#SENR2024

LII Reunión Anual
SOCIEDAD ESPAÑOLA DE
NEURORRADIOLOGÍA

7 - 9 de noviembre de 2024 • SAN SEBASTIÁN

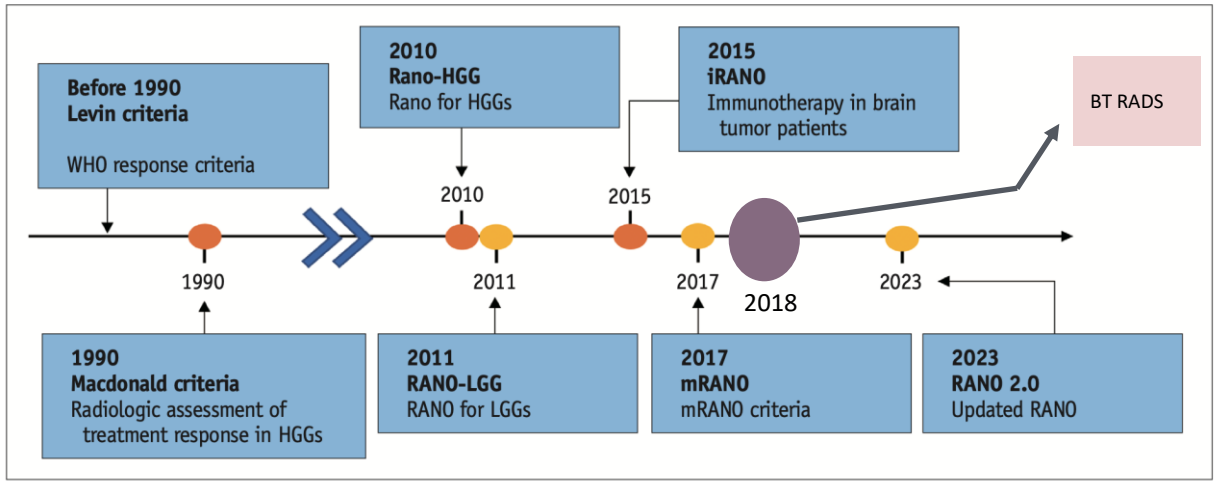
SEDE: Hotel Barceló Costa Vasca

BT RADS: PROS Y CONTRAS

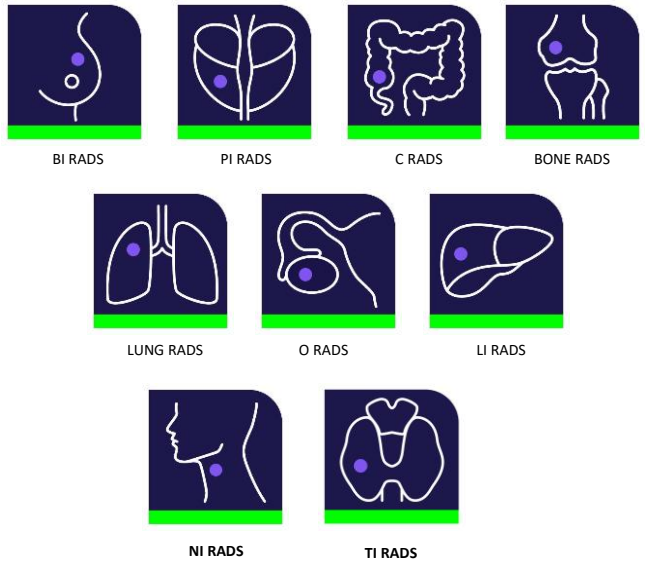
Dr. Alberto Cabrera Zubizarreta

HT Médica

S.E.N.R
Sociedad Española de Neurorradiología



Adaptado de Wo SE et al 2024.https://doi.org/10.3348/kjr.2024.0016

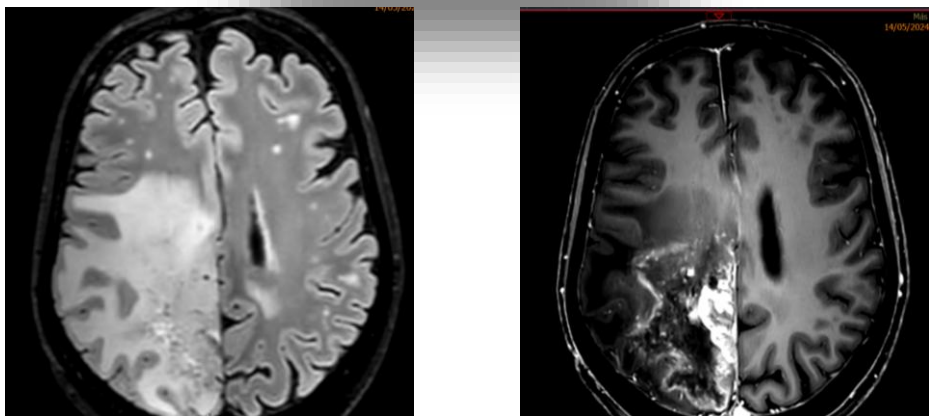


- AI TI-RADS: Artificial Intelligence-Thyroid Imaging-Reporting and Data System 15
- BI-RADS: Breast Imaging-Reporting and Data System 2
- Bone-RADS: Bone Reporting and Data System 19
- BT-RADS: Brain Tumor Reporting and Data System 18
- BTI-RADS: Solitary bone tumor imaging reporting and data system 22
- C-RADS: CT Colonography Reporting and Data System 2
- CAD-RADS: Coronary Artery Disease-Imaging Reporting and Data System 2
- CO-RADS: COVID-19 Reporting and Data System 16
- COVID-RADS: COVID-19 Imaging Reporting and Data System 5
- GI-RADS: Gynecologic Imaging-Reporting and Data System 11
- LI-RADS: LIver Imaging-Reporting and Data System 2
- LU-RADS: LUng-Reporting and Data System 13,14
- Lung-RADS: Lung Imaging-Reporting and Data System 2,14
- MET-RADS: METastasis-Reporting and Data System for Prostate Cancer 7
- MY-RADS: MYeloma Response-Assessment and Diagnosis System 6
- NI-RADS: Neck Imaging-Reporting and Data System 2
- NS-RADS: Neuropathy Score Reporting and Data System 20
- O-RADS: Ovarian-Adnexal Reporting and Data System 10,11
  - incorporating O-RADS US and O-RADS MRI
- OT-RADS: Osseous Tumor Reporting and Data System
- PI-RADS: Prostate Imaging-Reporting and Data System 2
- RI-RADS: Reason for exam Imaging-Reporting and Data System 9
- TI-RADS: Thyroid Imaging-Reporting and Data System 2
- VI-RADS: Vesical Imaging-Reporting and Data Syst

Works-in Progress	
Soft Tissue-RADS	Soft Tissue Lesions
Brain Tumor-RADS	**Brain Tumor**
TBI-RADS	Traumatic Brain Injury
PE-RADS	Pulmonary Embolism
VI-RADS	Vesical Imaging
KI-RADS	Kidney Masses
Works Under Consideration	
No current topics under consideration	

- Publicado en el año 2018
- Colaboración multidisciplinar neurorradiológica, neuroquirúrgica y neuro oncológica (EMORY)
- Simplificar y mejorar los informes ámbito clínico
- 3 PILARES: Imagen, Clínica y Tratamiento (temporalidad)
  - CATEGORÍA (0-4)
- Categoría se acompaña de una recomendación de manejo

- FLAIR
- T1 Contraste
- Efecto de masa
- Lesiones nuevas



- Estable / Progresión

- Antiangiogénico/Corticoide/RDT

Categoría 0 Basal

Categoría 1 Mejoría Imagen

2 subcategorías

Categoría 2 Estabilidad Imagen

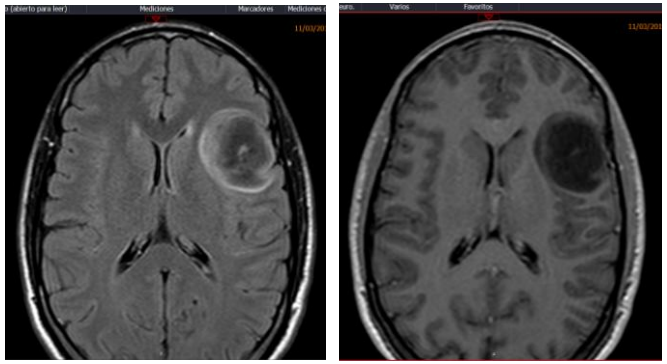
Categoría 3 Empeoramiento Imagen

3 subcategorías

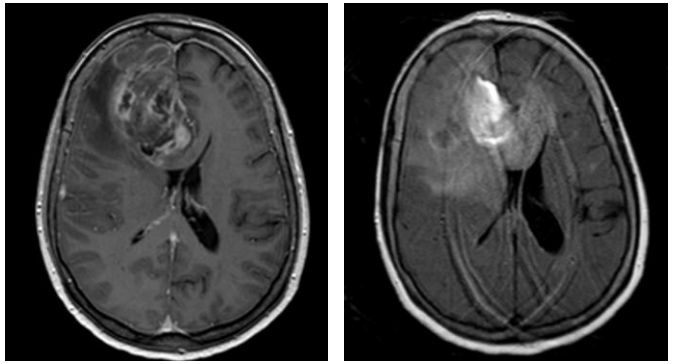
Categoría 4 Empeoramiento Imagen

Categoría 0 Basal

Estudio basal
Puede ser el de diagnóstico o el más reciente desde la intervención quirúrgica
Estudios incompletos o no diagnósticos



Diagnóstico



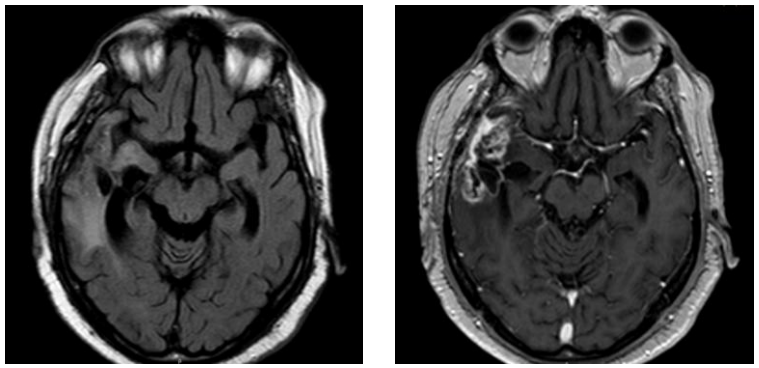
Complicaciones hemorrágicas tras biopsia
Artefacto por movimiento

Categoría 1 Mejoría Imagen

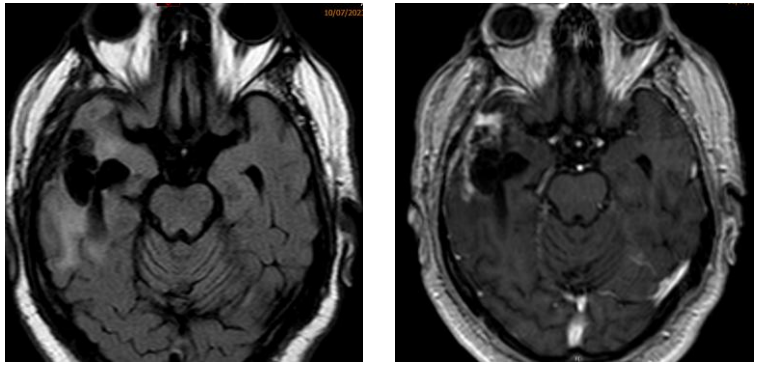
Clínicamente estable

Mejoría o estabilidad FLAIR
Disminución de la captación
Mejora o estabilidad efecto de masa
No nuevas lesiones FLAIR

