Sessionepraticadi contouring

Silvia Scoccianti
Firenze

Opticchiasm

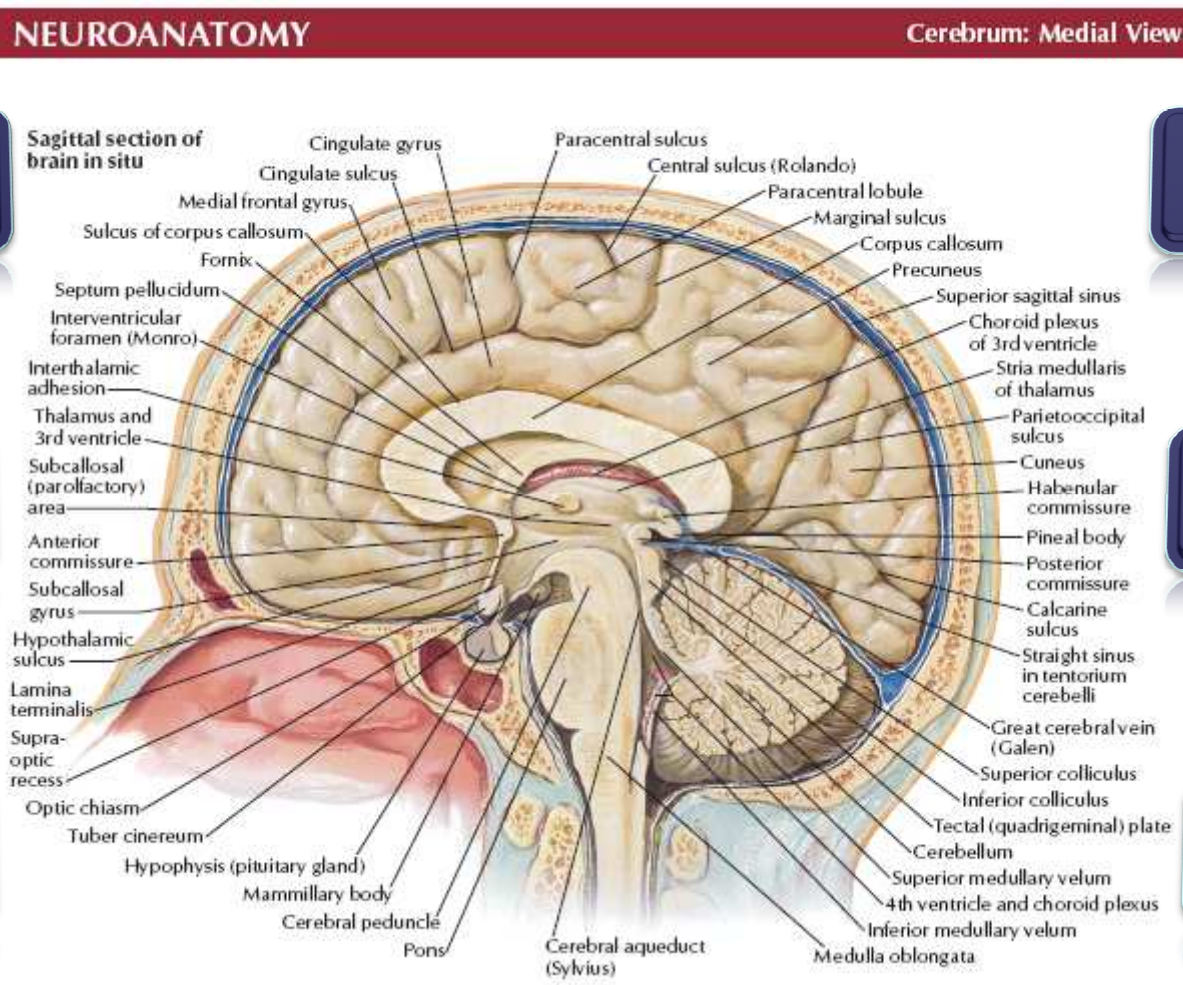
Pituitarygland

Hyppocampus

Cochlea

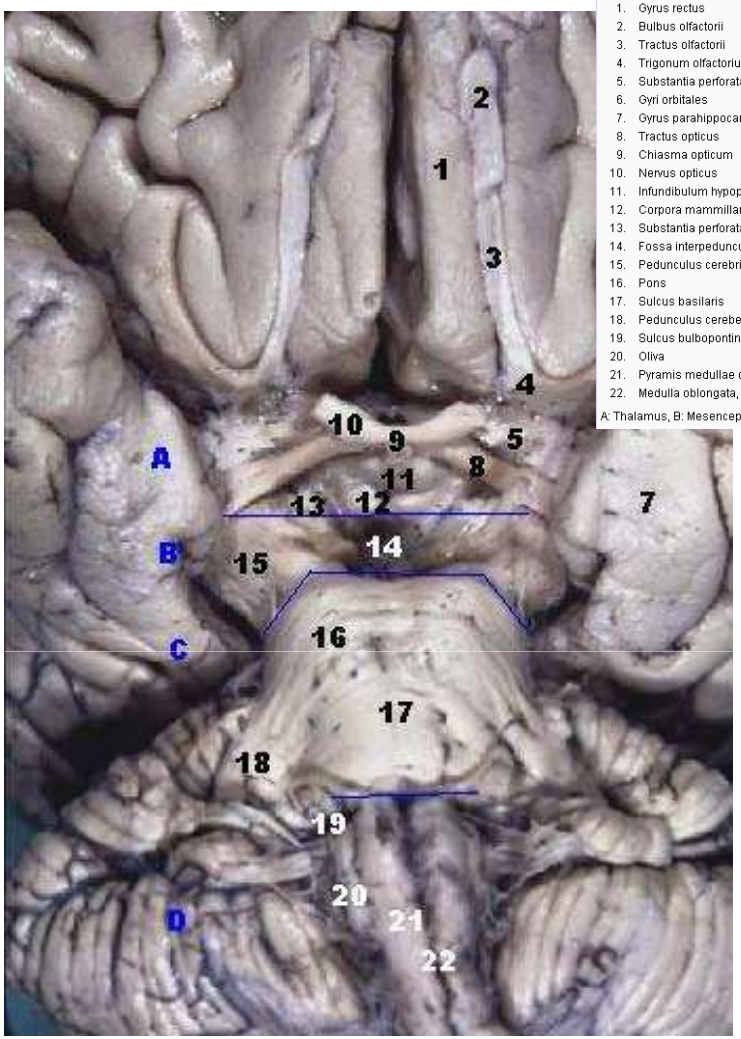
Brainstem

Temporallobe




SE
E
NE

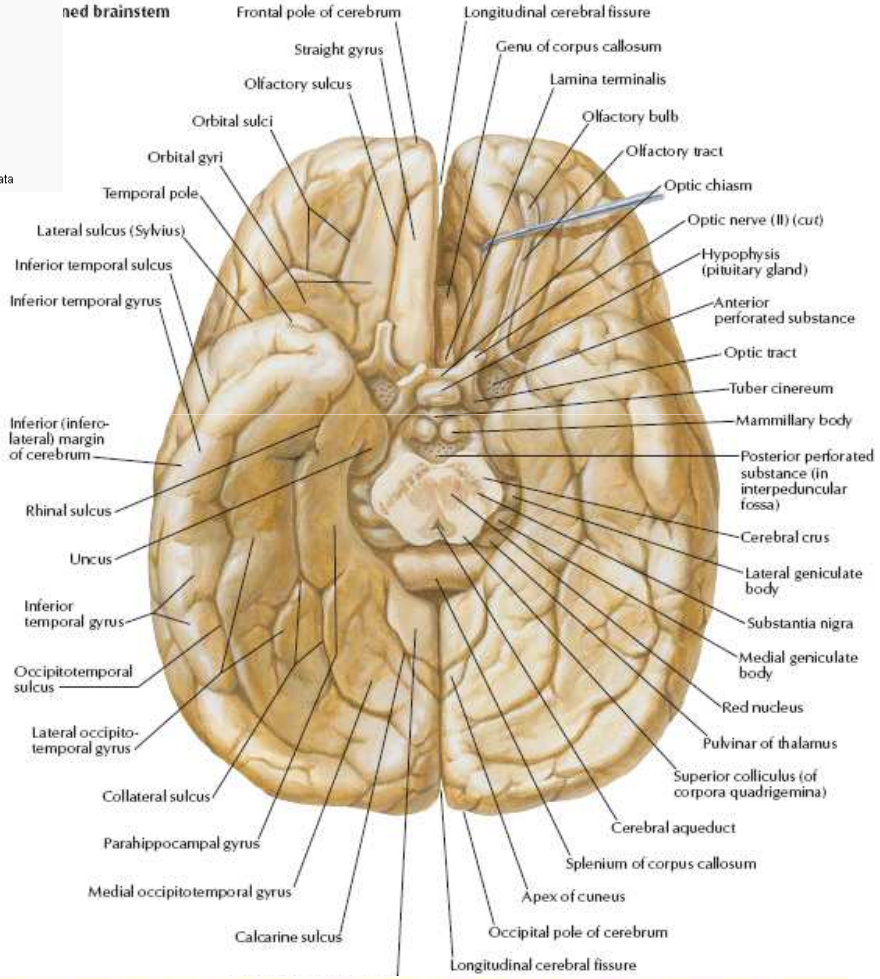
Opticchiasm



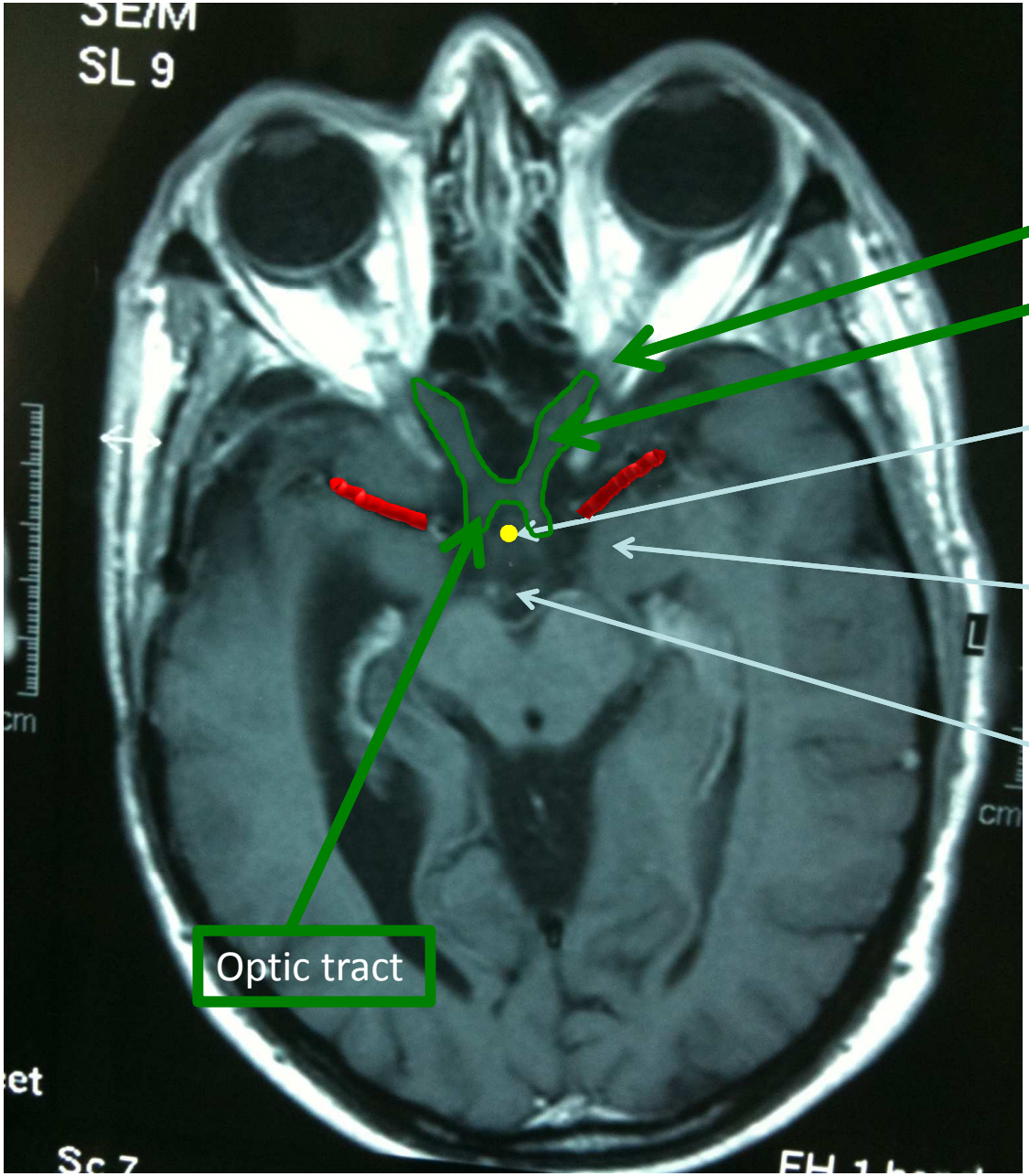
Human brainstem anterior view

1. Gyrus rectus
2. Bulbus olfactorii
3. Tractus olfactorii
4. Trigonum olfactorium
5. Substantia perforata anterior
6. Gyri orbitales
7. Gyrus parahippocampalis
8. Tractus opticus
9. Chiasma opticum
10. Nervus opticus
11. Infundibulum hypophysialis
12. Corpora mammillaria
13. Substantia perforata posterior
14. Fossa interpeduncularis
15. Pedunculus cerebri
16. Pons
17. Sulcus basilaris
18. Pedunculus cerebelli
19. Sulcus bulbopontinus
20. Oliva
21. Pyramis medullae oblongatae
22. Medulla oblongata, Fissura mediana anterior

A: Thalamus, B: Mesencephalon, C: Pons, D: Medulla oblongata



II Retinal ganglion cells ⇨ optic disk ⇨ optic nerve ⇨ orbit ⇨ optic canal ⇨ optic chiasm ⇨ optic tract ⇨ lateral geniculate body (⇨ optic radiation ⇨ occipital lobe) and superior colliculi (⇨ pre-tectal area)



