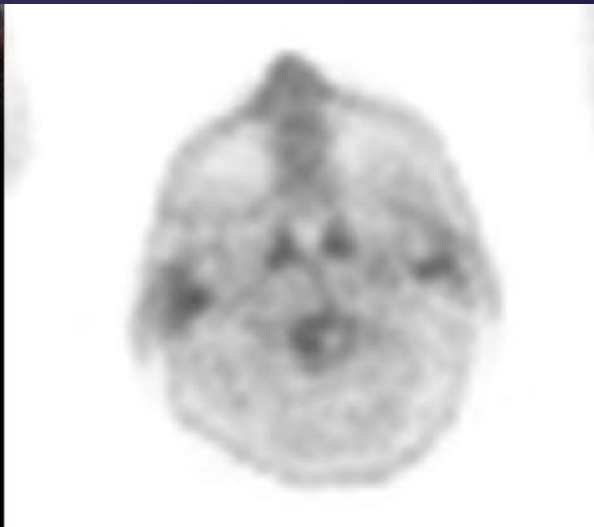
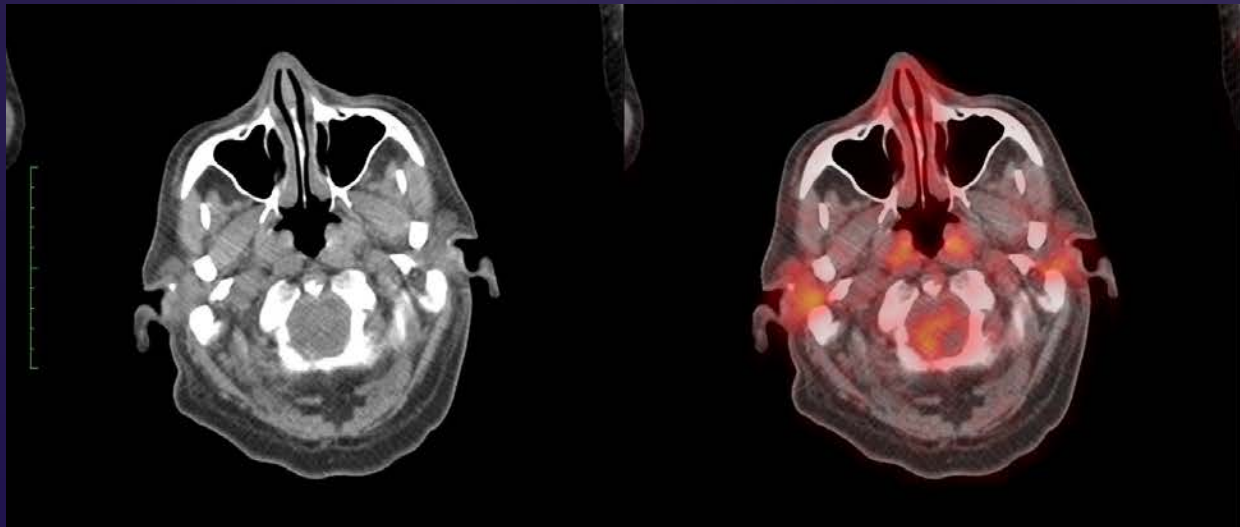
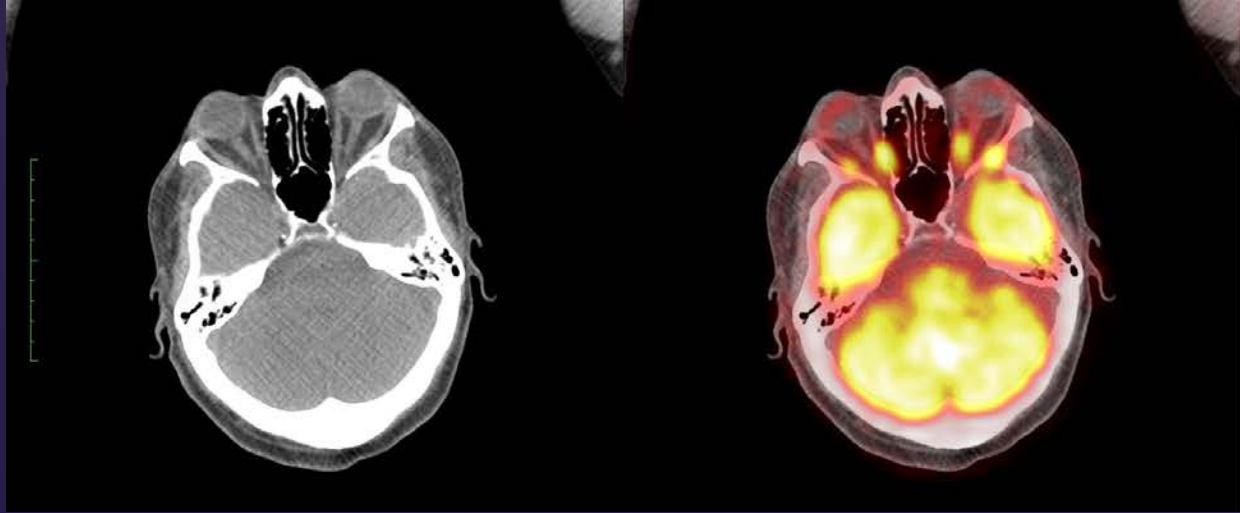