03/08/22



16/12/22



1a: Sin antiangiogénico ni corticoide

Mantenida 4 semanas

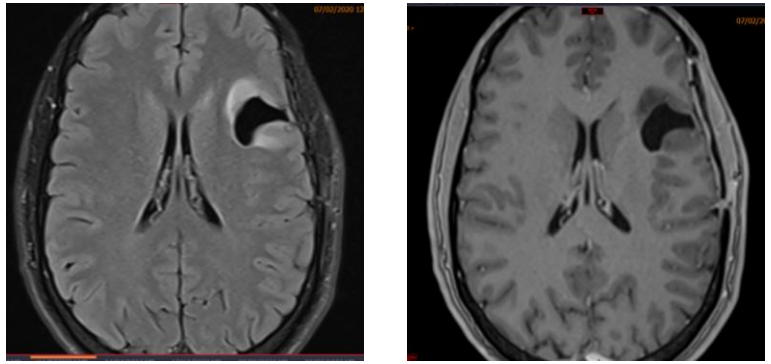
1b: Antiangiogénico o corticoide

La recomendación en estas categorías es seguir con los controles pautados

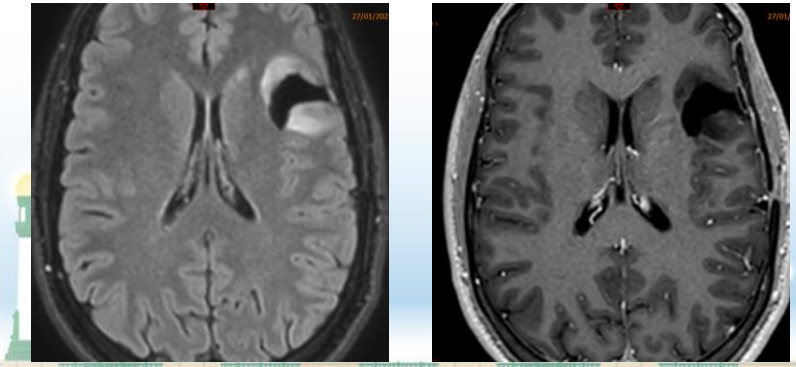
Categoría 2 Estabilidad Imagen

Clínicamente estable

No hay modificación en FLAIR
No hay modificación en la captación
No hay modificación en el efecto de masa
No nuevas lesiones en el FLAIR



07/02/20



27/01/21

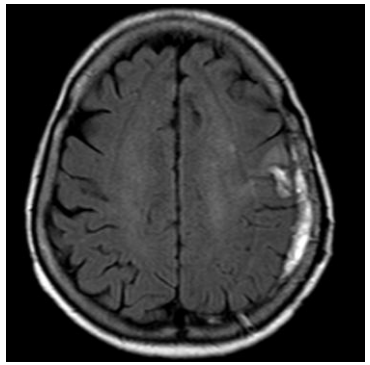
Tratamiento

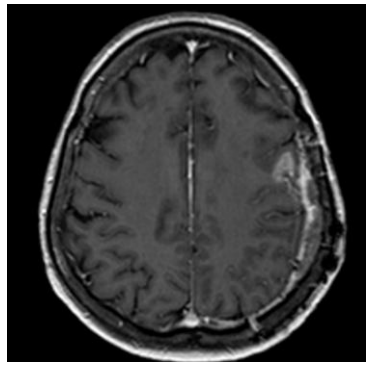
Categoría 3A

Clínicamente estable

Aumento del componente FLAIR y/o captación
Aumento del efecto de masa
Ausencia de nuevas lesiones Flair o captación fuera de la zona de irradiación
Primeras 12 semanas tras la finalización de la **RDT**

16/08/23

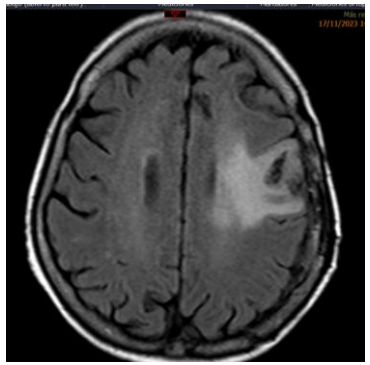


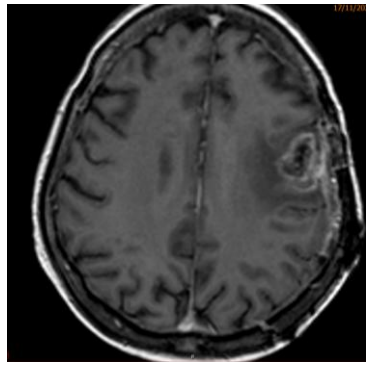


17/11/23

Estabilidad clínica.

RDT < 3 meses





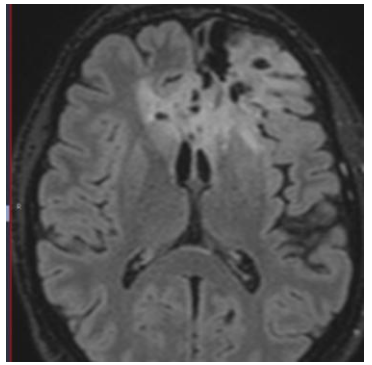
Categoría 3 Empeoramiento Imagen

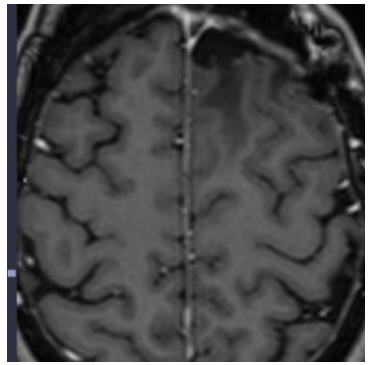
La recomendación en estas categorías sería acortar el control de imagen

Categoría 3B

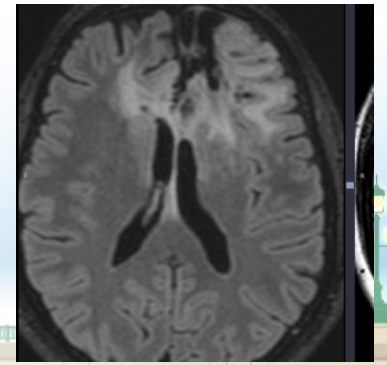
Clínicamente estable

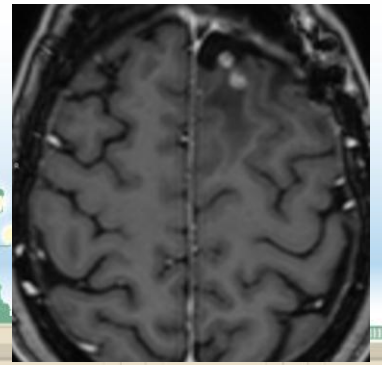
Aumento del componente FLAIR o captación
Aumento del efecto de masa
Ausencia de nuevas lesiones Flair o captación fuera de la zona de irradiación
Pasadas 12 semanas tras la finalización de la **RDT**





21/10/2022





16/01/2023

Estabilidad clínica.

RDT > 3 meses

Indeterminado

Progresión

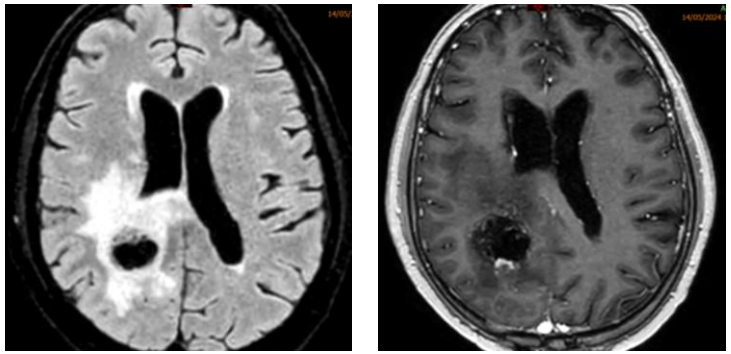
Categoría 3C

Progresión clínica

Incremento en el componente FLAIR y captación < 25%
Aumento del efecto de masa
Ausencia de enfermedad captante fuera de la zona de radiación

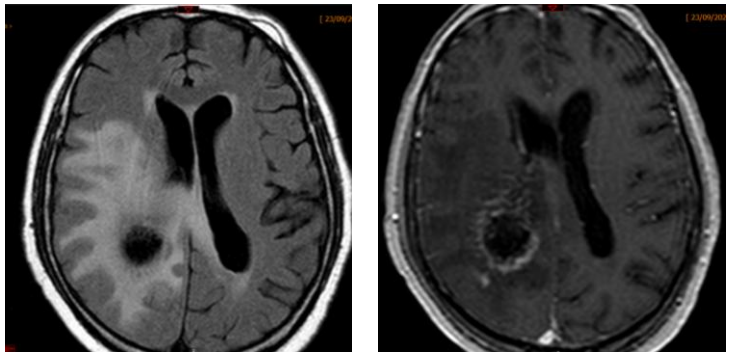
Lesión indeterminada fuera del área de RDT
Componente FLAIR sin captación de contraste.

14/05/24



21/09/24

Progresión clínica



3C: La recomendación es acortar el tiempo de exploración o modificar régimen de tratamiento

4: La recomendación es modificar el régimen de tratamiento

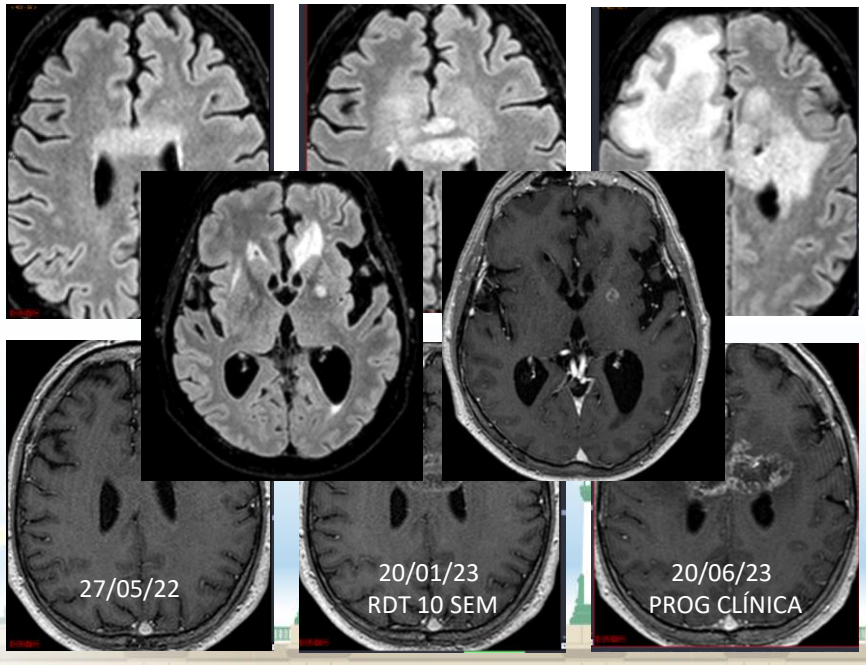
Categoría 4 Empeoramiento Imagen

Progresión clínica

Incremento en el componente FLAIR y captación > 25%
Aumento del efecto de masa

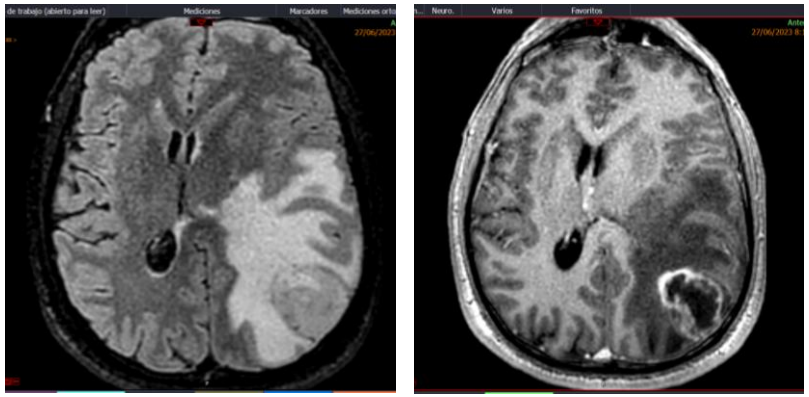
Incremento progresivo de FLAIR y captación en dos estudios sucesivos

Lesión sospechosa fuera del área de RDT
Componente FLAIR y captación de contraste.