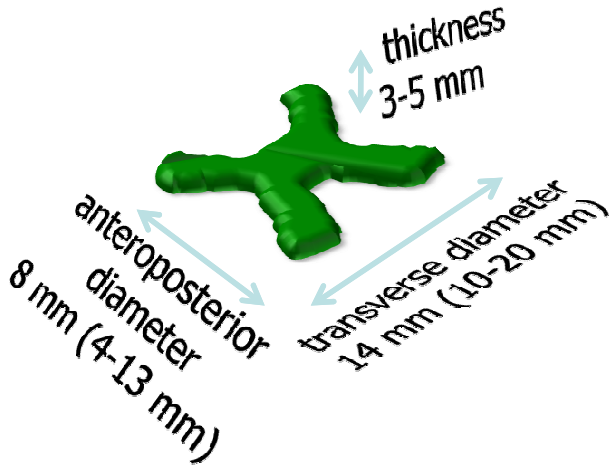
Intracanalicular optic nerve

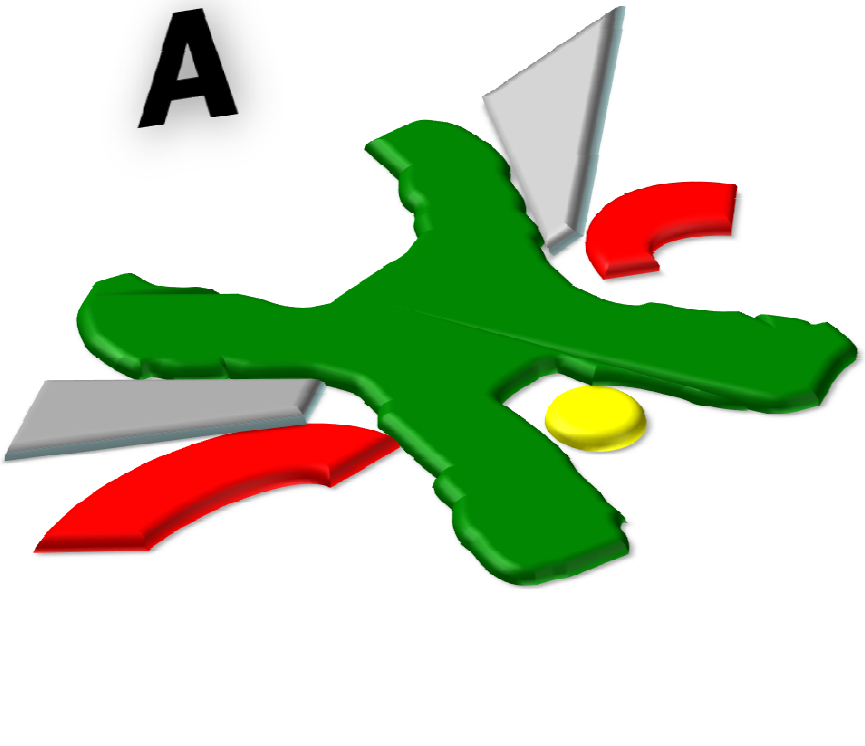
Cisternal optic nerve

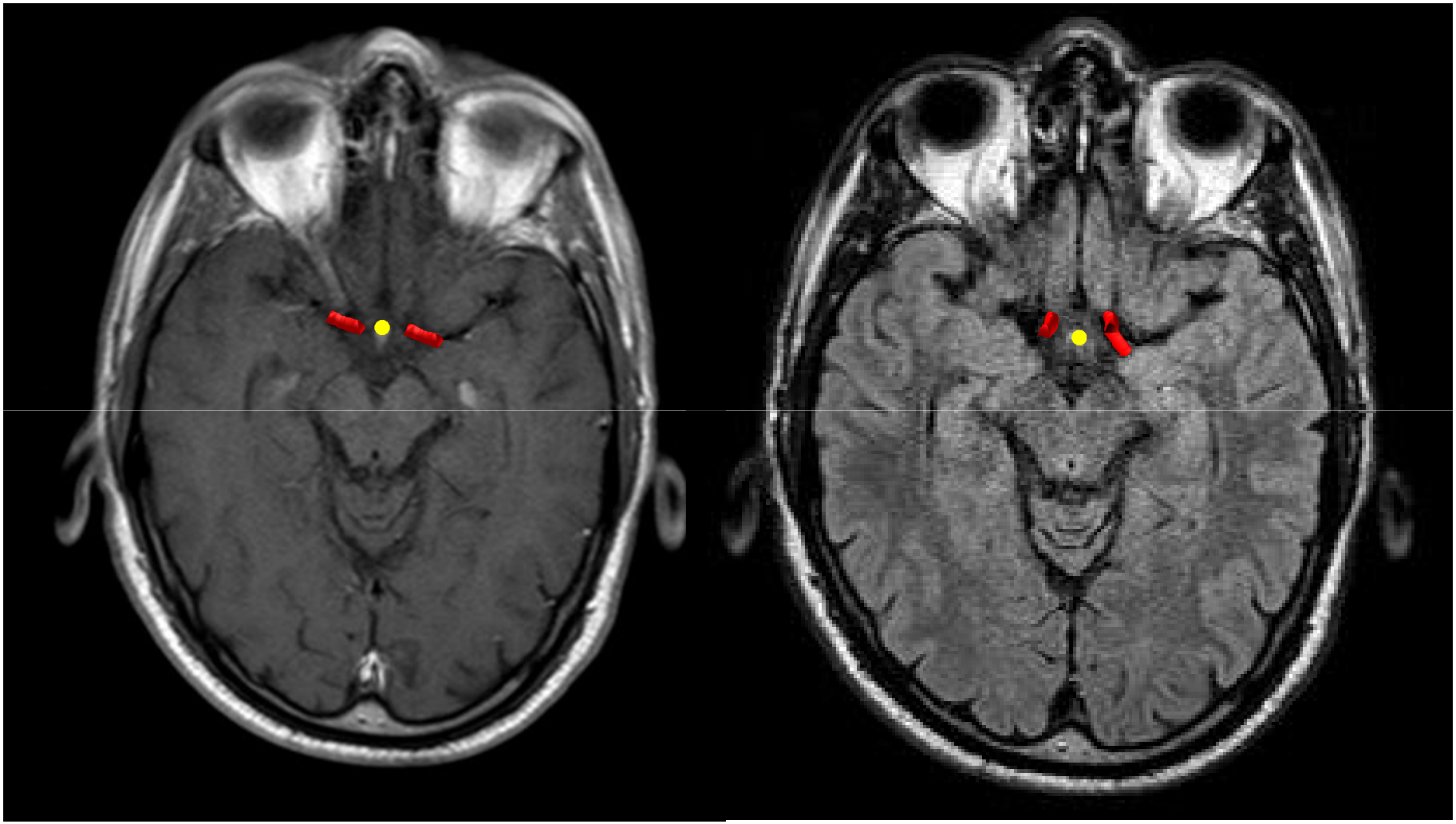
Pituitary stalk and infundibulum

