



C R E A T I N G T H E S T A N D A R D

Are you getting all the information
you need from your MRI?

Is your doctor using the most advanced
imaging technology to help you?

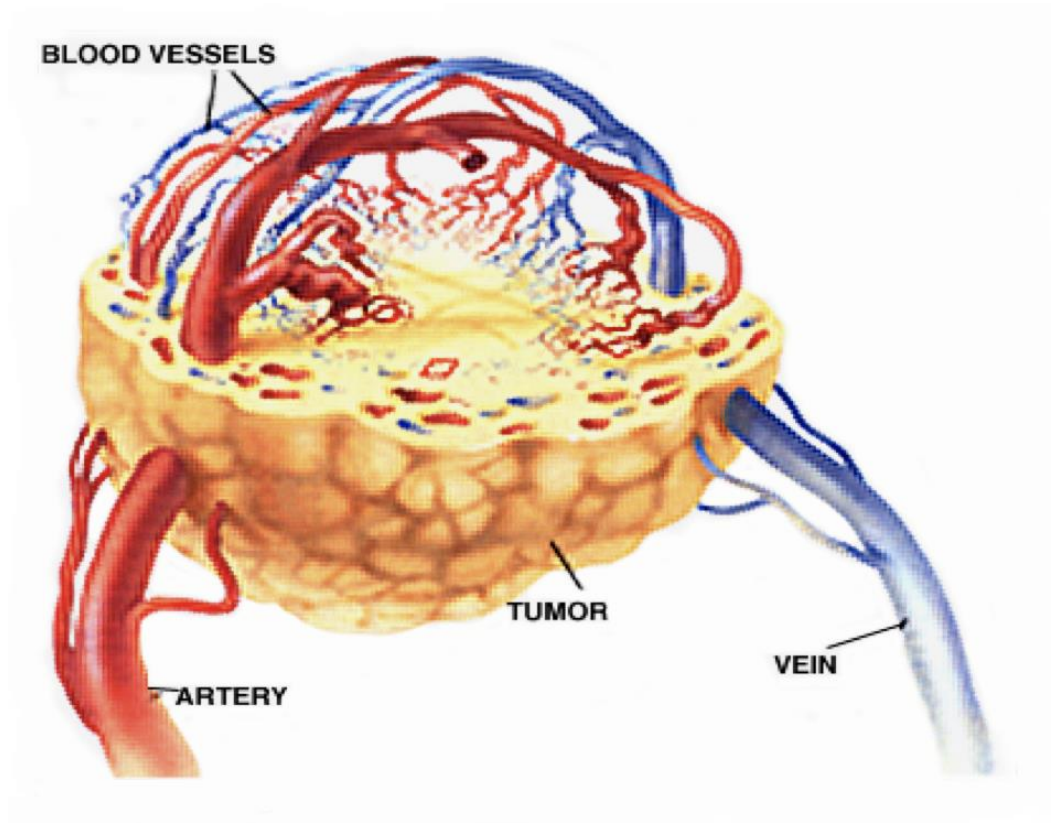
Tumors 101

Brain tumors rely on the formation of new blood vessels (angiogenesis) to grow and become more aggressive.

Conventional MRIs do not show or measure the presence and extent of tumor blood vessels ("blood volume").

Measures of cerebral blood volume (CBV) have consistently provided information about brain tumor growth and treatment; it is the most clinically validated advanced technique.^[1]