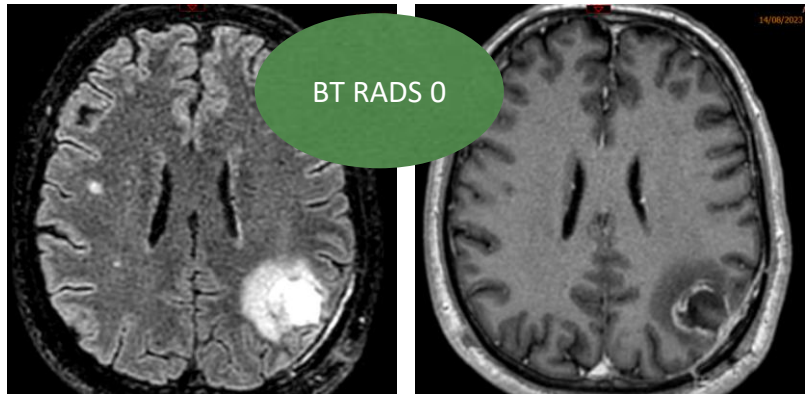


Varón 53 años GB wild type.

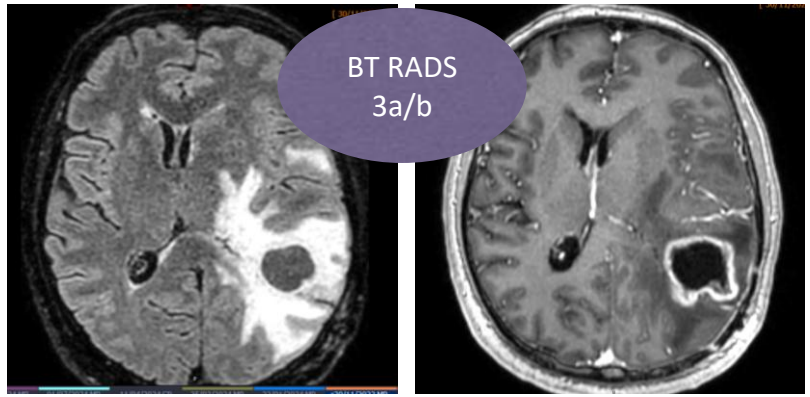
27/06/2023



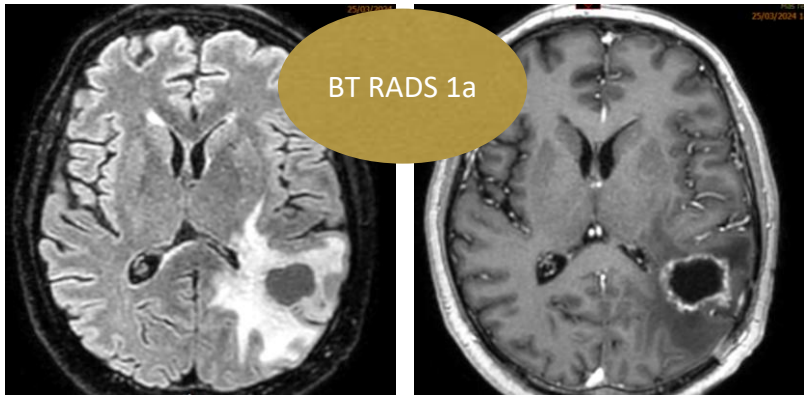
14/08/2023 Fin RDT



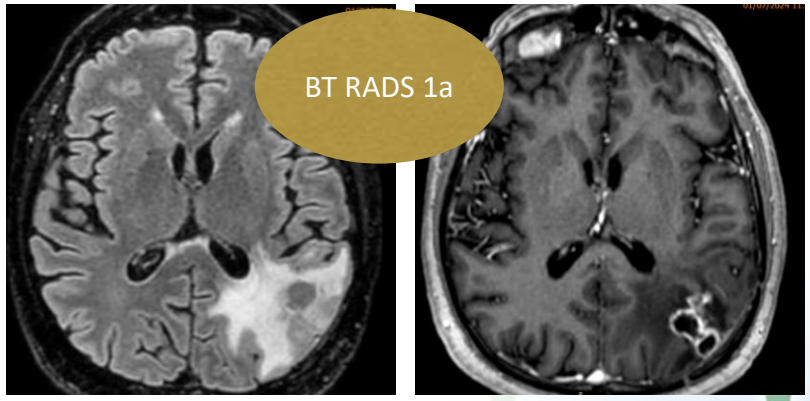
30/11/2023 RDT 3 meses 1 semana. Clínica estable



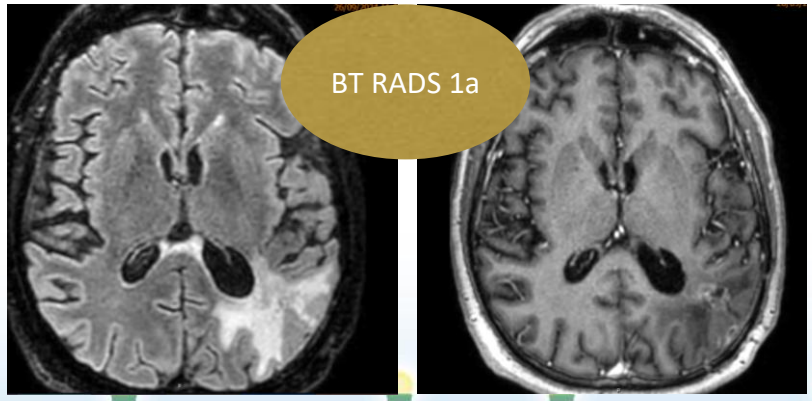
25/04/2024 TMZ. Clínica estable



01/07/2024 Clínica estable

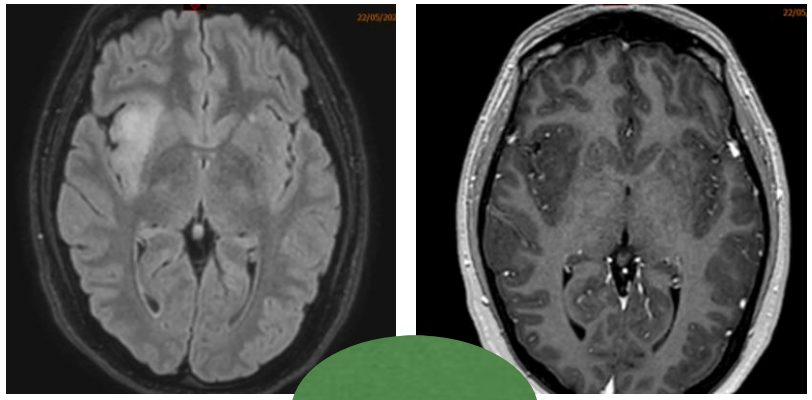


26/09/2024 Clínica estable



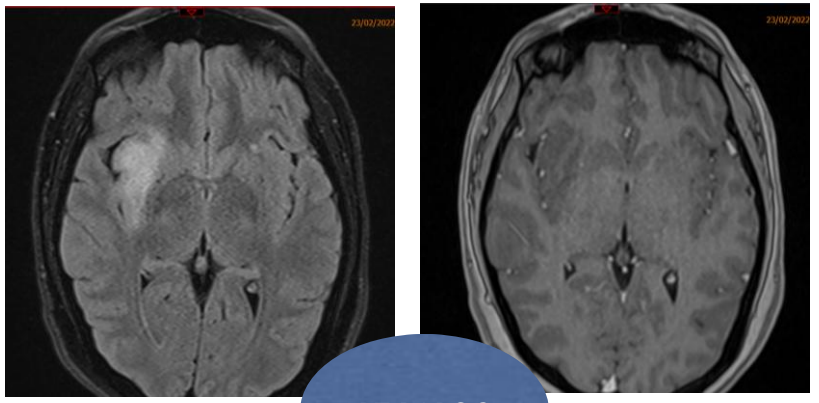
Astrocitoma G2 IDH mutado

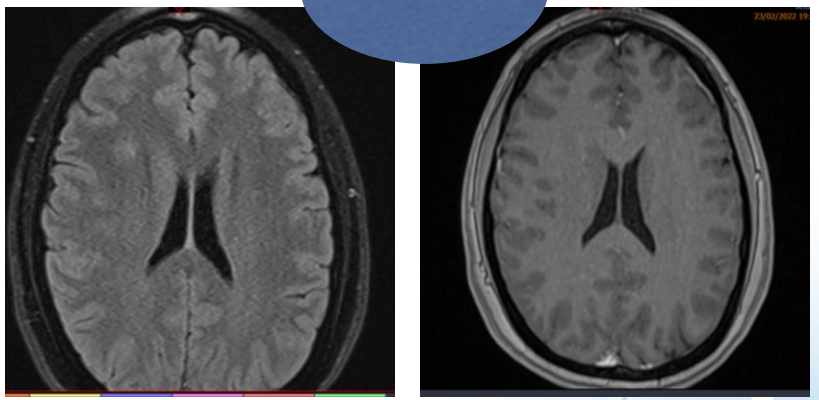
22/05/2020



BT RADS 0

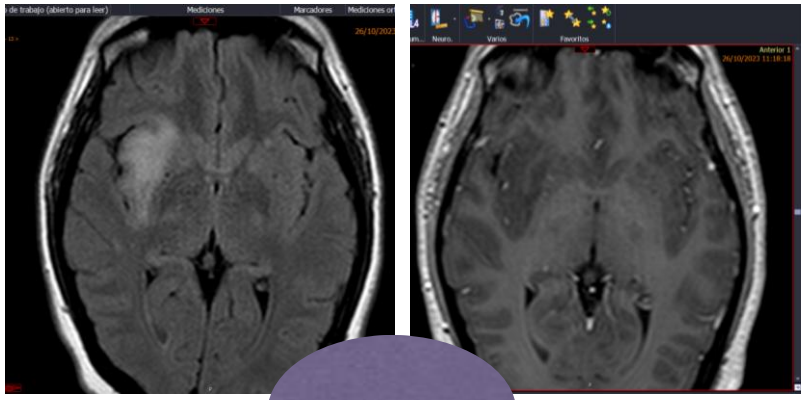
23/02/2022

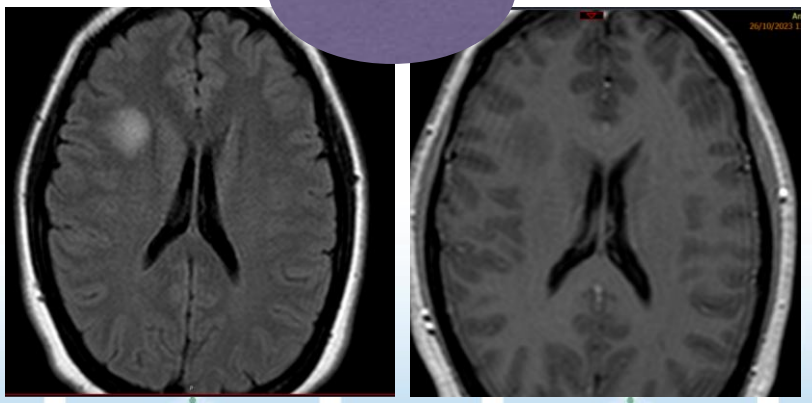




BT RADS 2

26/10/2023 Estabilidad clínica

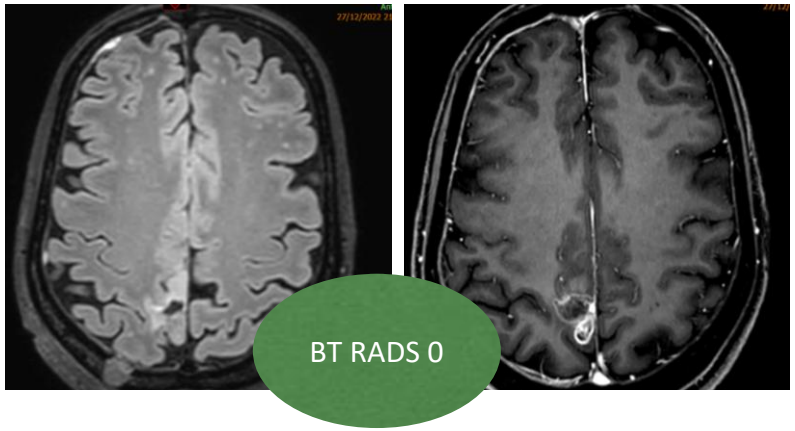




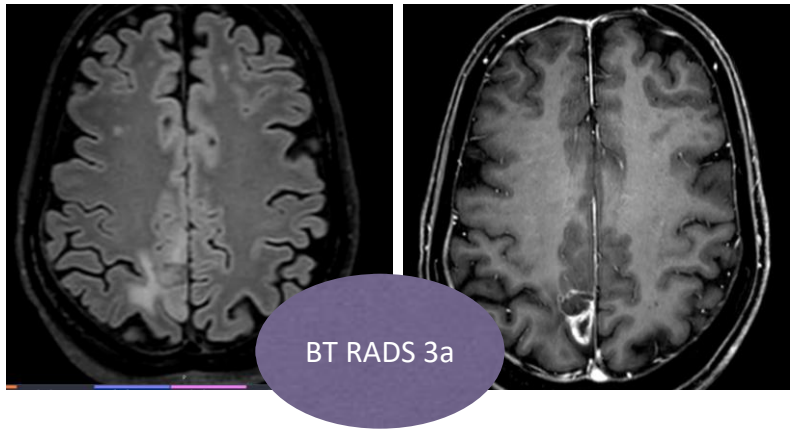
BT RADS 3b

Mujer de 46 años. GB IDH Widt Type.