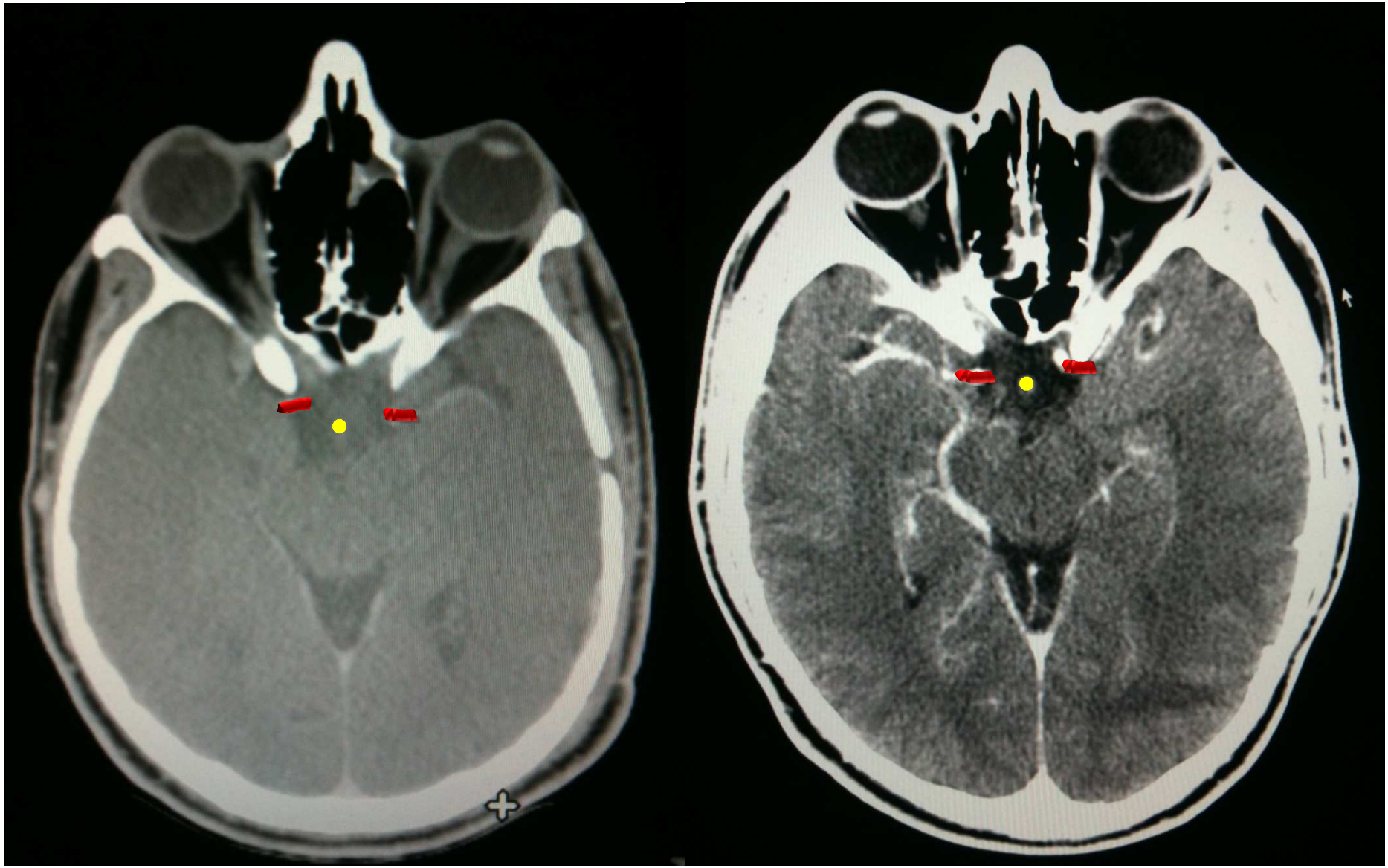
Uncus

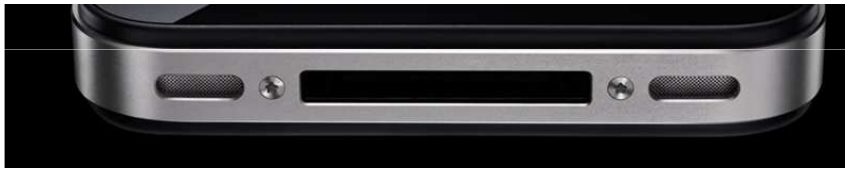
Mamillary body

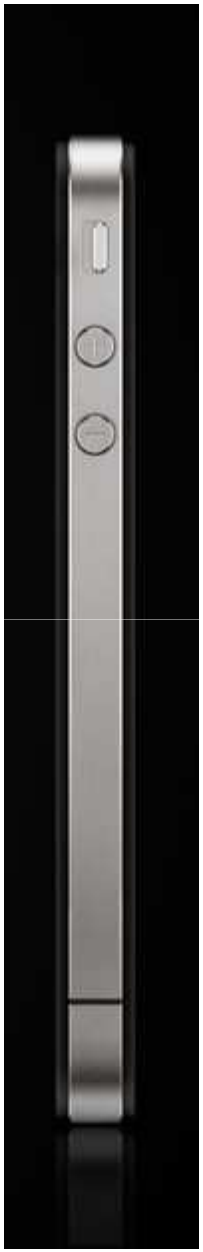

thickness
3-5 mm
anteroposterior
diameter
8 mm (4-13 mm)
transverse diameter
14 mm (10-20 mm)