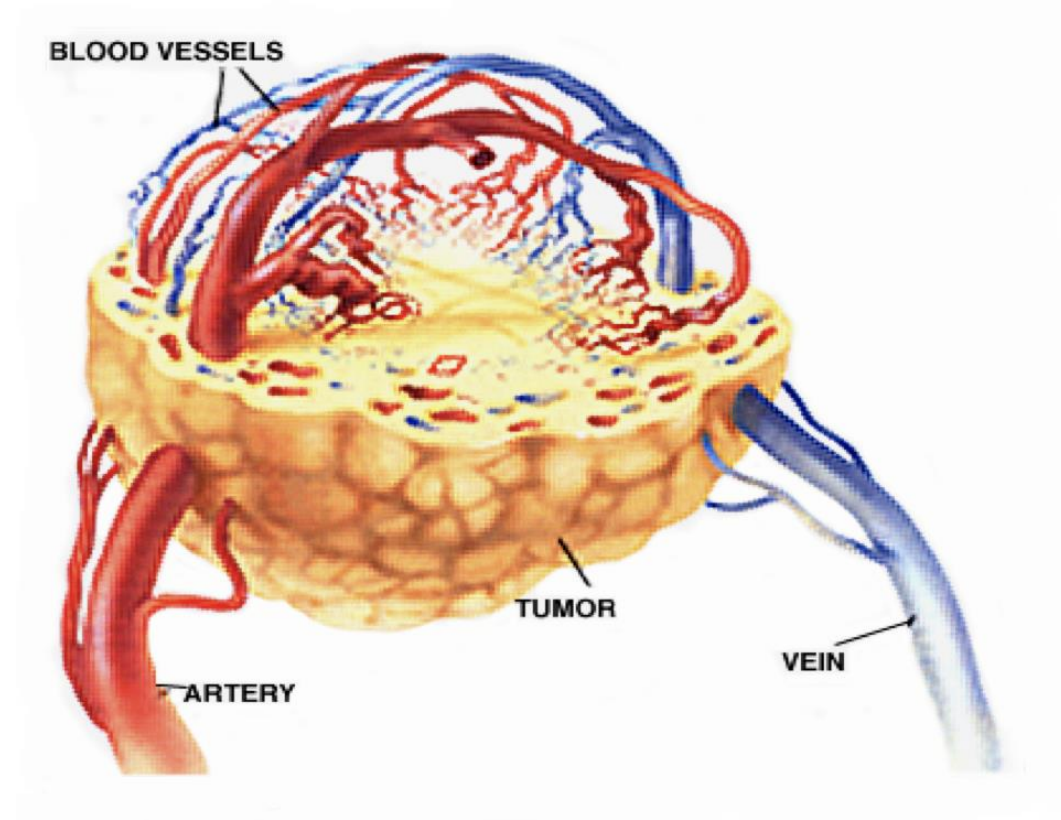
[1] Front. Oncol., 03 March 2022 | <https://doi.org/10.3389/fonc.2022.810263>



Source: RK Jain, Sci. Am. 271(1):58 (1994)

Tumors 101

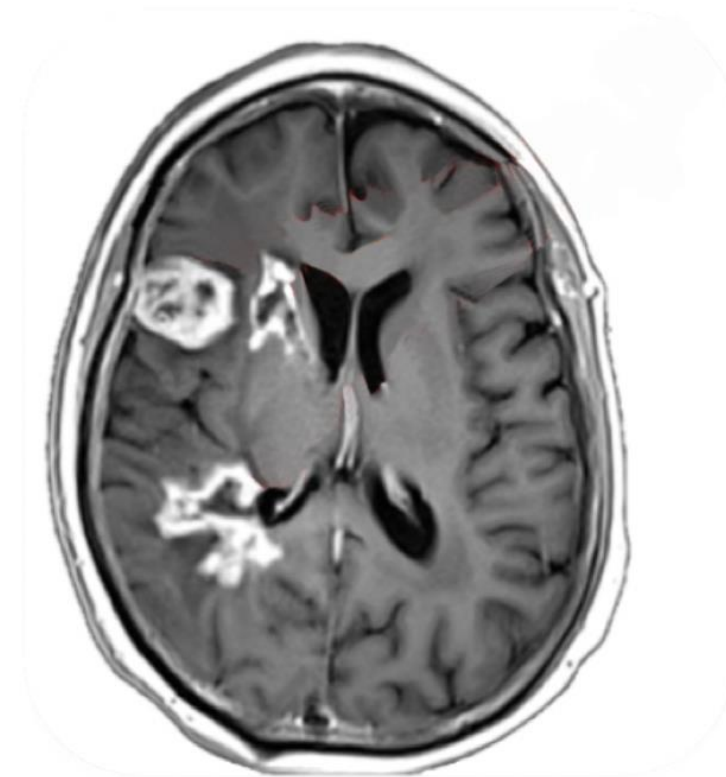
IB Neuro accurately measures cerebral blood volume (CBV) from MRI data (perfusion MRIs) and provides information to help your doctor make a more accurate diagnosis of your tumor and provides more accurate and personalized treatment monitoring.



Source: RK Jain, Sci. Am. 271(1):58 (1994)

Our strength.