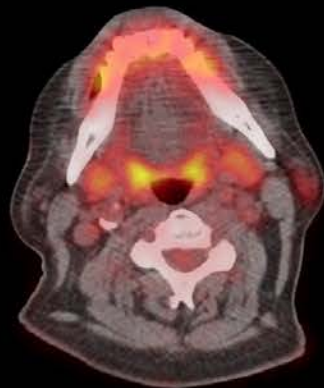
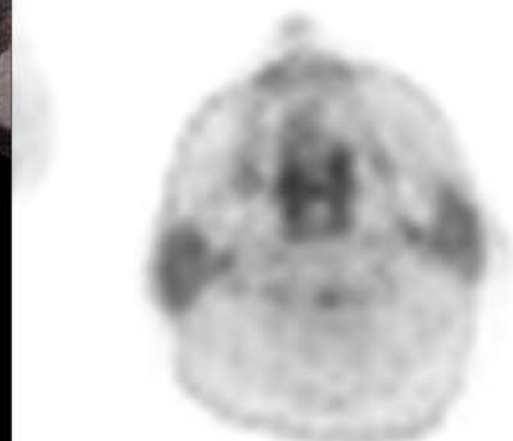
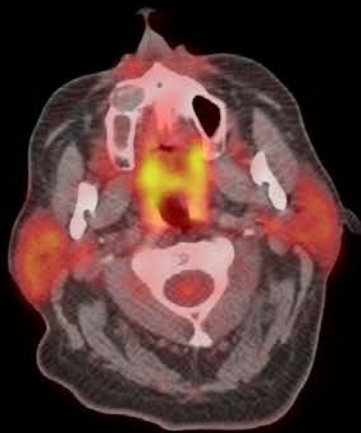
Grupos	Localizaciones de drenaje
Grupo I (submentomandibular)	Labios, cavidad bucal, pirámide nasal
Grupo II (yugulodigástrica)	Laringe, tres niveles faríngeos, tiroides, cavidad bucal, parótida, oído
Grupo III (yugular media)	Laringe, tres niveles faríngeos, tiroides, cavidad bucal
Grupo IV (yugular inferior)	Laringe, oro e hipofaringe, tiroides y esófago cervical
Grupo V (triángulo posterior y supraclavicular)	Rino y orofaringe, base de lengua, órganos torácicos y abdominopelvianos
Grupo VI (cervical anterior)	Laringe, tiroides y traquea

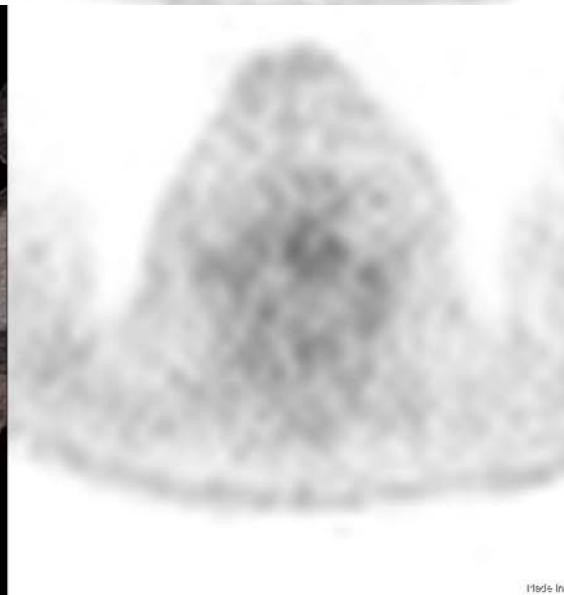
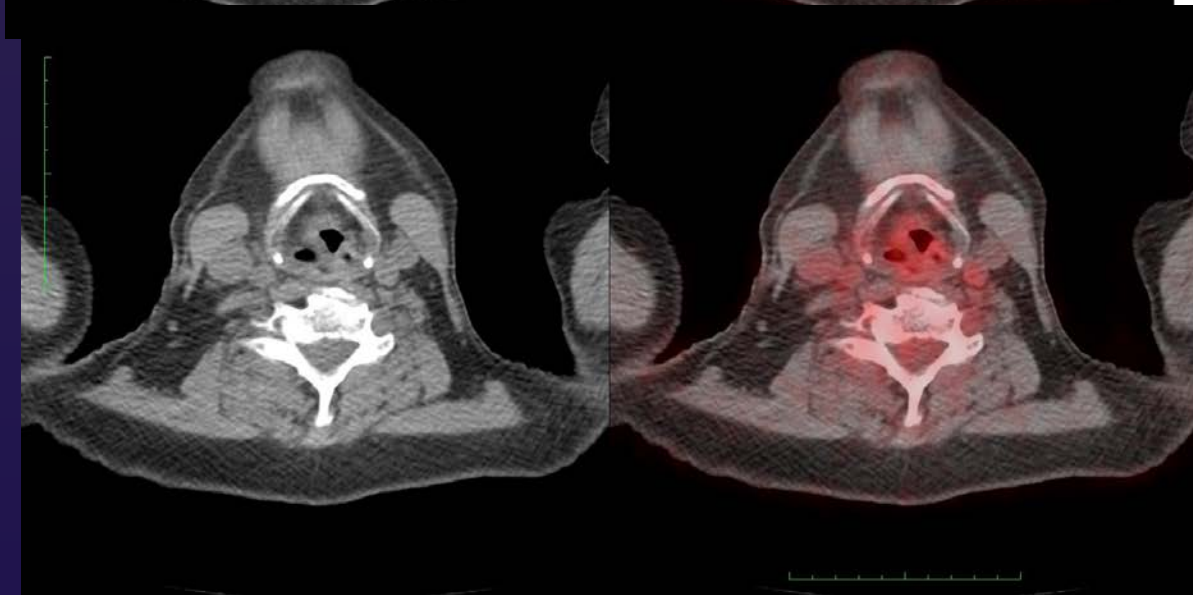
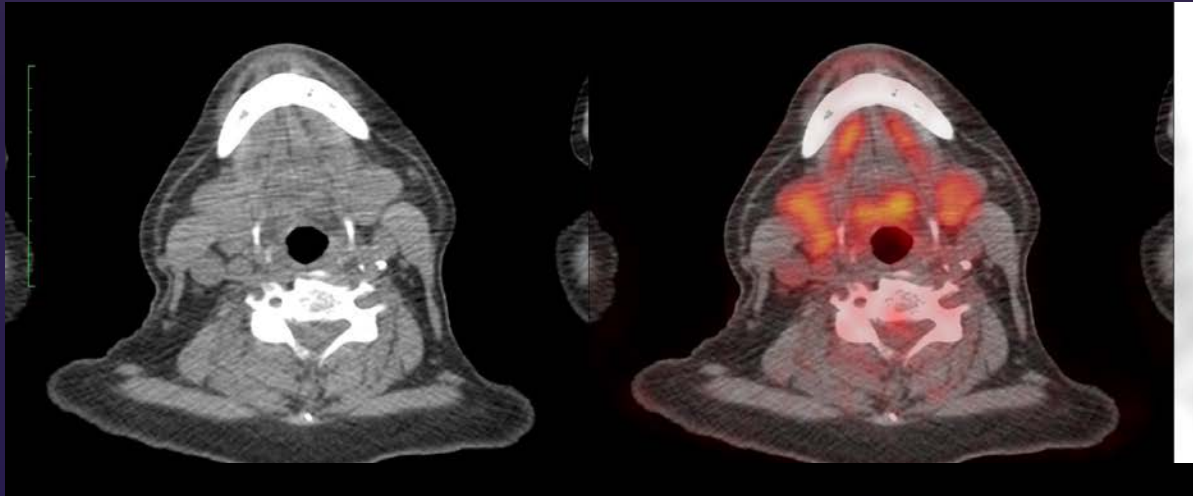
Captacion Fisiologica del PET-TC