A
P










09:41
Nachrichten
Kalender
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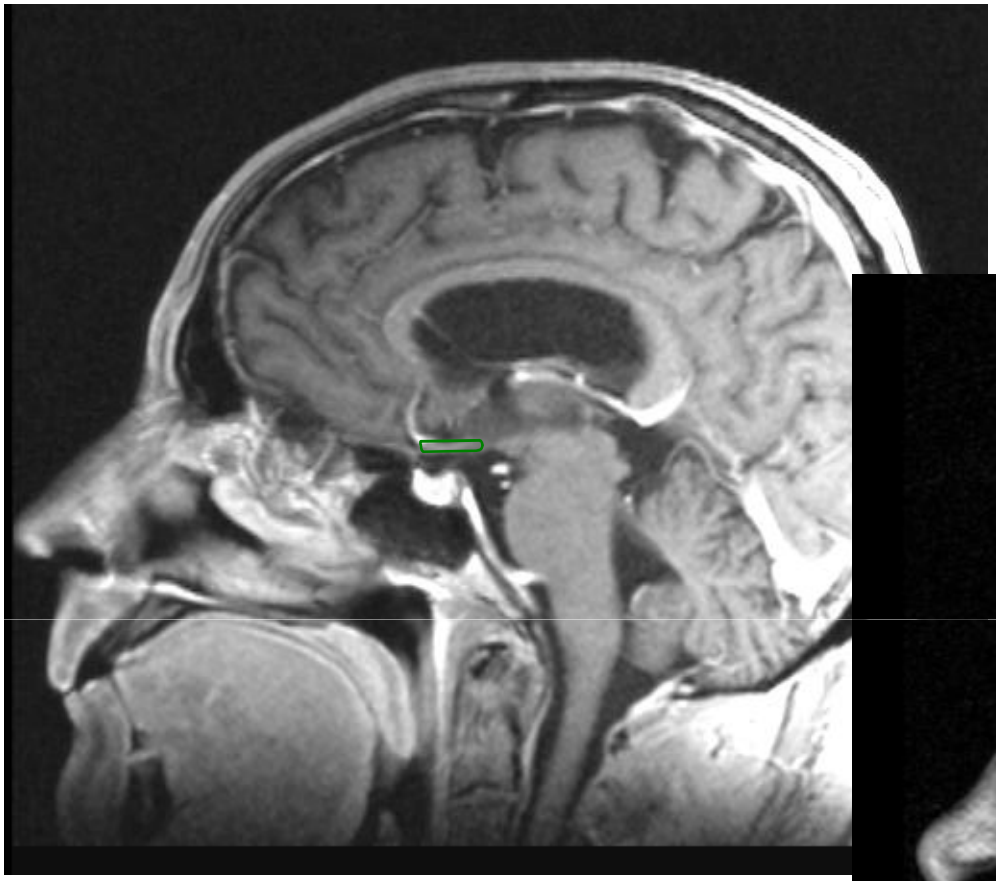
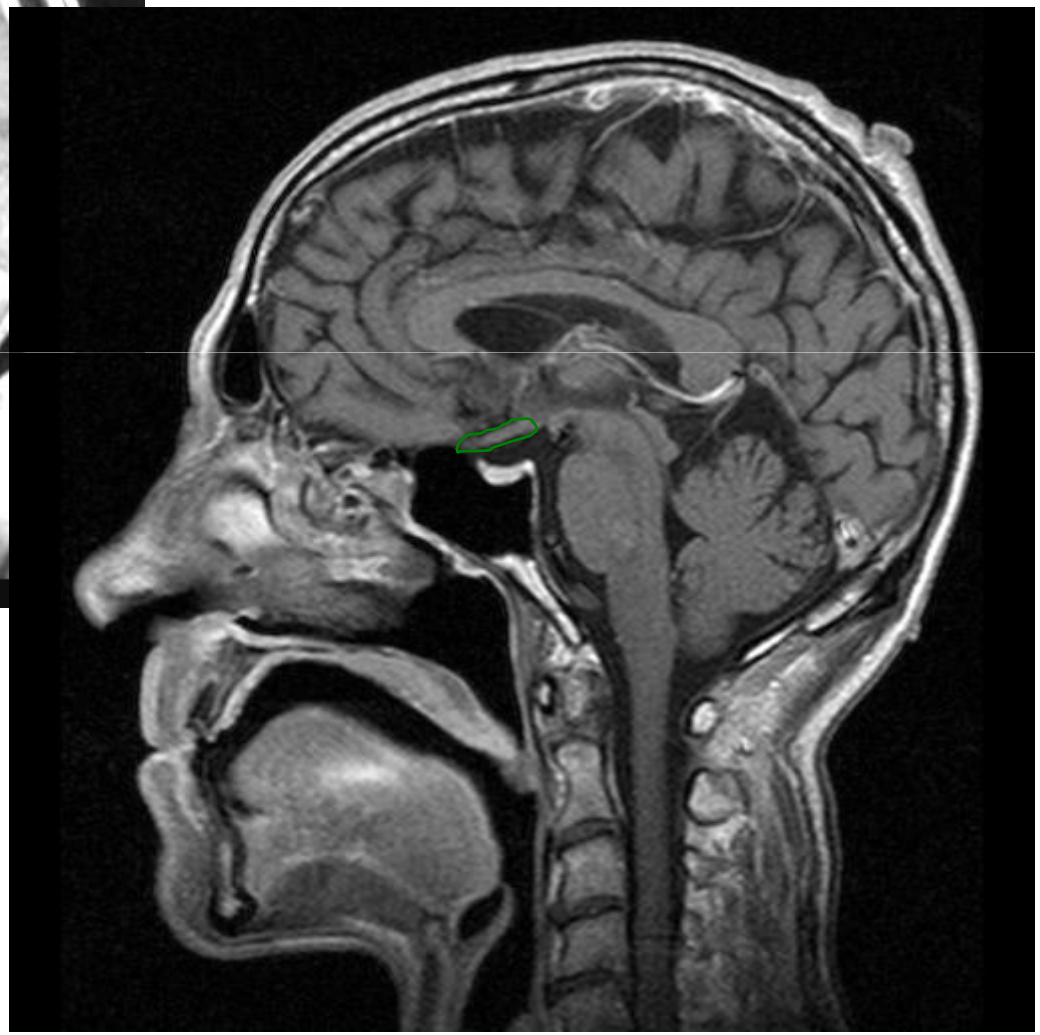