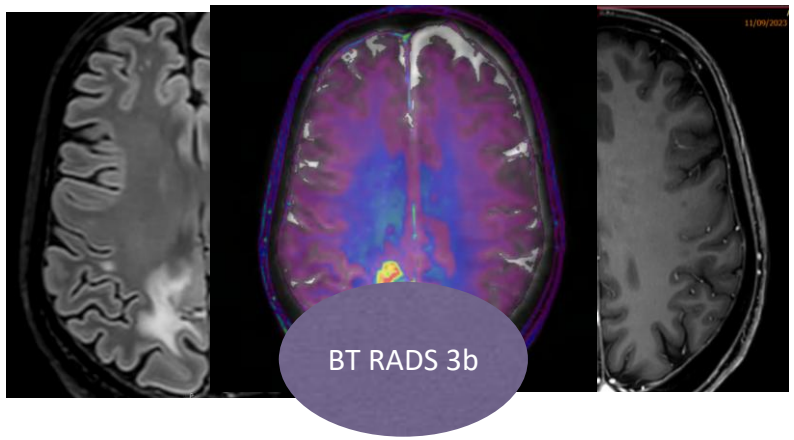
27/12/2022 Biopsia



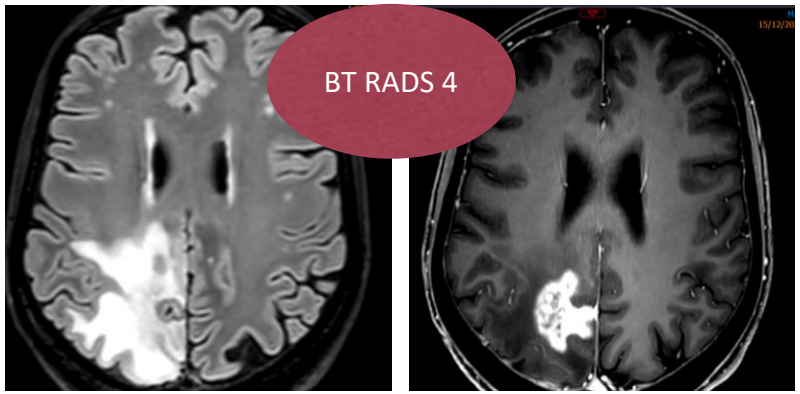
27/06/2023 < 3 meses RDT. Clínicamente estable



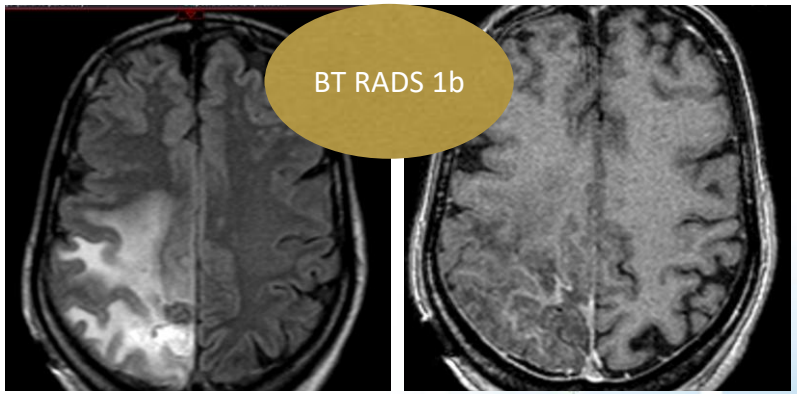
11/09/2023 > 3 meses RDT. Clínicamente estable



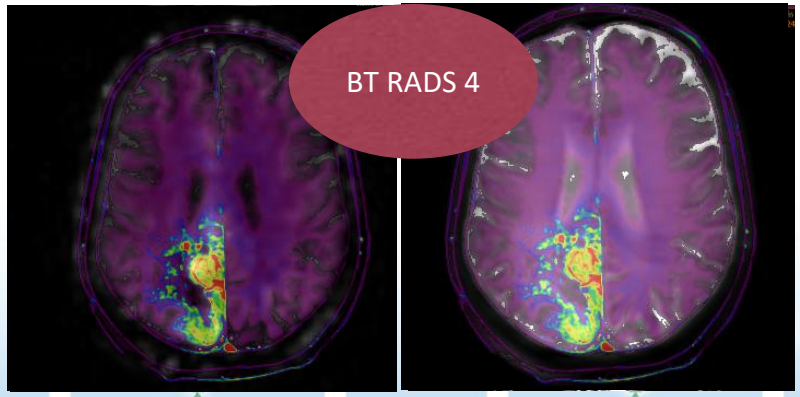
15/12/2023



06/03/2024. Antioangiogénico

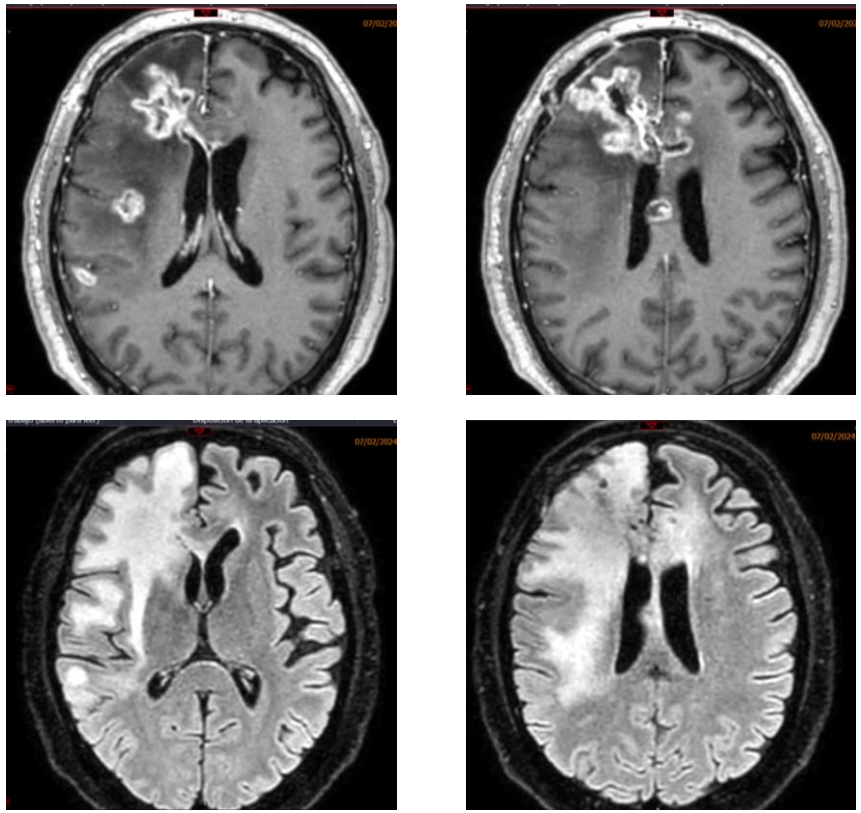


14/05/2024



GB IDH Widt Type.

07/02/2022

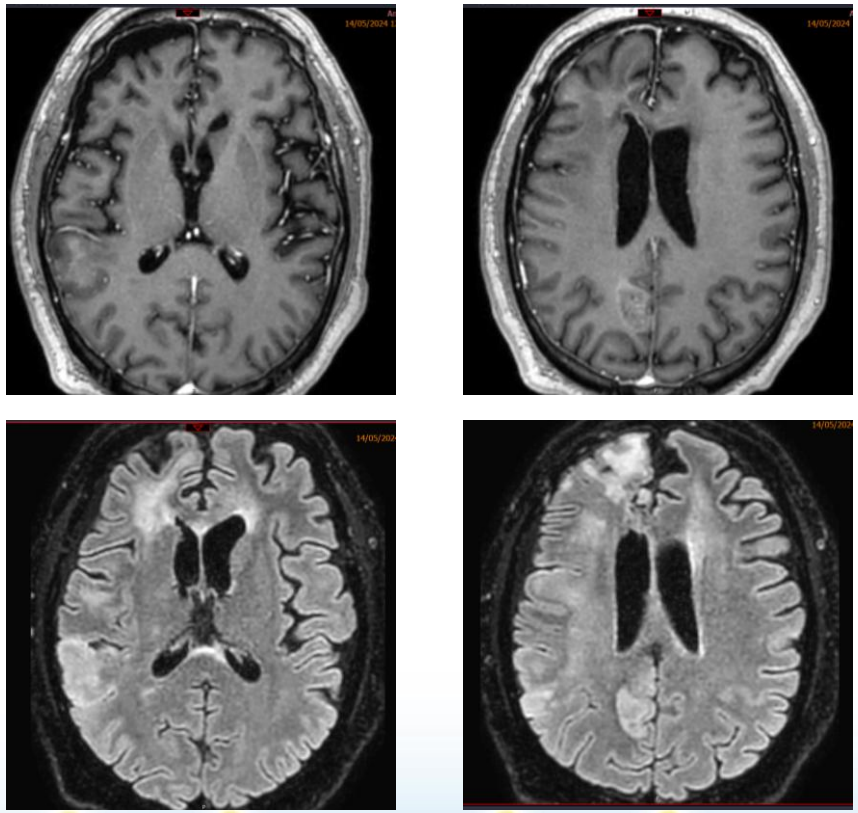


¿?

BT RADS 1b

BT RADS 3b/3c

14/05/2022 Avastin. Clínicamente estable



A diferencia de otros criterios previos BT RADS :

1) No especifica como deben realizar se las medidas para determinar si hay un más o menos de un 25% de componente FLAIR o captación. Uni o bidimensionales, volumétricas. Seguir criterios RANO.

Muchas categorías no dependen sólo de la medida del tumor ya que hay ocasiones en los que determinar modificaciones del tumor es díficil e implementar una medida determinada puede tener mucha variabilidad.

2) No cuantifica el grado de respuesta, si es parcial o completa ya que el impacto clínico no es tan significativo.

3) Elimina algunos términos que podían ser confusos como pseudorespuesta o pseudoprogresión , o radionecrosis

Estos cambios aunque aparecen mayoritariamente en ventanas temporales pueden solaparse

4) No incluye las técnicas funcionales, en principio por la variabilidad institucional.

5) Facilita un informe estructurado que permite una mejor compresión del informe, con menos ambigüedades y más conciso y fácil de usar para investigación.

MRI OF THE BRAIN WITHOUT AND WITH IV CONTRAST
CLINICAL INDICATION: brain tumor
Tumor Type & Mutations: [tumor type]
Surgical history: [surgical history]
Radiation history: [radiation history]
Relevant Medications: [medications]
TECHNIQUE: Detailed description of technique tailored to institution/examination.
COMPARISON: [last comparison date]
FINDINGS:
TUMOR:
Location: [tumor location]
FLAIR:
[change in FLAIR at primary tumor site]
[presence of new sites of FLAIR abnormality]
Enhancement:
[change in enhancement at primary tumor site]
[presence of new sites of enhancement]
Perfusion: [perfusion findings, if performed]
Diffusion: [diffusion findings]
Posttreatment changes: [brief description of other postsurgical findings]
OTHER:
[presence of acute infarction]
[presence of new/significant hemorrhage]
[hydrocephalus]
[herniation]
[presence of new/unexpected fluid collection]
IMPRESSION:
1. [Brain tumor] status posttreatment. [brain tumor surveillance score]
2. [Other relevant findings]

LII Reunión Anual SOCIEDAD ESPAÑOLA DE NEURORRADIOLOGÍA
SAN SEBASTIÁN
7 - 9 de noviembre de 2024
S.E.N.R Sociedad Española de Neurorradiología

MRI OF THE BRAIN WITHOUT AND WITH IV CONTRAST

history

CLINICAL INDICATION: [imported history]

Tumor Type & Mutations: [fill-in:tumor type]
Surgical History: [fill-in:last surgery date]
Radiation History: [fill-in:radiation completion date]
Relevant Medications: [fill-in:medications (avastin or steroids)]

technique

TECHNIQUE:
Pre-contrast sagittal and axial T1-w, and axial T2-FLAIR, GRE, and diffusion-w sequences of the brain with ADC maps. [Perfusion or spectroscopy if present] Post-contrast axial fat-saturated T2-w and T1-w, and sagittal volumetric T1-w images of the brain with axial and coronal reformations. Intravenous contrast material was administered for the examination.