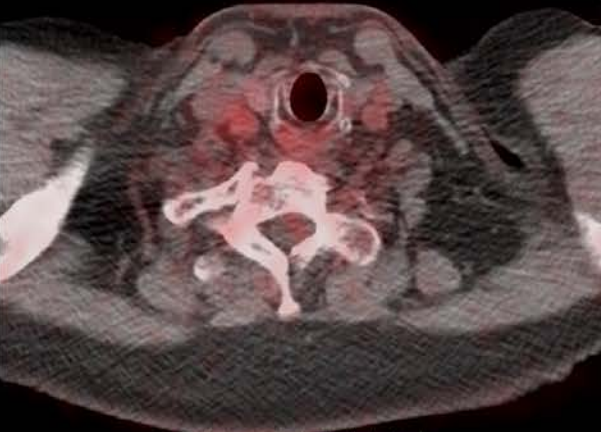
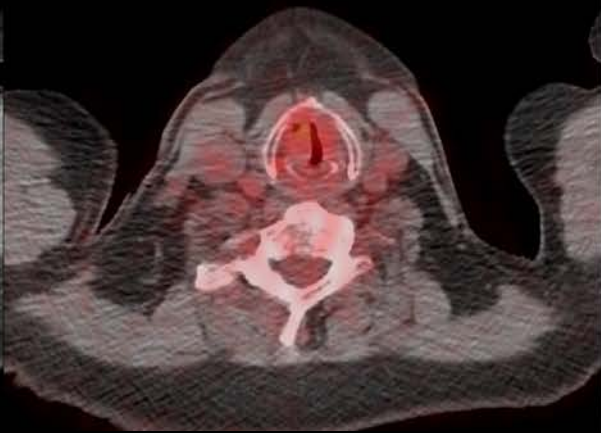
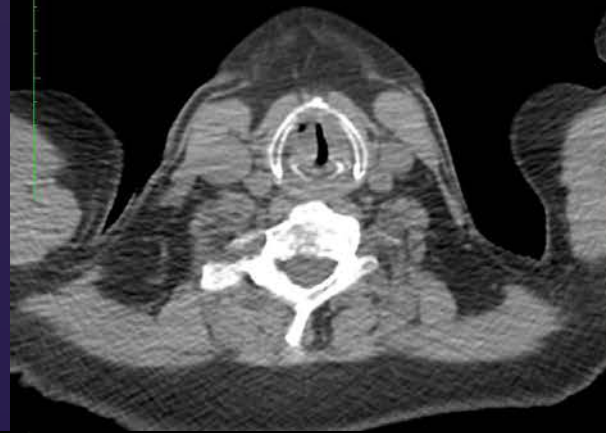
- Glandulas salivales: parotidas, submaxilares, sublinguales
- Estructuras con actividad muscular: musculos oculares, lengua, paladar blando