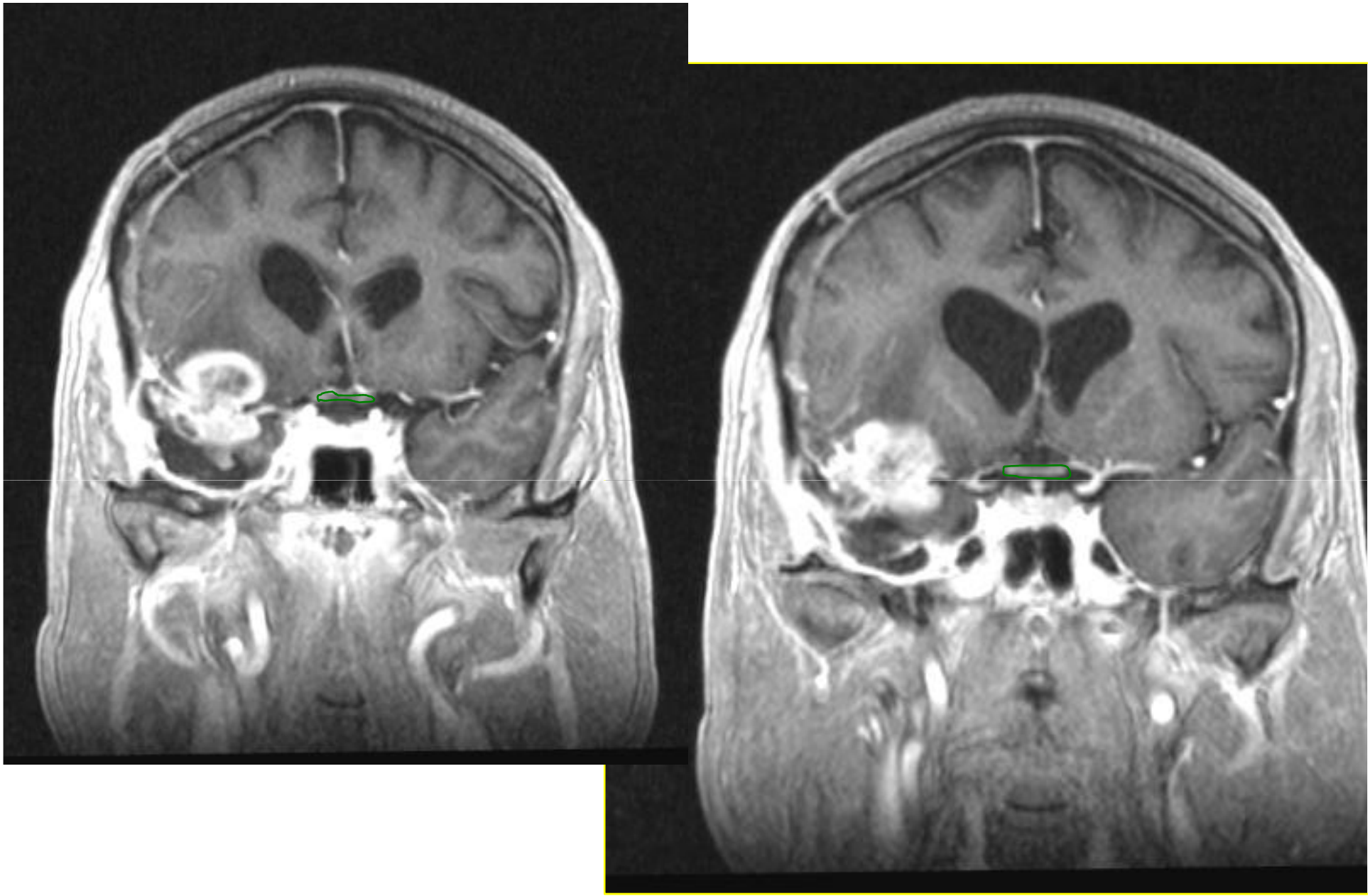
YouTube
Aktien
Karten
Wetter
Notizen
Dienstprogr.
iTunes
App Store
Game Center
Einstellungen
Telefon
Mail
Safari
iPod