COMPARISON: [<None.>]

FINDINGS:

TUMOR:
Location: [fill-in:location]

FLAIR

FLAIR:
[No change in extent of nonenhancing FLAIR abnormality.] [fill-in:Additional flair description] [No new sites of FLAIR abnormality.]

Enh

Enhancement:
[No change in extent of enhancing component at primary site.] [fill-in:Additional enhancement description] [No new sites of enhancement.]

Dif

Diffusion:
[No diffusion abnormality to suggest hypercellular tumor.]

Per

Perfusion (only in studies with perfusion):
[No evidence of abnormal hyperperfusion (rCBV).]

Spectroscopy (only in studies with spectroscopy):
[<Normal metabolite ratios.>]

Posttreatment changes:
[<Expected post treatment changes are noted.>]

Other

ADDITIONAL FINDINGS:
Infarction: [No acute infarction.]
Extra-axial Collection: [<No unexpected fluid collection.>]
Ventricular System: [No hydrocephalus.]
Major Intracranial Flow Voids: [<Normal.>]
Osseous Structures: [<Expected marrow signal.>]

Other

Included Orbits: [<Normal.>]
Paranasal Sinuses: [Predominantly clear.]
Tympanomastoid Cavities: [<Normal>].

Legend

Legend
0 - New baseline, incomplete study, or otherwise unable to categorize
1a - Improvement in imaging findings suspected to reflect decreasing tumor burden and/or treatment effect
1b - Improvement in imaging findings potentially due to effect from medications such as steroids or initiating avastin

2 - No appreciable change from the prior

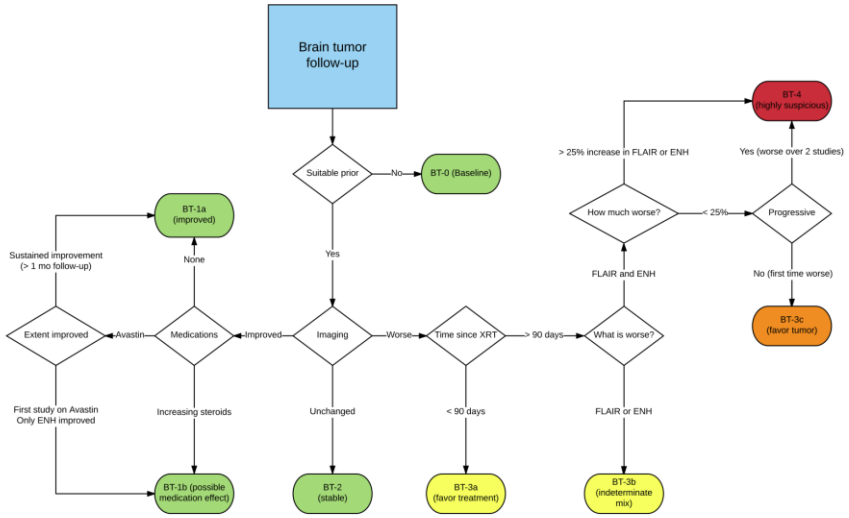
3a - Worsening imaging findings favored to represent treatment effects, including radiation therapy and medications
3b - Worsening imaging findings favored to represent an indeterminate mix of treatment effect and tumor worsening
3c - Worsening imaging findings favored to represent increasing burden of tumor

4 - Worsening of imaging findings highly suspicious for tumor progression

---

Impress

IMPRESSION:
1. [Glioblastoma/astrocytoma/oligodendroglioma] status post treatment. [No appreciable change in tumor compared to the prior study (Category: BT-2).]
2. [<Otherwise expected post-treatment findings.>]



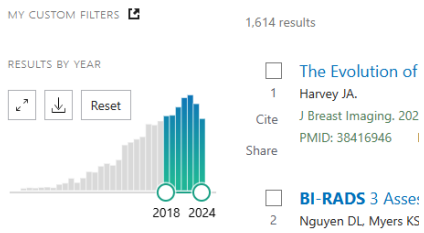
BT RADS.com

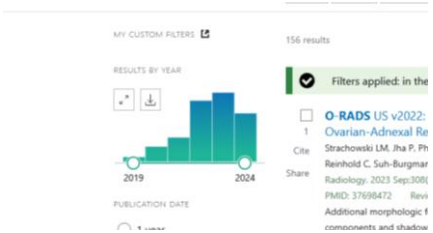
LII Reunión Anual SOCIEDAD ESPAÑOLA DE NEURORRADIOLOGÍA

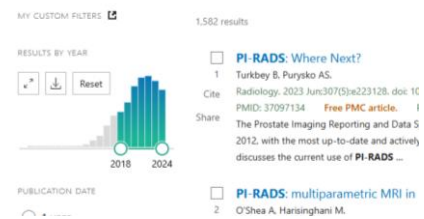
SAN SEBASTIÁN

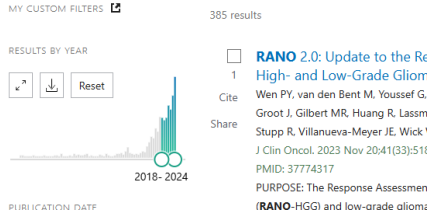
7 - 9 de noviembre de 2024

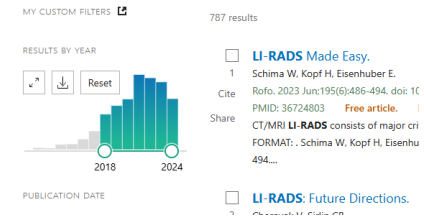
S.E.N.R Sociedad Española de Neurorradiología

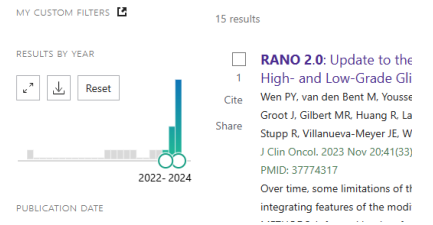


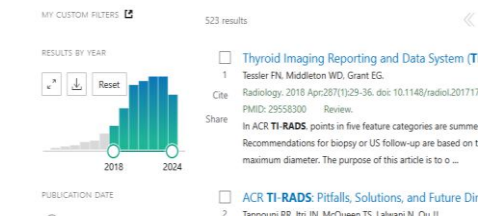


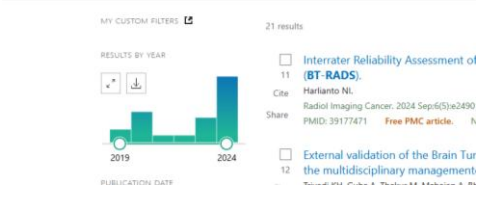


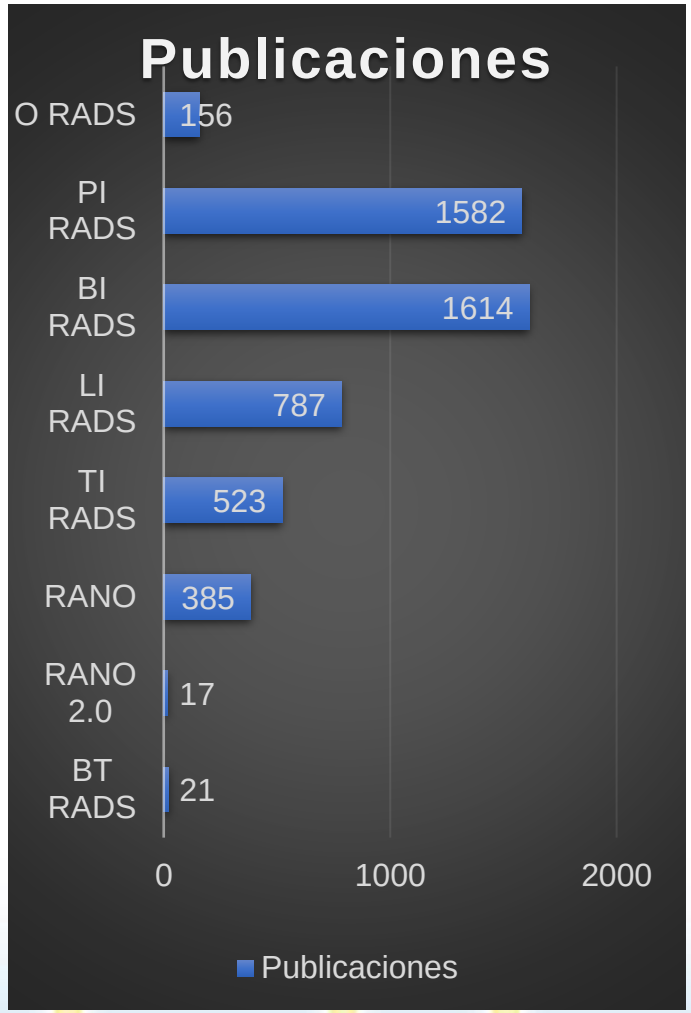






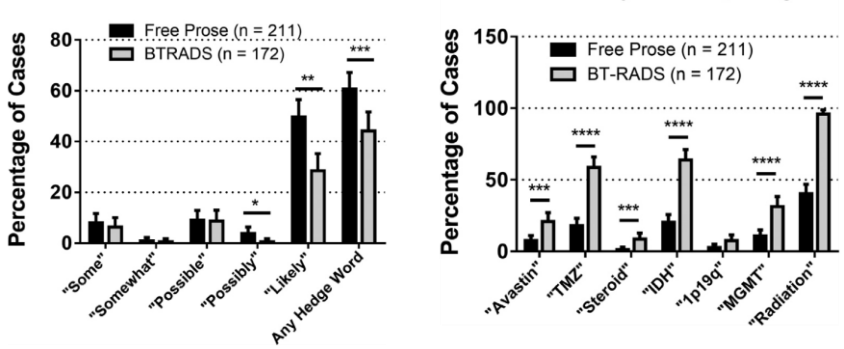


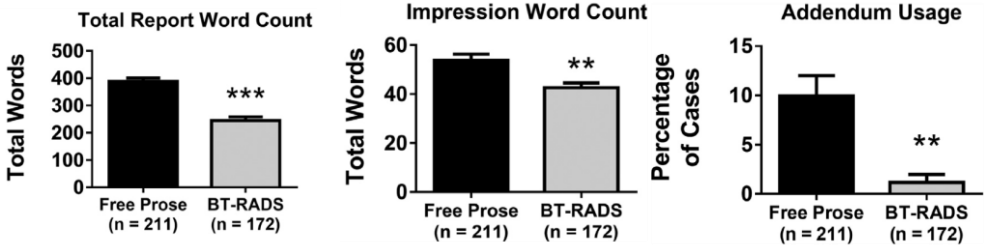




Claridad del informe

History Words	Hedge Words
1p/19q	Likely
Avastin	Possible
IDH	Possibly
MGMT	Some
Radiation	Somewhat
Steroid	
Temozolomide (TMZ)	