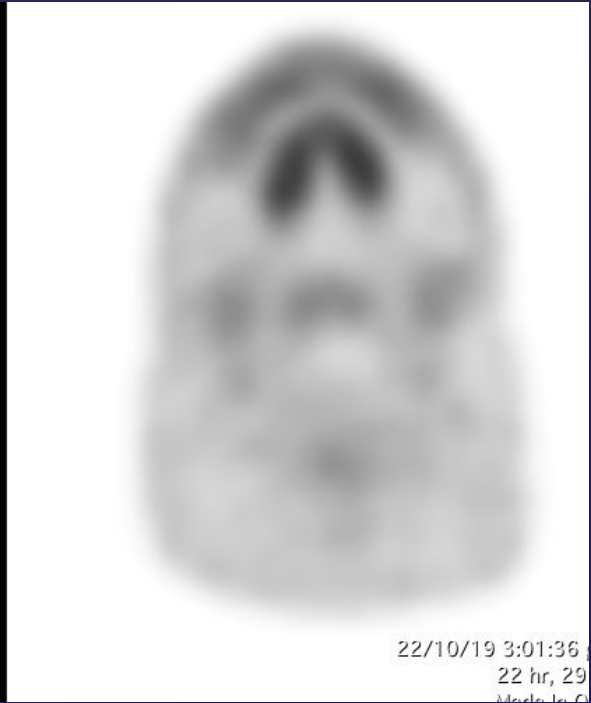
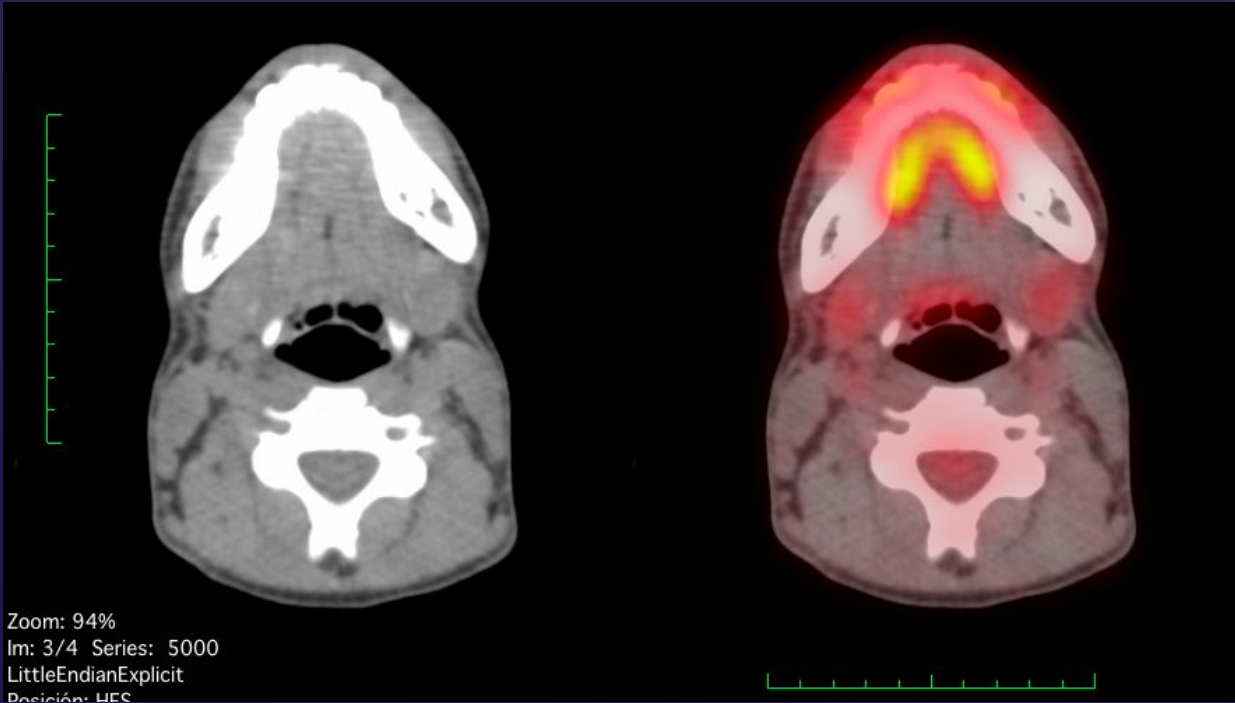