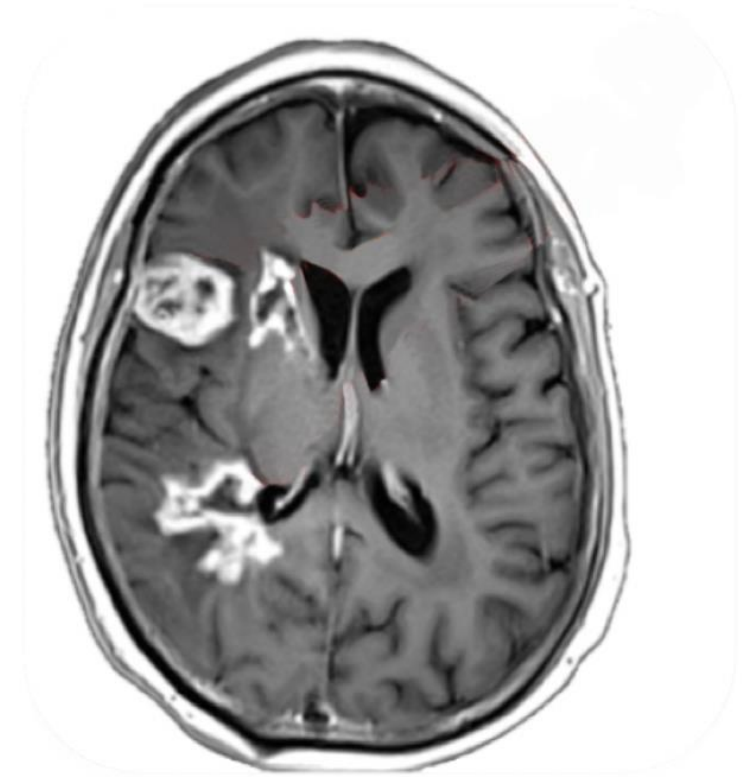
Commonly acquired images for brain exams are called **“T1-weighted”**. These gray-scale images are acquired with, and without, a contrast agent. The contrast agent helps to identify problem areas by making them appear brighter on MR images. However, after treatments such as radiation therapy (RT), the treated non-tumor tissue can also appear bright on these images. This is called “post-treatment radiation effect” (PTRE).



Pseudoprogression

Radiographic phenomenon – area of contrast enhancement and edema appears worse but is actually an inflammatory response to treatment and not progression of tumor.

Not all increases in contrast and edema represents active growing tumor.

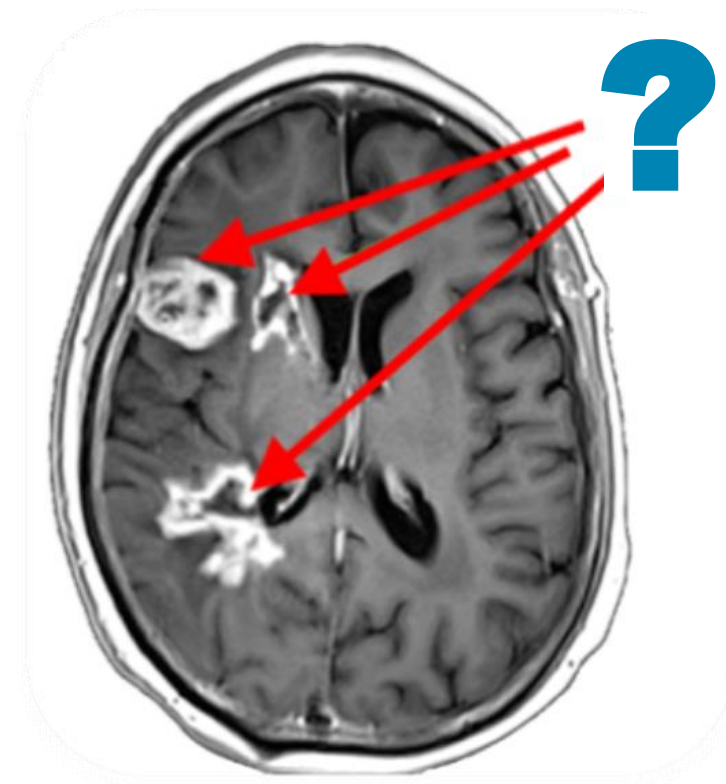


Our strength.

Sometimes, patients undergo surgery unnecessarily because clinicians cannot tell if the bright areas are tumor (cancer) or PTRE (dead tissue).

To confirm diagnosis, the “gold standard” is to surgically obtain a tissue biopsy sample and send it to the lab for confirmation. But where should the biopsy sample be taken? If the sample is taken in an area of PTRE, it will result in an error called “under-grading” and the treatment therapy may not be as aggressive as it should be. For some cancers, this sampling error occurs 30% of the time^[1]. IB Neuro accurately identifies active tumor that can serve as the biopsy targets.