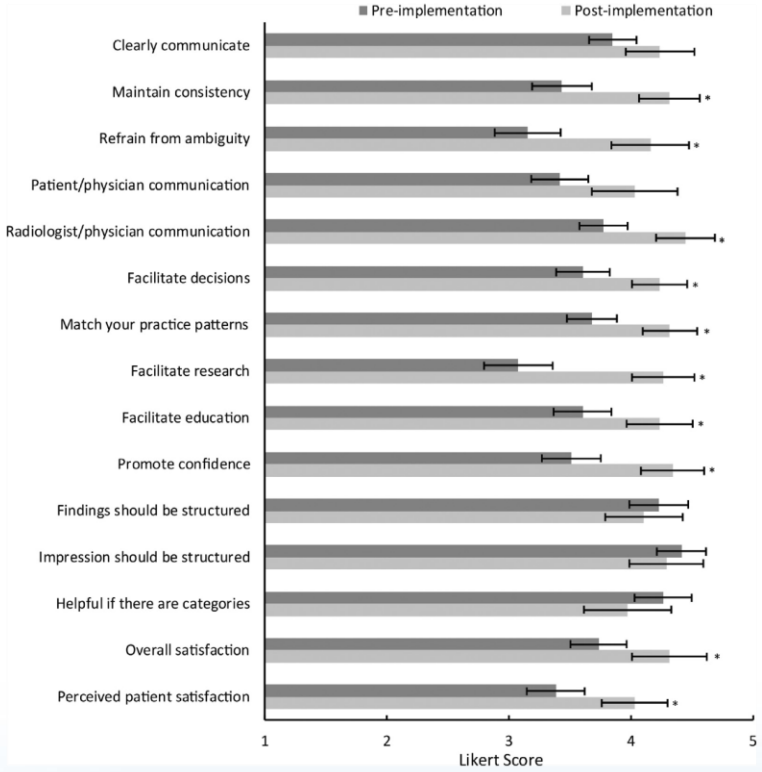
- Mejoría en la consistencia
- Disminución de la ambigüedad
- Informes más claros
- Mejor comunicación con clínicos/pacientes

Zhang et al 2019. https://doi.org/10.1016/j.acra.2019.07.028

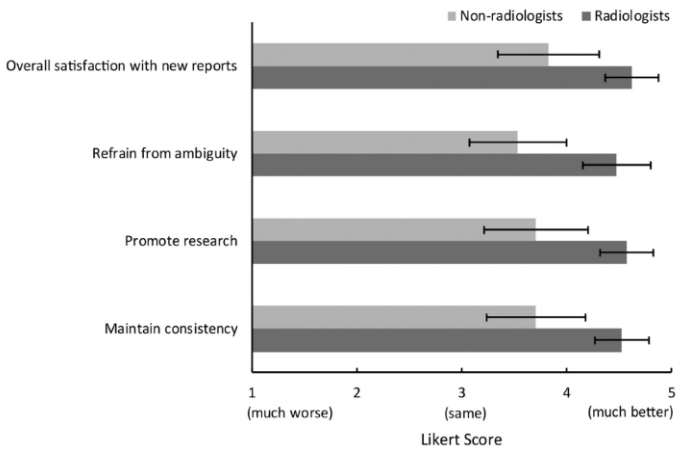
Cuestionario incorporación BT RADS

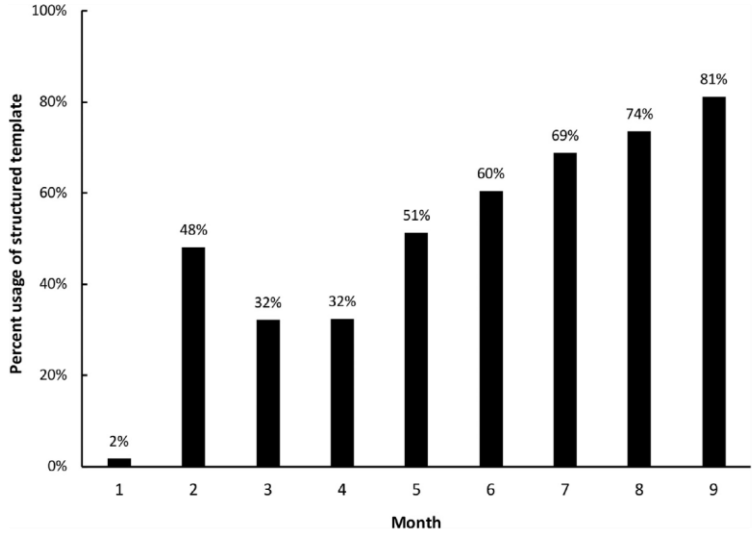
	All	Radiologist	Nonradiologist	*p* value
How well do the current radiology reports				
Clearly communicate the relevant findings	3.9	3.7	4.0	0.0587
Maintain consistency	**3.4**	**3.2**	**3.7**	0.0841
Refrain from ambiguity	**3.2**	**2.9**	**3.4**	0.0979
Promote clear communication between patient and physician	**3.4**	**3.1**	**3.7**	**0.0078**
Promote clear communication between radiologist and ordering physician	**3.8**	**3.5**	**4.1**	**0.0020**
Facilitate decision-making for treatment	**3.6**	**3.3**	**3.9**	**0.0042**
Match your practice patterns	**3.7**	**3.4**	**4.0**	**0.0062**
Facilitate research	**3.1**	**2.5**	**3.7**	**<0.001**
Facilitate trainee (resident and fellow) education	**3.6**	**3.3**	**3.9**	**0.0086**
Promote confidence in report findings	**3.5**	**3.2**	**3.9**	**0.0057**
How strongly do you agree with the following statements				
Finding sections should adhere to a structured format	*4.2*	4.3	4.1	0.3785
Impression sections in radiology reports should adhere to a structured format	*4.4*	4.4	4.4	0.7733
It would be helpful if report impressions provided categories which corresponded to suggested management decisions	*4.3*	4.6	**3.9**	**0.0035**
Overall satisfaction				
Overall, how satisfied are you with the primary brain tumor MRI reports?	**3.7**	**3.5**	4.0	**0.0264**
Overall, what is your perception of patient satisfaction with brain tumor MRI reports?	**3.4**	**3.1**	**3.6**	**0.0378**
What is your overall level of trust in the information contained in radiology reports for MRIs on brain tumor patients?	**3.9**	**3.7**	4.2	**0.0345**

Values are based on a 5-point Likert scale (1-Never, 2-Rarely, 3-Sometimes, 4-Often, 5-Always). Values in bold are less than 3.5 and in italic are greater than 4. *p* values are for comparison between radiologists and nonradiologists ($p < 0.05$ is significant; bold).



Gore et al 2019. Acad Radiol 2019; 26:974À980. https://doi.org/10.1016/j.acra.2018.12.023





- Los **residentes** tienen más confianza cuando se enfrentan al caso con este esquema de informe frente al texto libre
- La **formación** es más sencilla
- Se facilita el uso para **investigación**

Concordancia interobservador

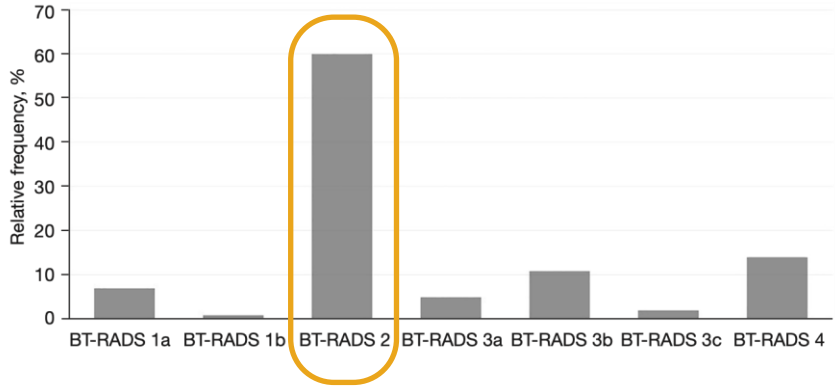


Table 2 Interrater agreement

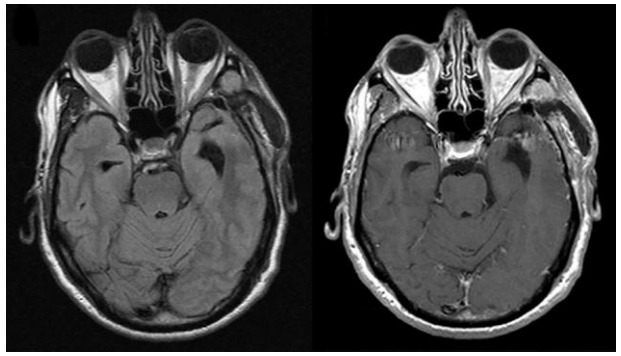
Rate of agreement	Percentages	k	95% CI	Level of agreement
All cases	82%	0.70	0.62–0.78	Substantial agreement
Astrocytoma grade 4	82%	0.70	0.60–0.80	Substantial agreement
Astrocytoma grade 3	61%	0.51	0.39–0.64	Moderate agreement
Astrocytoma grade 2	92%	0.78	0.33–1.00	Substantial agreement
Oligodendroglioma grade 3	90%	0.78	0.57–0.99	Substantial agreement
Oligodendroglioma grade 2	50%	0.32	0.03–0.61	Slight agreement
All cases: RAD *vs.* NEURORAD	91%	0.86	0.74–0.98	Almost perfect agreement
All cases: RES *vs.* NEURORAD	80%	0.66	0.57–0.76	Substantial agreement

Parrillo et al 2023. Quant Imaging Med Surg 2023;13(11):7423-7431

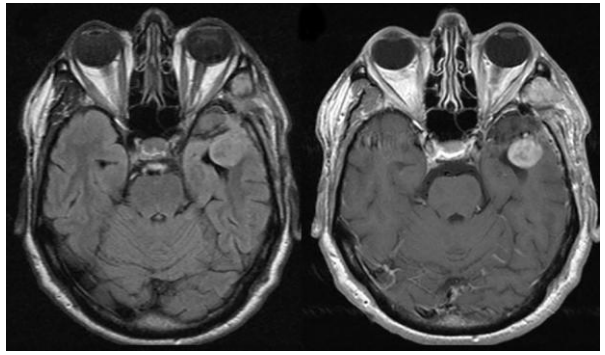
- En el 18% casos la disparidad hubiera implicado un cambio en el manejo
- Algunos subtipos tienen peor concordancia
  - N pequeña
  - Discordancia entre grado y captación

Concordancia	4 RAD	3 RAD	2 RAD	0 RAD
	103/147 70%	25/147 17%	19/147 13%	0/147

Astro 4. Basal postquirúrgico



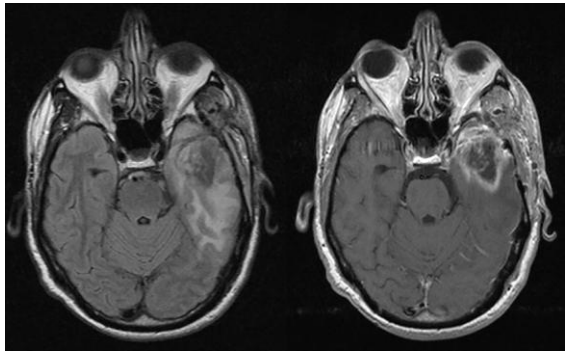
Un mes post cirugía



3c 50%

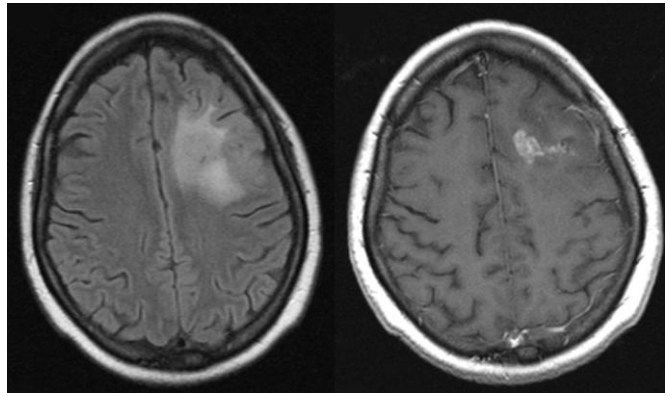
4 50%

2 meses post RDT

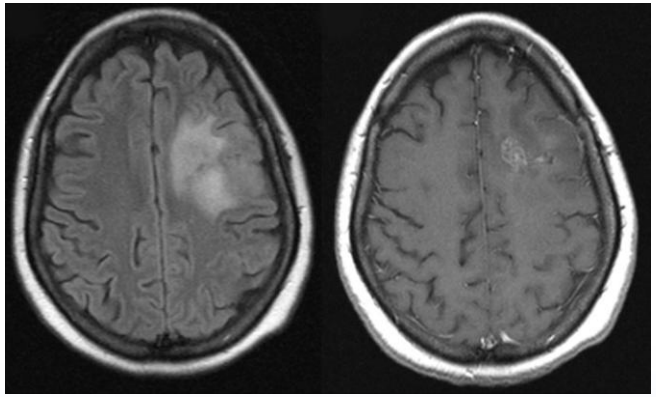


3a 100%

Oligo 2. Siete meses tras cirugía y 3 meses tras RDT



3 meses después



1a 75%

2 25%

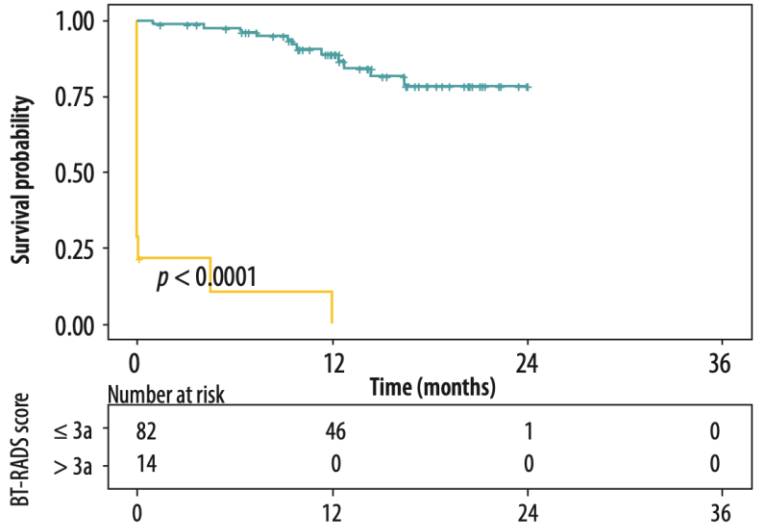
Parrillo et al 2023. Quant Imaging Med Surg 2023;13(11):7423-7431 |