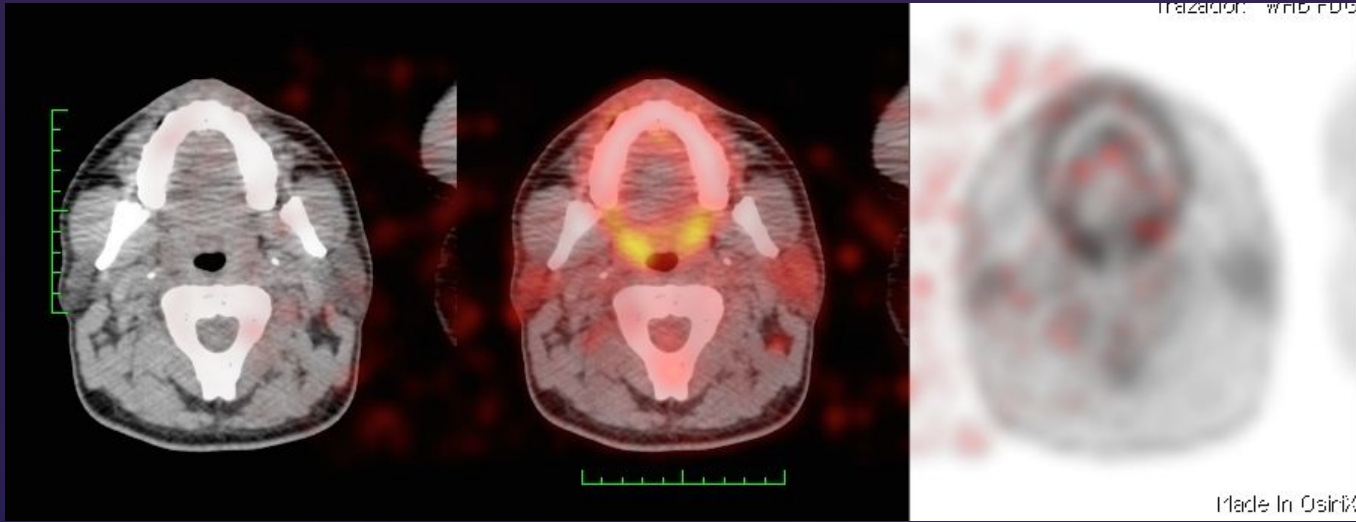




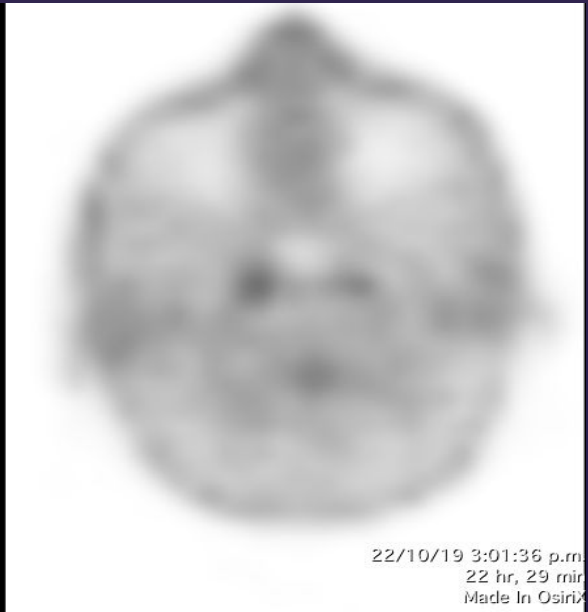
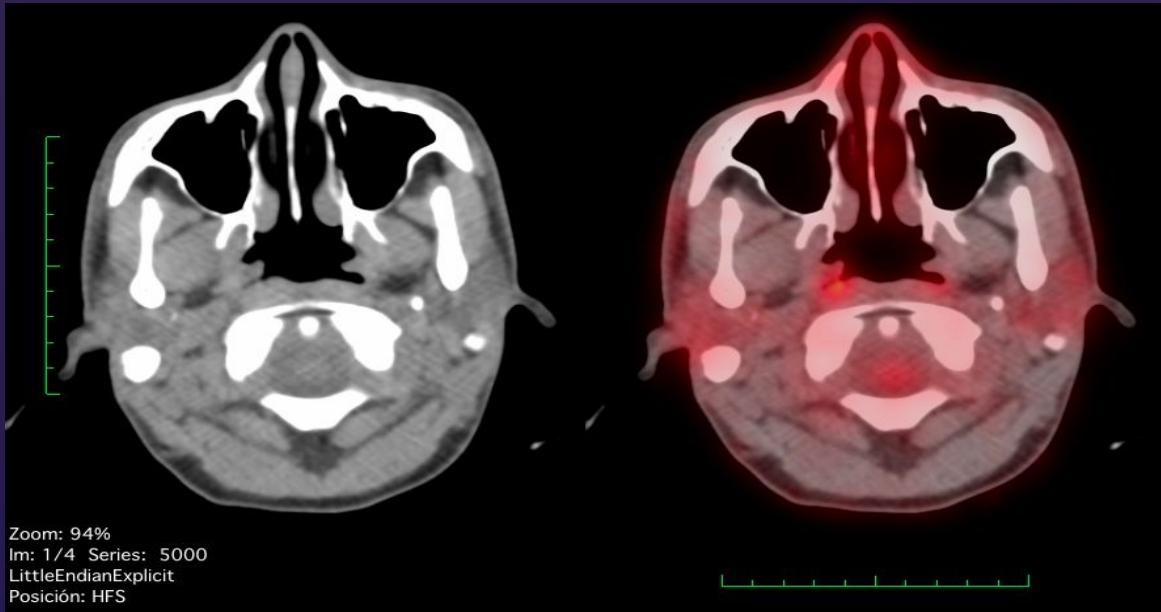






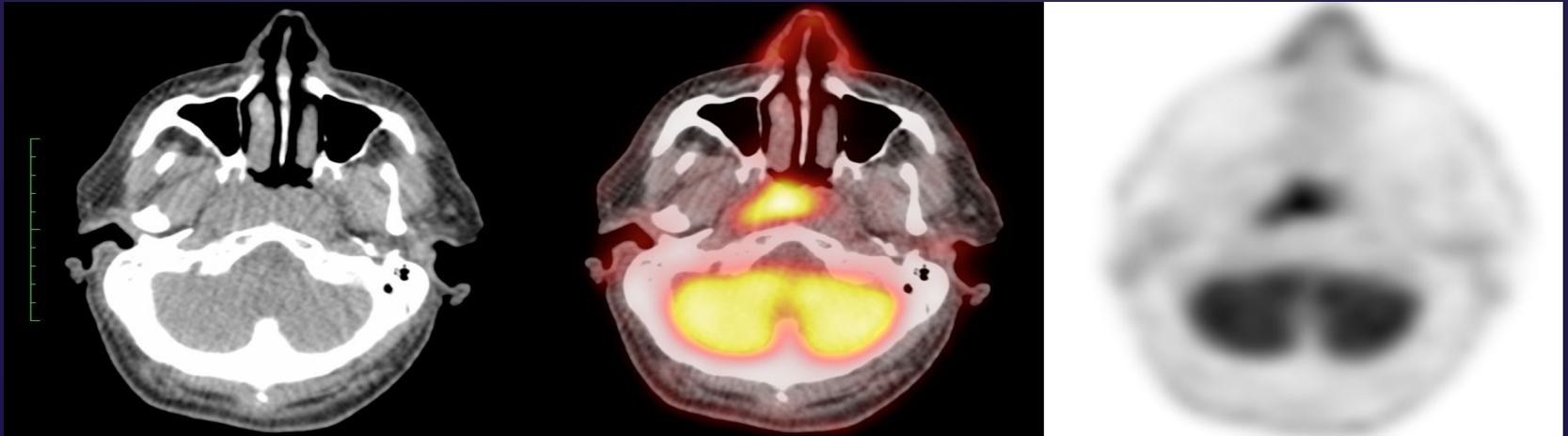


- *Captacion amigdalina fisiologica.*
- *PATOLOGICO: asimetria en la captacion*
- *Captacion mayor que la captacion de fondo*