[1] <https://pubmed.ncbi.nlm.nih.gov/15597757/>

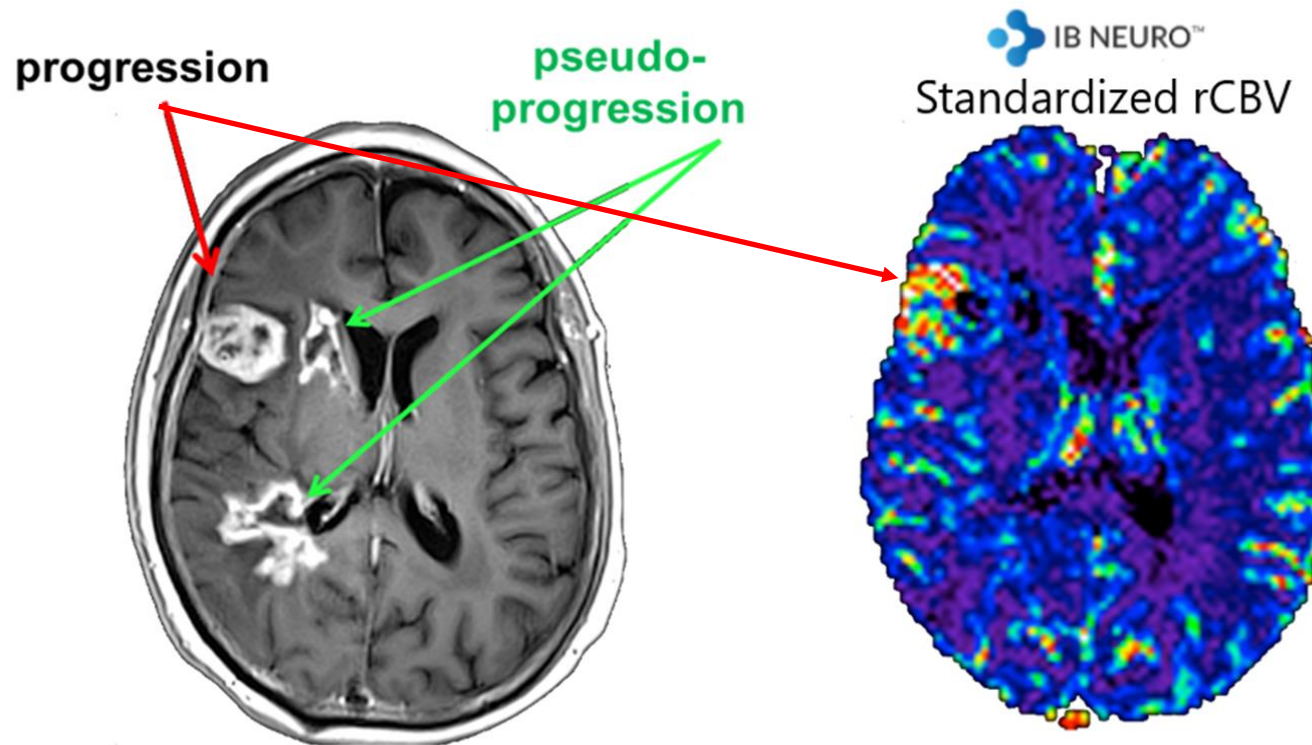


Are the enhancing regions
Tumor? or **PTRE?**

Our strength.

Does your doctor know that IB Neuro has been proven to reliably distinguish between tumor and PTRE or “pseudo-progression”?

IB Neuro also accurately identifies areas of most aggressive tumor growth, serving to guide the locations for surgical biopsy

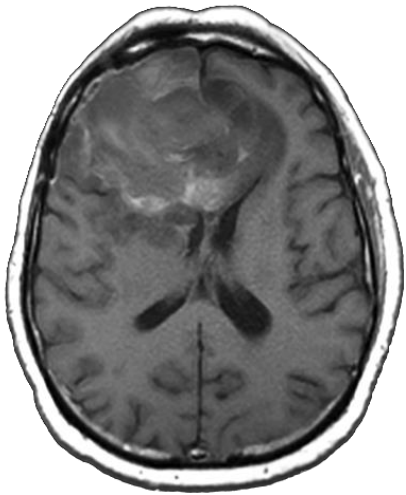


MR Perfusion

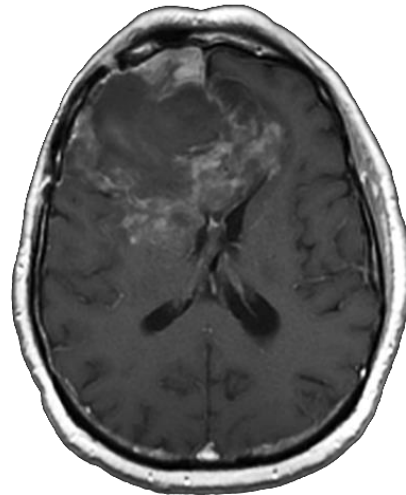
- MR Perfusion predicts tumor grade and can guide initial intervention
- MR Perfusion differentiates pseudo-progression from early tumor progression
- MR Perfusion can predict long term responders to bevacizumab
- MR Perfusion can predict treatment response as well as progression earlier than standard MR imaging

Eliminate guessing. Reduce errors.