Concordancia + OS

	RD1 vs. RD2*	RD1 vs. Consensus*	RD2 vs. Consensus*
Score 1a	70	70	75
Score 2	92.4	97	97
Score 3a	66.7	83.3	71.4
Score 3b	0	33.3	0
Score 3c	50	100	66.7
Score 4	60	100	75
Overall (average)	62.7	83.3	69.3
κ value (*p*-value)	0.67 ± 0.06 (< 0.001)	0.85 ± 0.04 (< 0.001)	0.79 ± 0.05 (< 0.001)

*All the numbers in the table represent percentages

BT-RADS score, *n* (%)	
0	4 (4)
1	9 (9)
2	67 (67)
3A	6 (6)
3B	1 (1)
3C	8 (8)
4	5 (5)



Trivedi 2024. Pol J Radiol 2024; 89: e148-e155. DOI: https://doi.org/10.5114/pjr.2024.136390

- Funciona mejor en los extremos
- Categoría 3 depende algo más de la experiencia o “intuición”
- Concordancia en las decisiones de manejo con comité del 90%

- ¿Valor Pronóstico?

Recurrencia HGG

Table 3
Frequency distribution of the BT-RADS categories by the 2 observers.

Category		Observer 1 N (%)	Observer 2 N (%)
BT-RADS 1	**1a**	6 (7.4)	5 (6.2)
	1b	2 (2.5)	5 (6.2)
BT-RADS 2	**2**	12 (14.8)	15 (18.5)
BT-RADS 3	**3a**	14 (17.2)	11 (13.6)
	3b	13 (16)	11 (13.6)
	3c	18 (22.2)	19 (23.5)
BT-RADS 4	**4**	16 (19.8)	15 (18.5)

BT-RADS: brain tumor reporting and data system.

Table 4
Validity of the BT-RADS for predicting recurrent high-grade glioma.

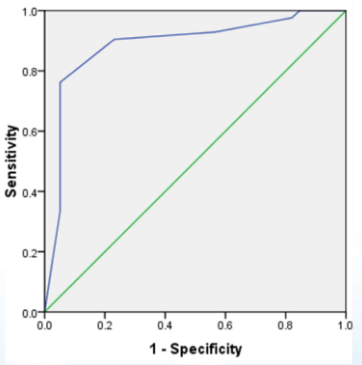
	Observer 1	Observer 2
AUC	0.887	0.923
Cut off	≥3b	≥3b
CI	0.807–0.967	0.856–0.990
Sensitivity	90.5 %	92.9 %
Specificity	76.9 %	84.6 %
PPV	80.8 %	86.6 %
NPV	88.3 %	91.7 %
Accuracy	83.9 %	88.9 %

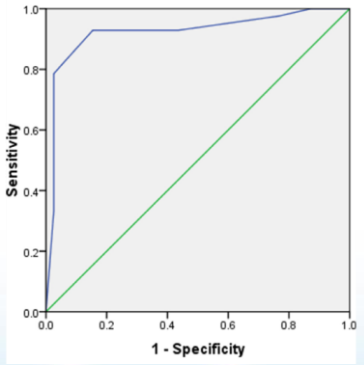
AUC: Area under curve, CI: confidence interval, PPV: positive predictive value, NPV: negative predictive value.

Table 5
Inter-reader agreement between the 2 observers of the different categories of BT-RADS.

Variable	Cohen's Kappa	Level of agreement	P value
BT-RADS 1			
- BT-RADS 1a	0.903	99 %	<0.001
- BT-RADS 1b	0.556	96 %	< 0.001
BT-RADS 2	0.574	89 %	<0.001
BT-RADS 3			
-BT-RADS 3a	0.858	96 %	<0.001
-BT-RADS 3b	0.511	88 %	< 0.001
-BT-RADS 3c	0.685	89 %	< 0.001
BT-RADS 4	0.721	91 %	<0.001
Total score	0.710	74 %	<0.001

BT-RADS: brain tumor reporting and data system.



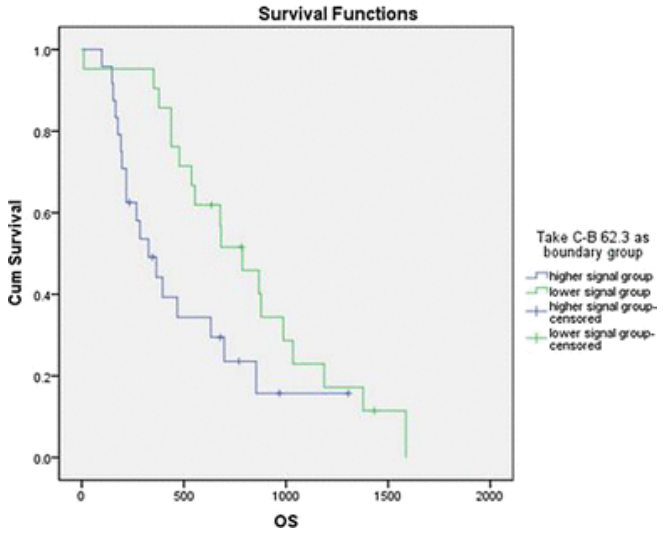


Ebaid et al 2024. https://doi.org/10.1016/j.neurad.2024.03.001

¿Y si incluimos otras variables de imagen ?

Increased signal intensity in FLAIR sequences in the resection cavity can predict progression and progression-free survival in gliomas

Nicolae Sarbu[a,], Laura Oleaga[b], Izaskun Valduvieco[c], Teresa Pujol[b], Joan Berenguer[b]*



Quan et al 2018. J Neurooncol 137, 631–638 (2018)

Table 4 Diagnostic performance of BT-RADS category 3 before and after addition of DWI and FLAIR signal within resection cavity

Parameters	Before adding DWI	After adding DWI	After adding DWI and FLAIR signal
AUC	0.706	0.780	0.819
True-positive findings (*n*)	10	11	12

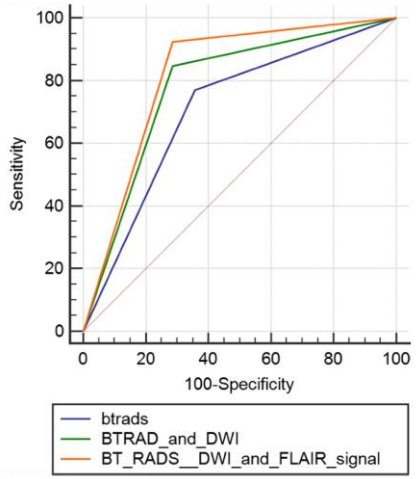


Table 3 Distribution of BT-RADS category 3 and ADC_{mean} among recurrent and non-recurrent glioma patients

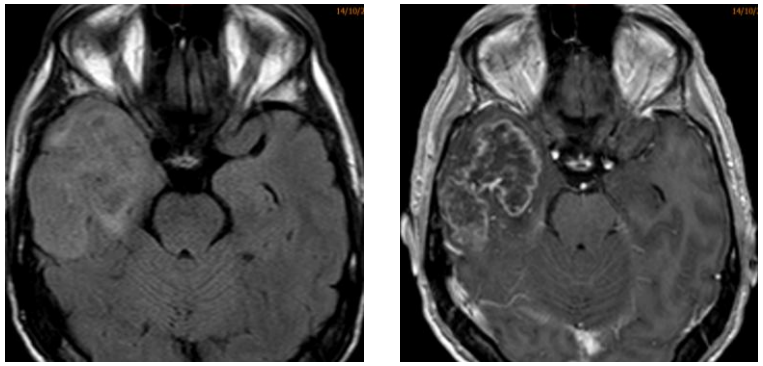
Variables	Number	Final diagnosis				*P*-value
		Recurrence		Non-recurrence		
		Number (%)	ADC value mean (range)	Number (%)	ADC value mean (range)	
BT-RADS 3a	2	0 (0)	0	2 (13.3)	1.5 (1.4–1.6) × 10^{-3} mm/s	< 0.001
BT-RADS 3b	20	9 (69.2)	0.9 (0.7–1.40) × 10^{-3} mm^2/s	11 (78.6)	1.2 (1–1.6) × 10^{-3} mm/s	
BTIRADS 3c	5	4 (30.1)	0.8 (0.7–0.9) × 10^{-3} mm^2/s	1(7.1)	1.1 × 10^{-3} mm/s	
Total	27	13(48.1)	0.9 (0.7–1.4) × 10^{-3} mm^2/s	14(51.9)	1.15 (1.04–1.6) × 10^{-3} mm/s	

Metwally et al 2023. Egypt J Radiol Nucl Med (2023) 54:52

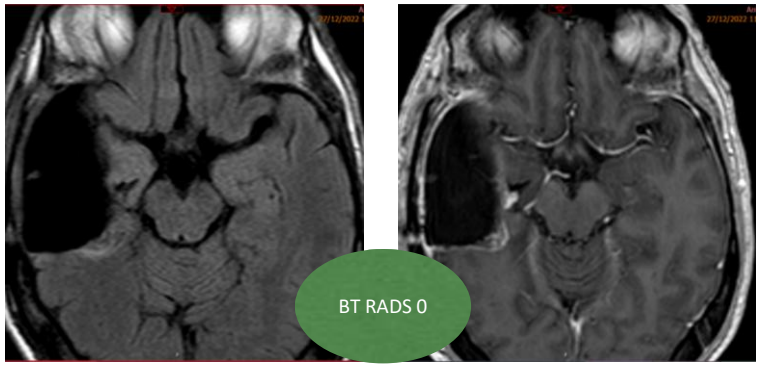
- Tres casos de ADC reducido por necrosis coagulativa