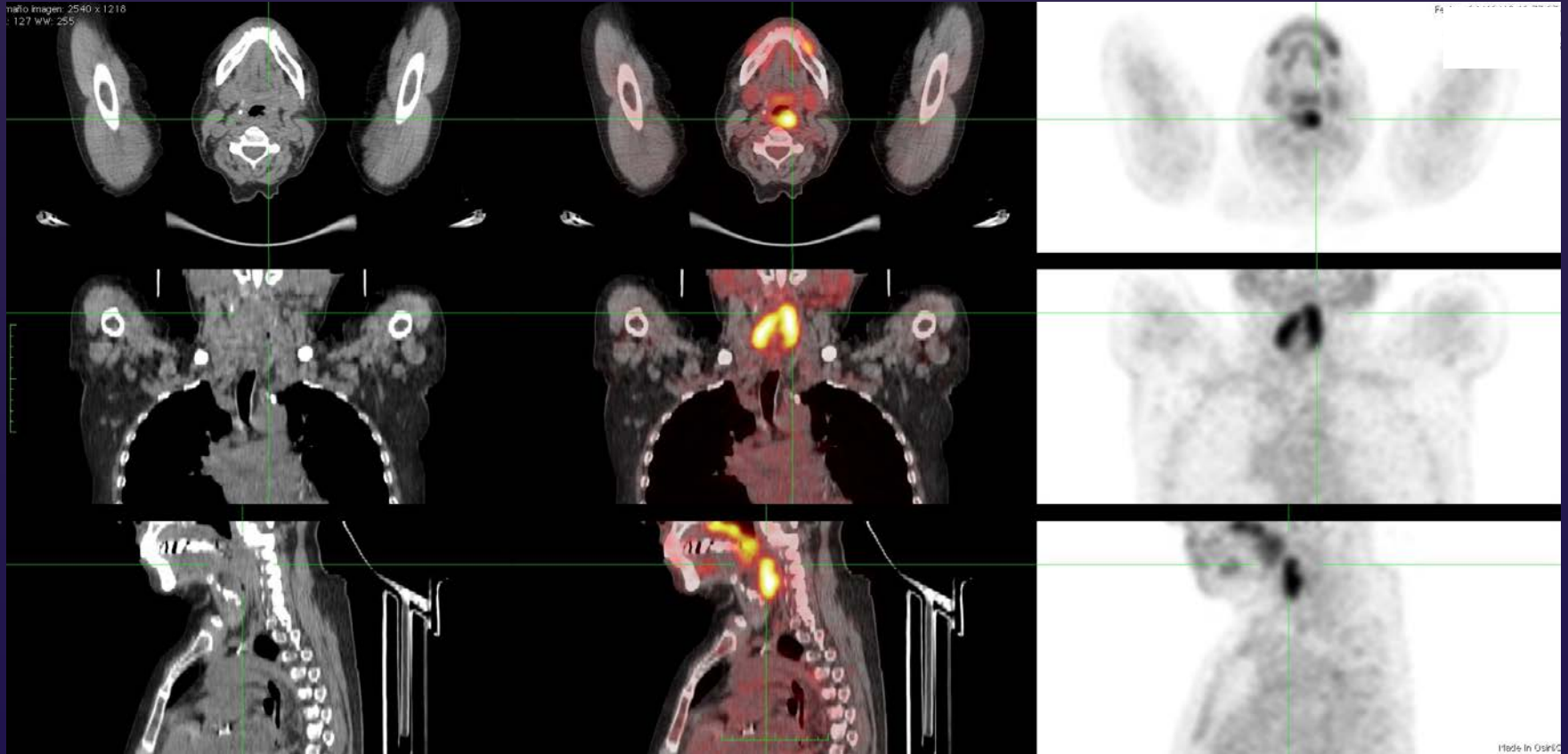


PET-TC Captación Patològica

- Asimetrías en la captación
- Captación mayor que la captación de fondo del organo
- 55 años, carcinoma de cavum.