Where are TRUE regions of enhancement?



T1



T1 + C

Expert readers disagree up to 50-60%

Schmainda et. al. American Journal of Neuroradiology 40(7):1132 (2019)

Along with PTRE, post-surgical blood products can also enhance (appear bright) on T1-weighted images, even before giving contrast agent.

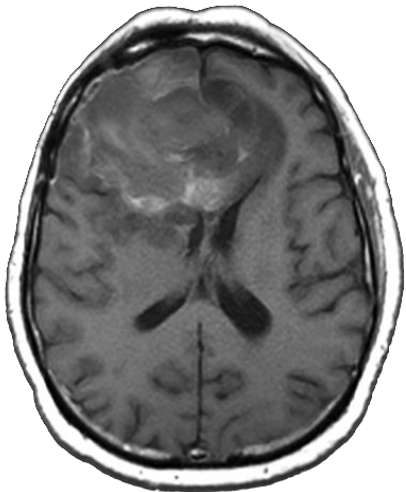
These issues make accurate determination of the tumor region challenging for even the most experienced neuroradiologist.

In fact, it has been reported that radiologists can disagree up to 50-60% of the time!

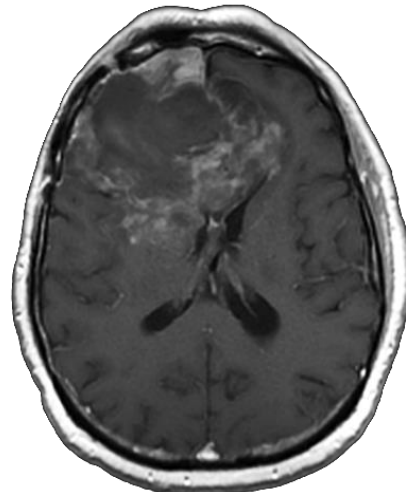
Eliminate guessing. Reduce errors.



Where are TRUE regions of enhancement?



T1

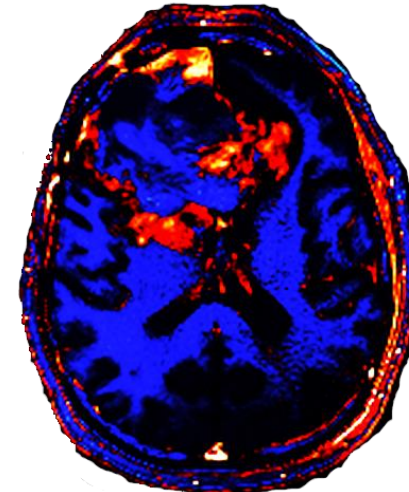


T1 + C

Expert readers disagree up to 50-60%

Schmainda et. al. American Journal of Neuroradiology 40(7):1132 (2019)

Here



IB's Delta T1 maps

ACRIN 6677 Schmainda et al.,
NeuroOncology (2015)

IB's Delta T1 maps remove this confusion. They detect very subtle regions of enhancement not visible on standard imaging, and remove bright signal caused by non-tumor tissue such as post-surgical blood products.