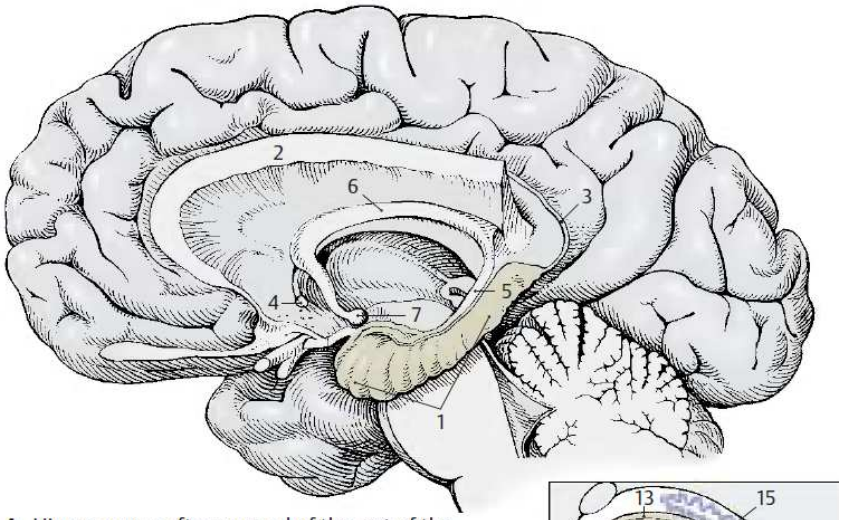
OARs	Primary criteria		Secondary criteria	
Optic nerve	D_{max}<54	*Lee, R&O 2008* *Boehling, IJROBP 2011*	D_{max}<60	*Lee, R&O 2008*
Optic chiasma	D_{max}<54	*Lee, R&O 2008* *Boehling, IJROBP 2011* *Narayana,IJROBP 2006* *McDonald, RadOnc 2007* *Zach, RadOnc 2009*	D_{max}<60	*Lee, R&O 2008*

RADIATION DOSE–VOLUME EFFECTS OF OPTIC NERVES AND CHIASM

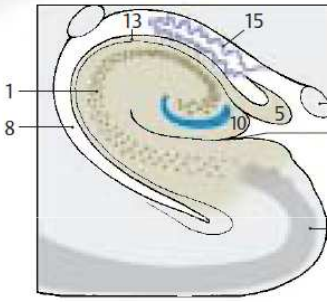
CHARLES MAYO, PH.D.,* MARY K. MARTEL, PH.D.,† LAWRENCE B. MARKS, M.D.,‡
JOHN FLICKINGER, M.D.,§ JIHO NAM, M.D.,‡ AND JOHN KIRKPATRICK, M.D., PH.D.¶

Publications relating radiation toxicity of the optic nerves and chiasm to quantitative dose and dose–volume measures were reviewed. Few studies have adequate data for dose–volume outcome modeling. The risk of toxicity increased markedly at doses >60 Gy at ≈1.8 Gy/fraction and at >12 Gy for single-fraction radiosurgery. The evidence is strong that radiation tolerance is increased with a reduction in the dose per fraction. Models of threshold tolerance were examined.

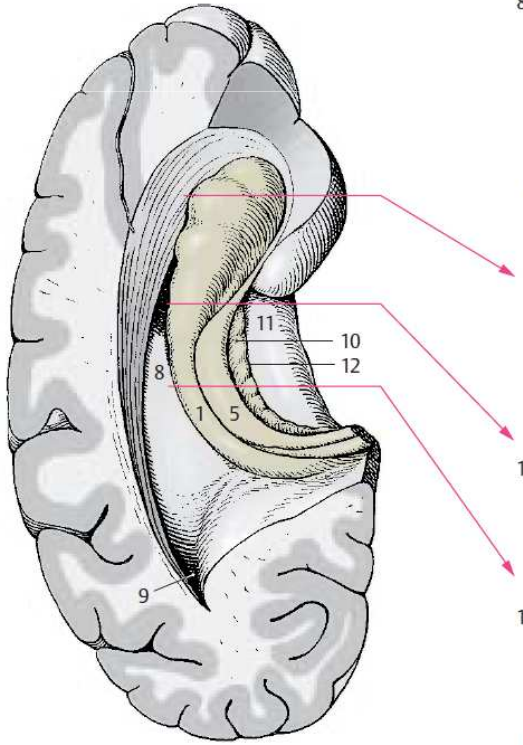
Hyppocampus



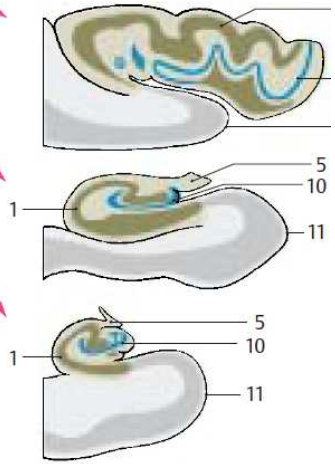
A Hippocampus after removal of the rest of the left hemisphere (according to *Ludwig and Klingler*)