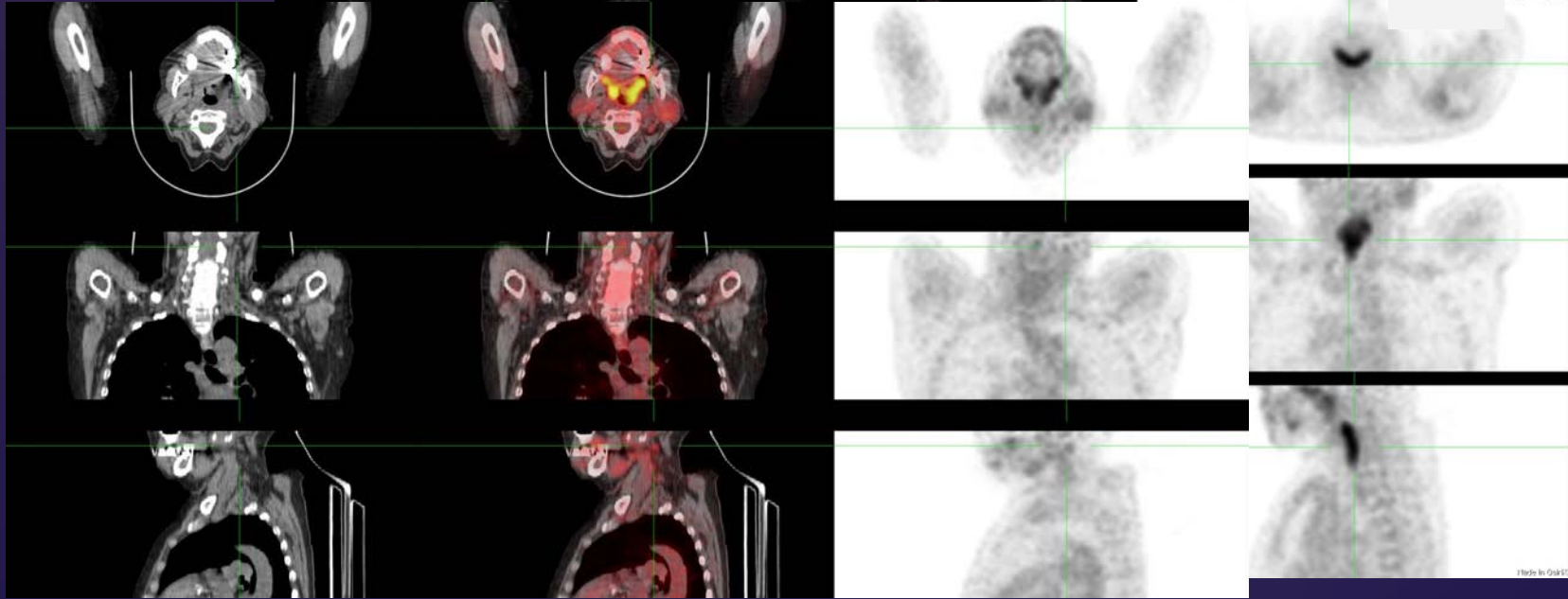


60 años. Carcinoma escamocelular invasor de amígdala izquierda.
Estadificación inicial



Tamaño imagen: 2540 x 1218
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Nombre:
ID: 1724523-9
Apellido: VILLALBA

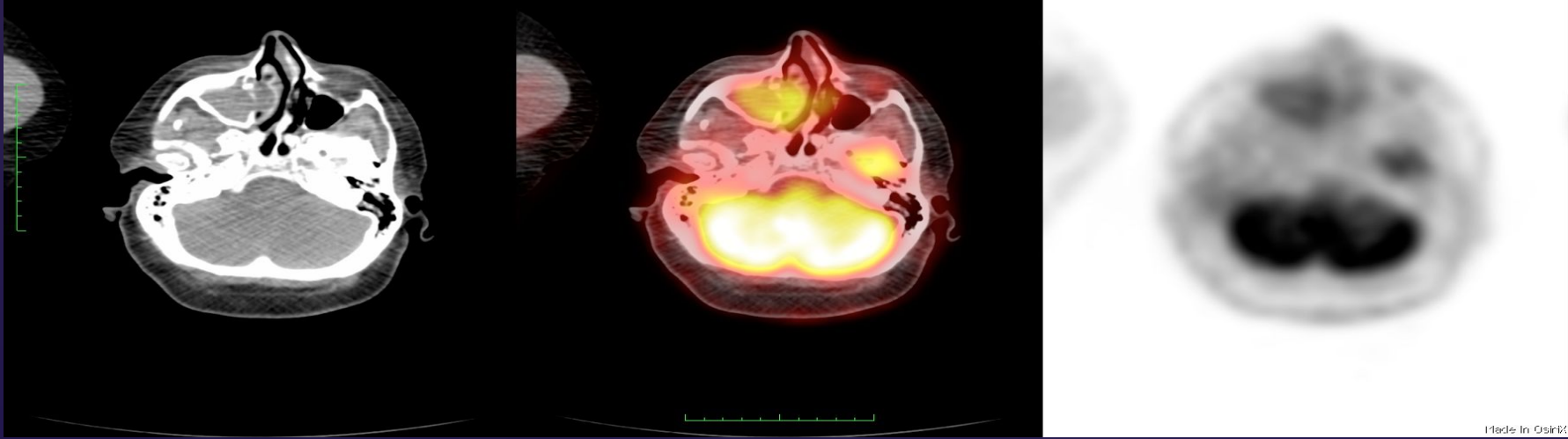


Tumor Bulky centrado en amigdala izquierda con invasión de hipofaringe yespacio prevertebral derecho e izquierdo.Hipercaptación a nivel del paladar duro y blando que puede corresponder a lesión inflamatoria.Pequeño ganglio levemente hipercaptante a nivel del triangulo posterior izquierdo(nivel V)donde no se puede descartar lesión metastásica

Falsos Positivos PET-TC

- Cambios anatomicos postquirurgicos: asimetrías musculares
- Areas de inflamacion :mucositis, xialoadenitis, infeccion
- Ganglios positivos por inflamación
- DUAL PET: puede ayudar en diagnostico diferencial