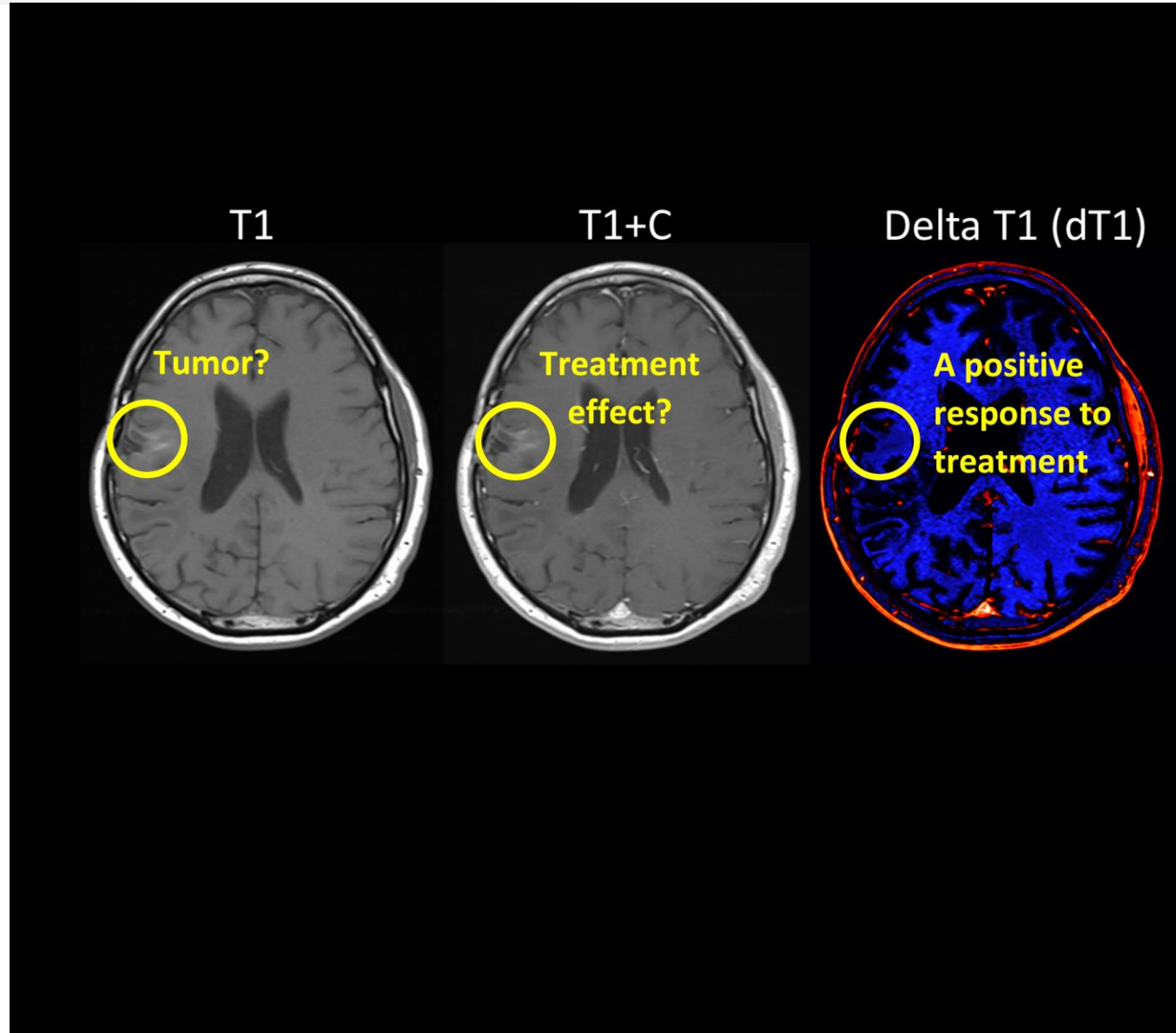
These maps are created automatically from information already available as part of your MRI. There is no extra imaging time or additional scans required.

Eliminate guessing. Reduce errors.



Radiologists read many exams during the course of a day.

IB Delta T1 maps provide an easy, objective, and quantitative image showing TRUE contrast enhancing regions.



Eliminate guessing. Reduce errors.



Time matters...