Varón 56. GB temporal derecho idh1 no mutado grado 4

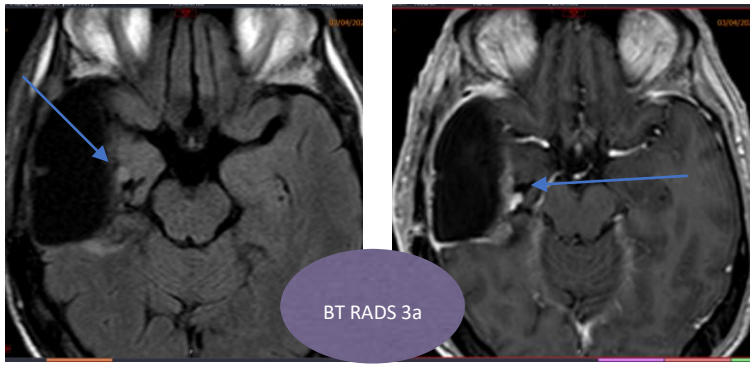
14/10/2022



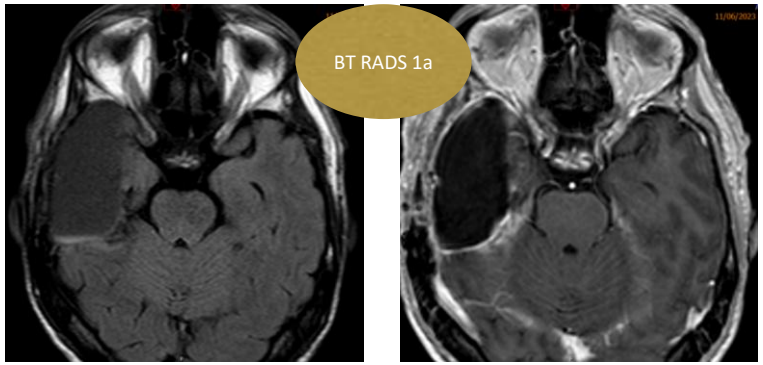
27/12/2022



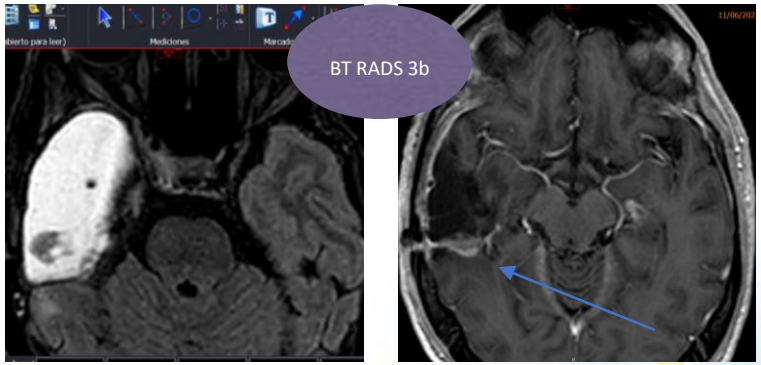
03/04/2023 Fin RDT 03/03/2023



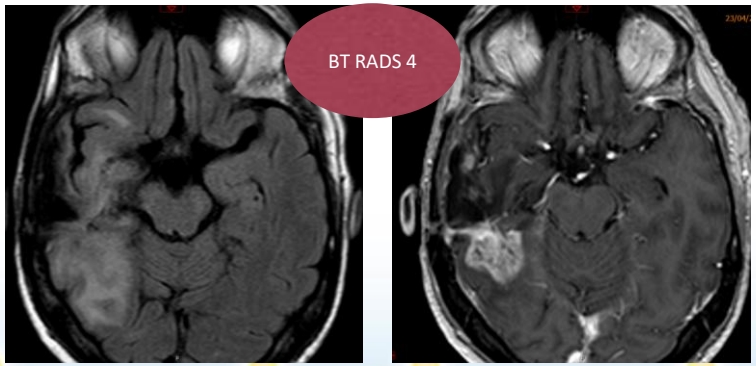
11/06/2023



27/11/2023 Estabilidad clínica



23/04/2024 Progresión clínica



¿Y si incluimos otras variables de imagen ?

Variables	Recurrence (n = 51)	Non-recurrence (n = 40)	*P* value	Cutoff	AUC
BT-RADS			< 0.001		0.76
3a	6 (11.8)	22 (55.0)			
3b	16 (31.4)	10 (25.0)			
3c	29 (56.8)	8 (20.0)			
$rCBV_{max}$	2.3 (1.9–2.7)	1.3 (1.1–1.6)	< 0.001	1.6	0.87
ADCmean ($\times 10^{-3}$ mm^2/s)	0.8 (0.7–1.0)	1.3 (1.2–1.4)	< 0.001	1.0	0.85

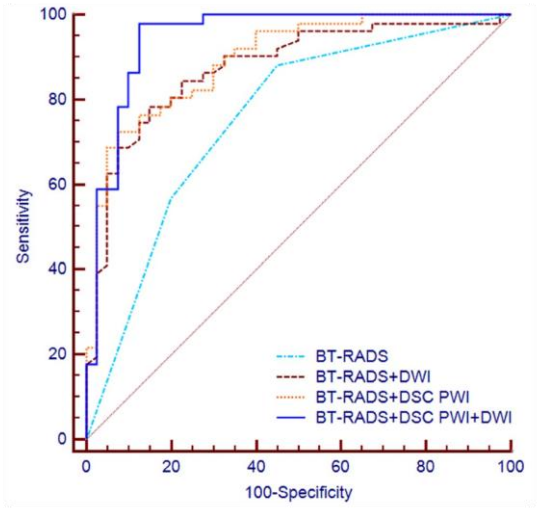
Data presented as median (IQR) or n (%)

BT-RADS Brain Tumor Reporting and Data System, $rCBV_{max}$ maximum relative cerebral blood volume, ADC_{mean} mean apparent diffusion coefficient, *AUC* area under the ROC curve

Table 3 The predictive value of each combination for tumor recurrence

Combinations	AUC (95%CI)	Accuracy	Sensitivity (95%CI)	Specificity (95%CI)	PPV (95%CI)	NPV (95%CI)
BT-RADS	0.76 (0.66–0.84)	0.74	0.88 (0.75–0.95)	0.55 (0.39–0.70)	0.71 (0.59–0.82)	0.79 (0.59–0.91)
BT-RADS + DSC	0.90 (0.81–0.95)	0.80	0.73 (0.58–0.84)	0.90 (0.75–0.97)	0.90 (0.76–0.97)	0.72 (0.57–0.83)
BT-RADS + DWI	0.88 (0.80–0.94)	0.80	0.78 (0.64–0.88)	0.83 (0.67–0.92)	0.85 (0.71–0.93)	0.75 (0.59–0.86)
BT-RADS + DSC + DWI	0.95 (0.88–0.98)	0.92	0.98 (0.88–0.99)	0.85 (0.70–0.94)	0.89 (0.77–0.96)	0.97 (0.83–0.99)

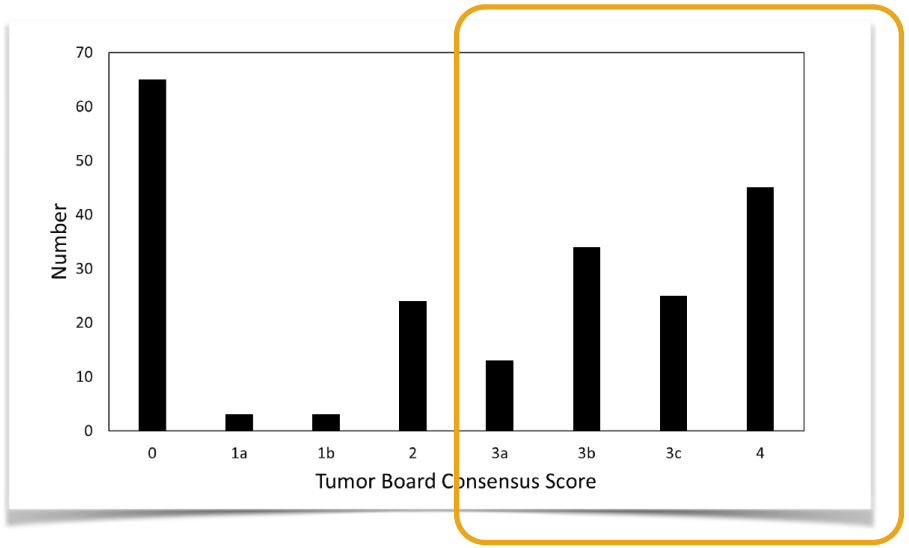
BT-RADS Brain Tumor Reporting and Data System, *DSC* dynamic susceptibility contrast, *DWI* diffusion-weighted imaging, *AUC* area under the ROC curve, *CI* confidence interval, *PPV* positive predictive value, *NPV* negative predictive value

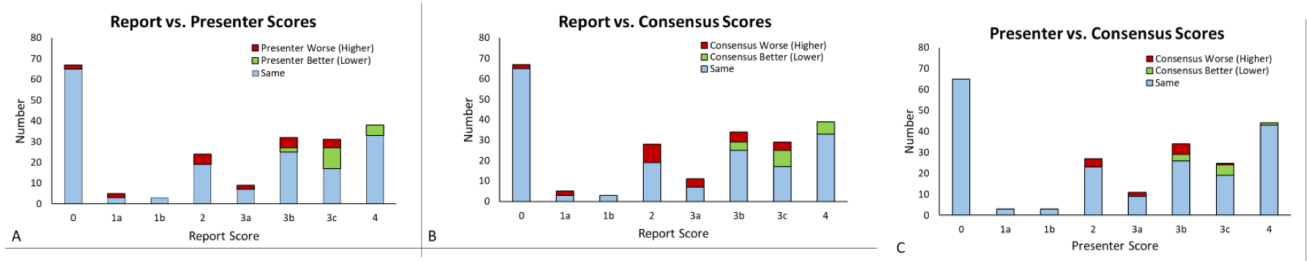


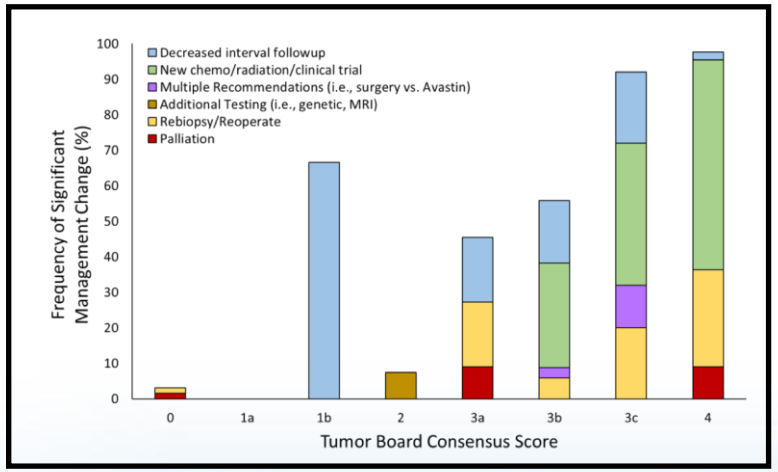
	BT RADS	DWI	PWI	BTRADS DWI	BTRADS PWI	BTRADS DWI/PWI
	0.76	0.85	0.87	0.88	0.90	0.92

Yang et al. 2019 https://doi.org/10.1007/s11060-019-03387-6

Comité de tumores







Abidi et al. Tomography 2023, 9, 859–870. https://doi.org/10.3390/tomography9020070

¿Recomendación 1 b y 3 a/b?

PROS

- Simple
- “Fácil” de aplicar
- Reduce la ambigüedad del texto libre
- Mejora la comunicación
- **Recomendación de manejo**

CONS

- Separación categorías y recomendaciones de manejo es un poco simplista
- Determinación de crecimiento es “libre”
- **No incorpora secuencias funcionales**
- **No introduce características moleculares de los tumores**

¿Capacidad pronóstica?

Categoría 3

Recurrencia HGG

Hallazgo	Lesiones nuevas	FLAIR	Efecto de masa	Contraste	BT RADS
K	0,89	0.67	0.69	0.54	0.75

PROGRESIÓN	1a	1b	2	3a	3b	3c	4
	0-18%	10-25%	14-31%	25-42%	61-89%	75-91%	91-100%

Questions	Score
Reporting of post-treatment glioma imaging should follow a structured format	24
Radiology reports following BT-RADS clarify the significant findings	17
The structured reporting template of BT-RADS maintains the consistency of the reports	24
The application of BT-RADS constrains radiologists' and clinicians' communication	23

Questions	Score
The application of BT-RADS enables a more understandable and concise report	21
Much training is required before the application of BT-RADS	21
BT-RADS is an easily applicable system by both junior and senior radiologists	16
The application of BT-RAD needs highly experienced radiologists	21
Reporting using BT-RADS helps trainee education	20
Using a structured reporting template of BT-RADS saves time for radiologists	18
BT-RADS promotes confidence in the final categorization of post-glioma imaging	16
BT-RADS enables the determination of appropriate management strategy	19
Some post-glioma imaging was difficult to interpret by BT-RADS	22
BT-RADS is equivalent to other ACR reporting systems, such as BI-RADS and LI-RADS	14
The current BT-RADS system is satisfied	15
BT-RADS needs further modification	24
The application of BT-RADS should be encouraged	25

Almaki et al 2024. Biomedicines 2024, 12, 887. https:// doi.org/10.3390/biomedicines12040887