Sinusitis maxilar

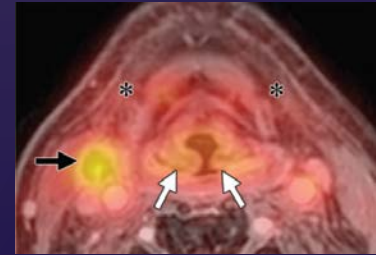
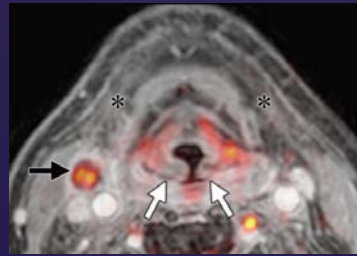
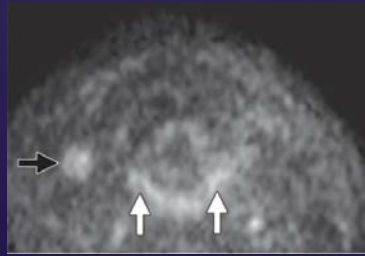
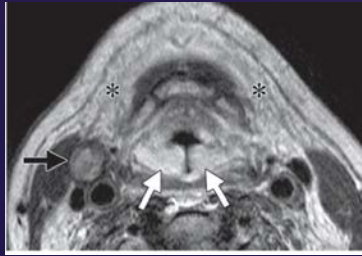


Pet-Ct Tumores Cuello -Falsos Negativos

- Lesiones menores de 8mm
- Adenomegalia inflamatorias (SUV 2.45 a 4)
- Quimioterapia muy reciente
- Altas dosis de esteroides
- Hiperglucemias o hiperinsulinemias
- Tumores de Bajo Grado
- Tumores de componente mucinoso
- Carcinomas bien diferenciados

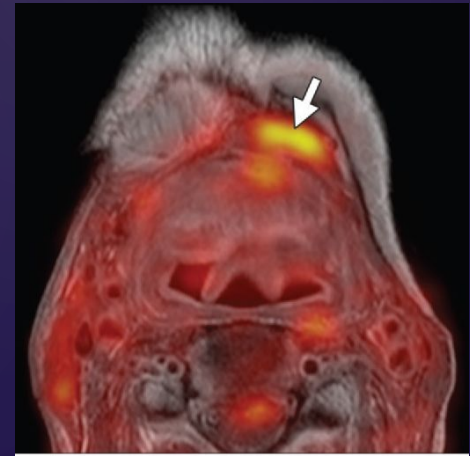
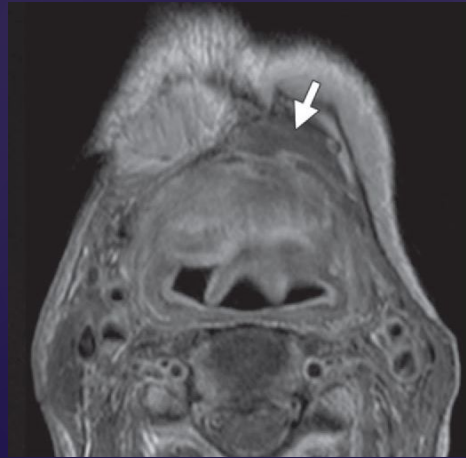
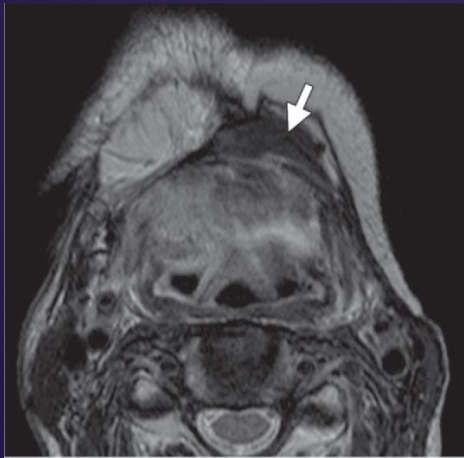
PET-RNM

- Resolución anatómica y de contraste de RNM+ Valoración metabólica del PET-TC
- Rol complementario - mejor diagnóstico diferencial
- Rol más importante en control posttratamiento .Disminuye falsos positivos



Cambios postradicos

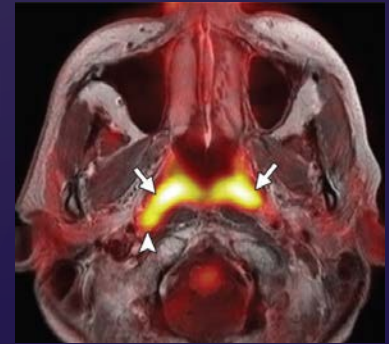
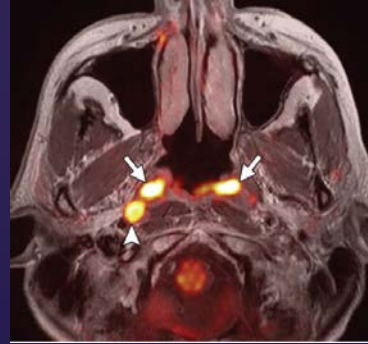
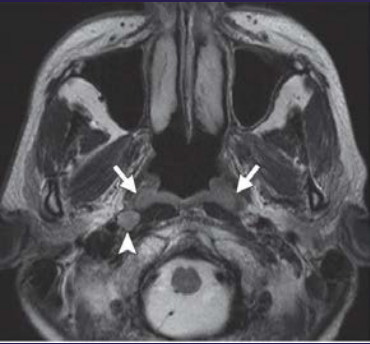
- Osteonecrosis: fase edematosa: cicatriz reciente: capta contraste y capta radiotrazador



CLAVE: Repetir el estudio luego de tratamiento antiinflamatorio

Cambios posttratamiento

- Engrosamiento linfático: restringe en difusión , capta FDG
- Biopsia



Encare Multimodal en Tu de Cabeza y Cuello

- Diagnostico Primario: TC o RNM -TC ve mejor invasiòn òsea ,RNM mejor extensiòn y control de tratamiento
- RNM mejor delimitacion de espacios grasos
- Pet-TC util para guia de biopsia
- Tumor de origen desconocido: Pet-TC
- Control posttratamiento: PET-TC +fusion RNM