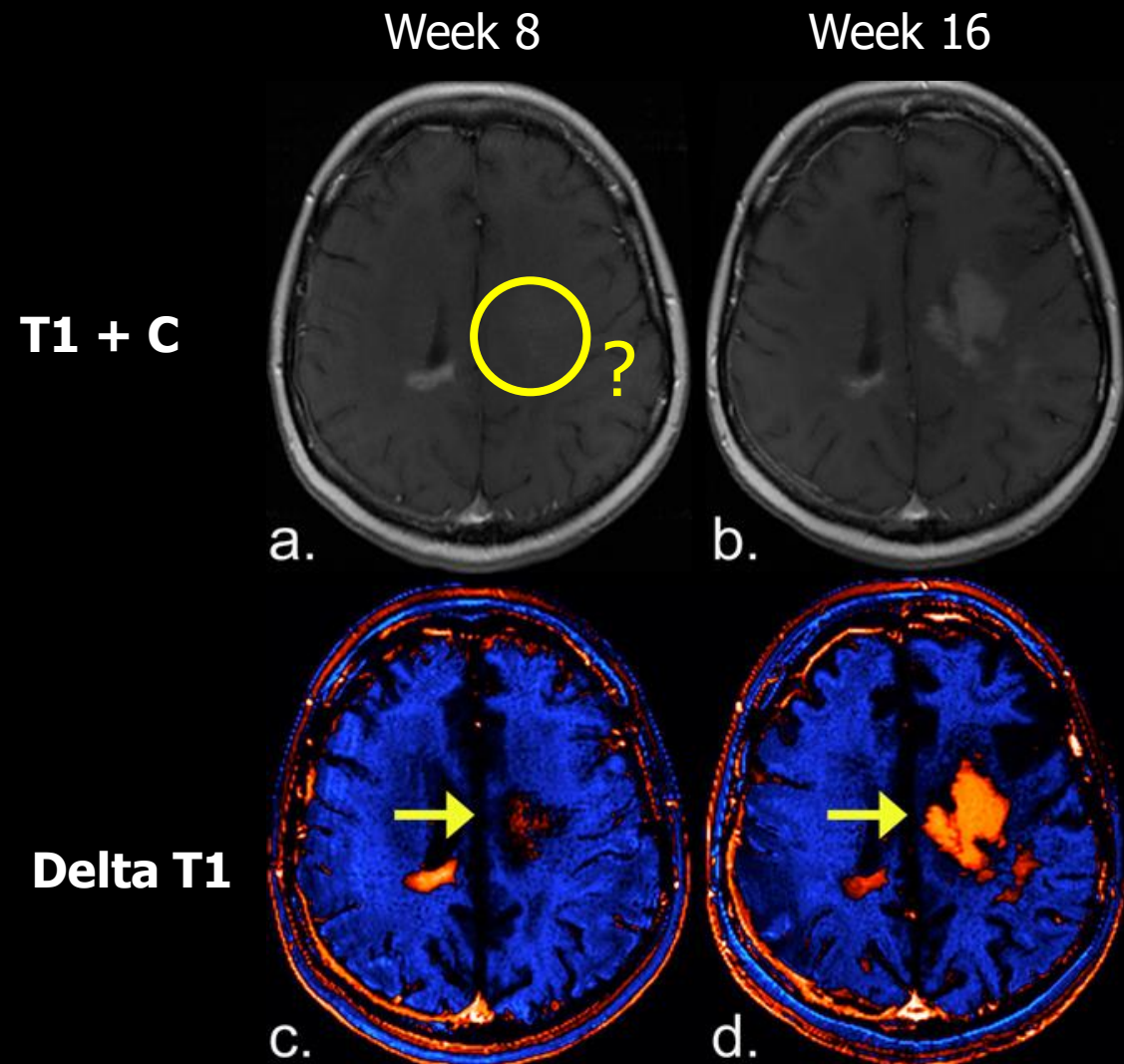
IB Delta T1 Maps may detect progression earlier

ORIGINAL RESEARCH
ADULT BRAIN

Quantitative Delta T1 (dT1) as a Replacement for Adjudicated Central Reader Analysis of Contrast-Enhancing Tumor Burden: A Subanalysis of the American College of Radiology Imaging Network 6677/Radiation Therapy Oncology Group 0625 Multicenter Brain Tumor Trial

K.M. Schmainda, M.A. Prah, Z. Zhang, B.S. Snyder, S.D. Rand, T.R. Jensen, D.P. Barboriak, and J.L. Boxerman

AJNR Am. J. Neuroradiol 40:1132-39 (2019)



Delta T1 Maps

- Helps differentiate TRUE regions of contrast enhancement
- Quantitative (compare changes over time)
- Saves time and reduces disagreement between radiologists
- Predictive of treatment response

Advanced imaging.

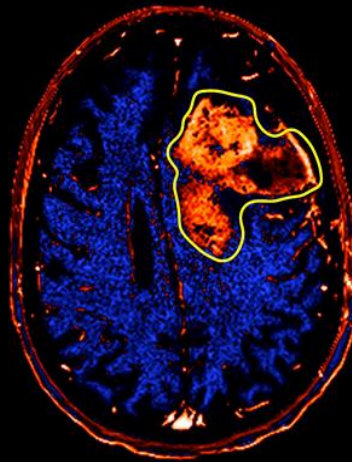


P R O V E N • A U T O M A T E D • Q U A N T I T A T I V E

Additional images can be generated to show if a tumor is responding to treatment. [1, 2]

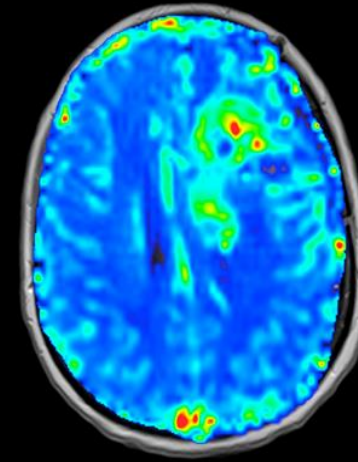
This information can be used by your treatment team to ensure you are receiving the best treatment as early as possible.

Delta T1



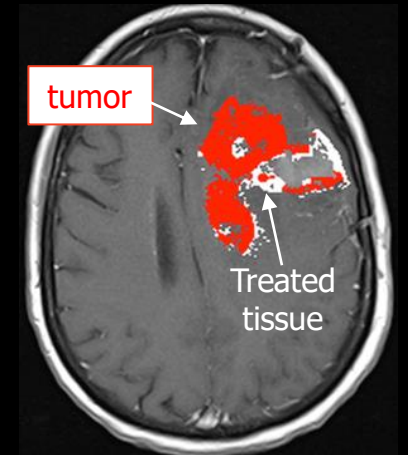
"True"
Enhancement

sCBV



Tumor with more
blood vessels

sFTB



tumor
Treated
tissue

Fractional tumor
burden (FTB)

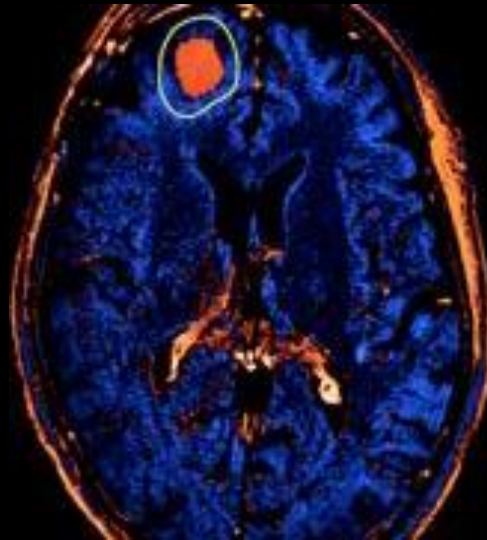
[1] Iv M, Liu X, Gentles AJ, et. al. American Journal of Neuroradiology September 12, 2019. doi: 10.3174/ajnr.A6211

[2] Hu Leland et. al. American Journal of Neuroradiology March 2020, DOI: <https://doi.org/10.3174/ajnr.A6486>

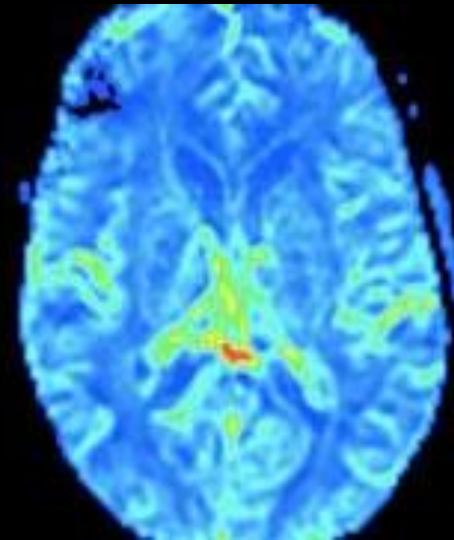
Advanced imaging.

P R O V E N • A U T O M A T E D • Q U A N T I T A T I V E

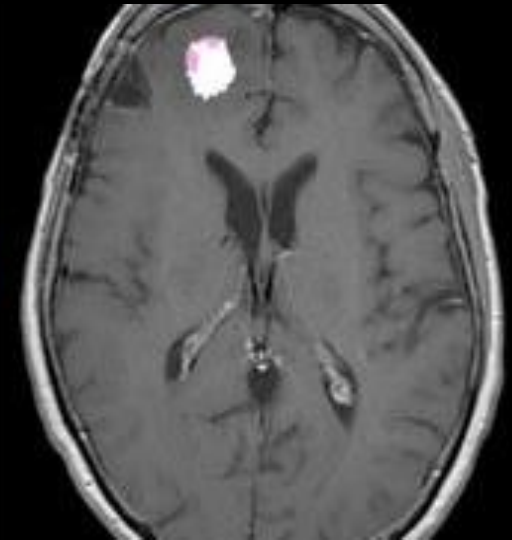
"The sFTB clearly shows no tumor. However, because of the enhancement [on the T1+C] she went to surgery and it [pathology] came back – not tumor, only treatment effect from xxxx therapy. If people start using these [sFTB]... *we can save people from going back to surgery unnecessarily.*"



Delta T1



sCBV



sFTB

Combining MR Perfusion and Delta T1

- “Fractional Tumor Burden” (FTB) maps are quantitative
- Spatial discrimination of high-grade tumor from treatment effect
- Enables direct comparison between follow-up scans to accurately assess whether a tumor is responding (or not) to treatment

IB software is:

- FDA cleared and readily available
- Scientifically-proven
- Clinically-validated
- Tissue confirmed
(Mayo Clinic and Medical College of WI)
- Automated
- Quantitative (ONLY IB)
- Affordable
- The only MR perfusion platform used in multi-center clinical trials

Is your doctor using the most advanced
imaging technology to help you?

These advanced imaging solutions are no longer limited to large academic research hospitals!

ANY sized hospital can access IB software.

Tell your neuro-oncologist about the unique aspects of Imaging Biometrics



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