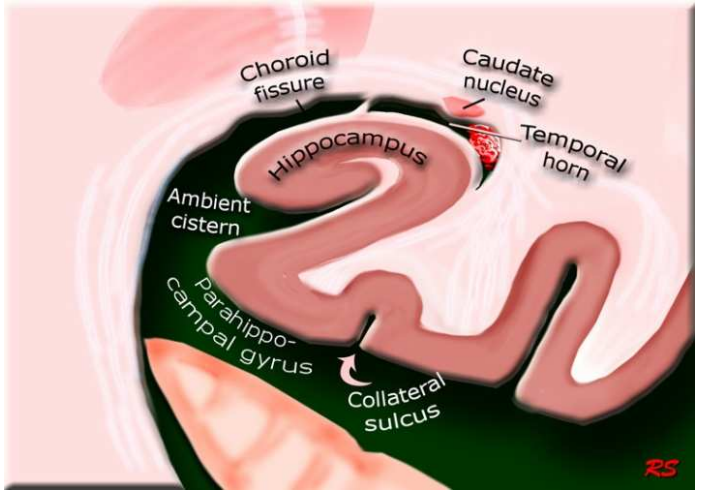
C Frontal section through hippoc
Ammon's horn

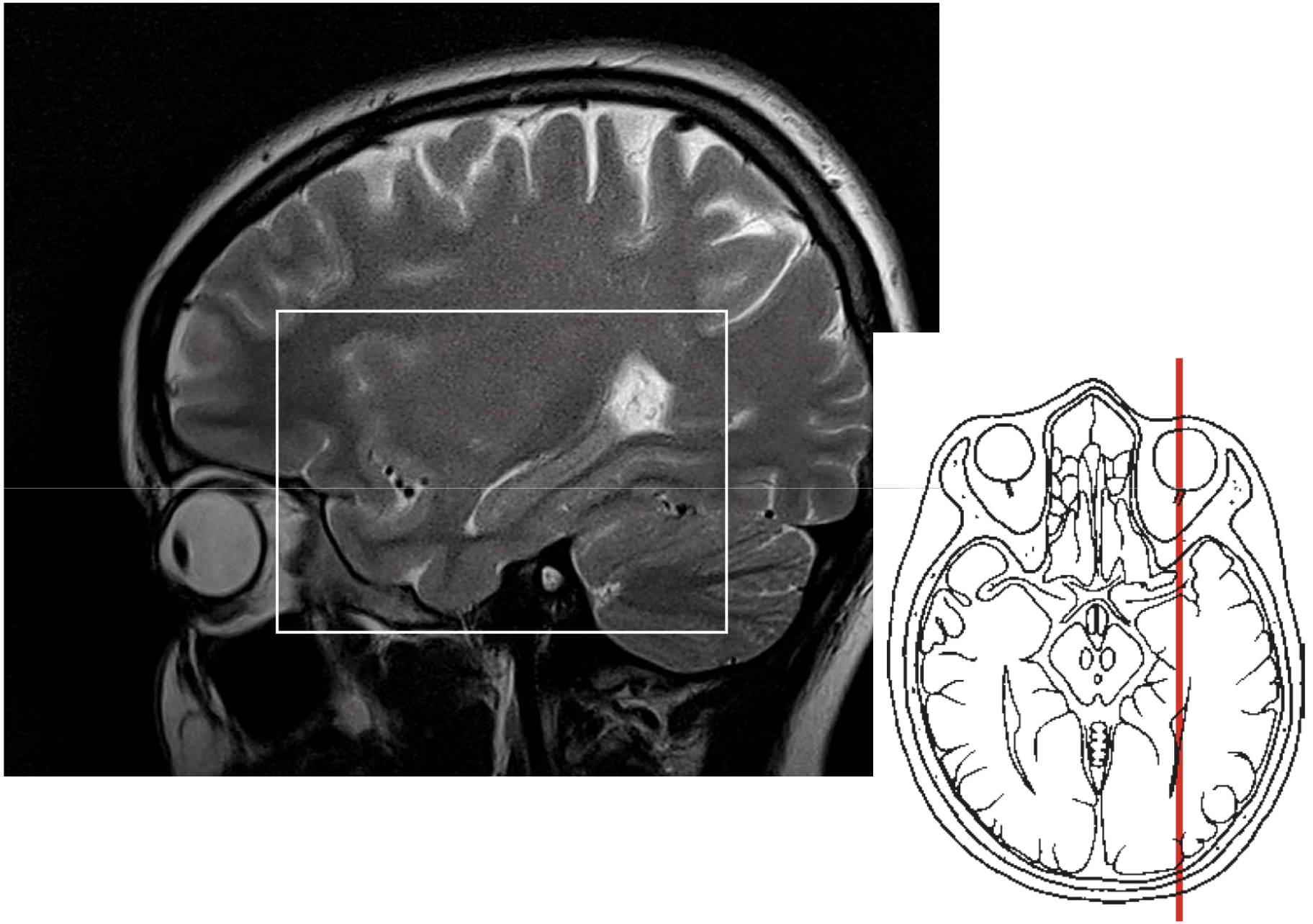


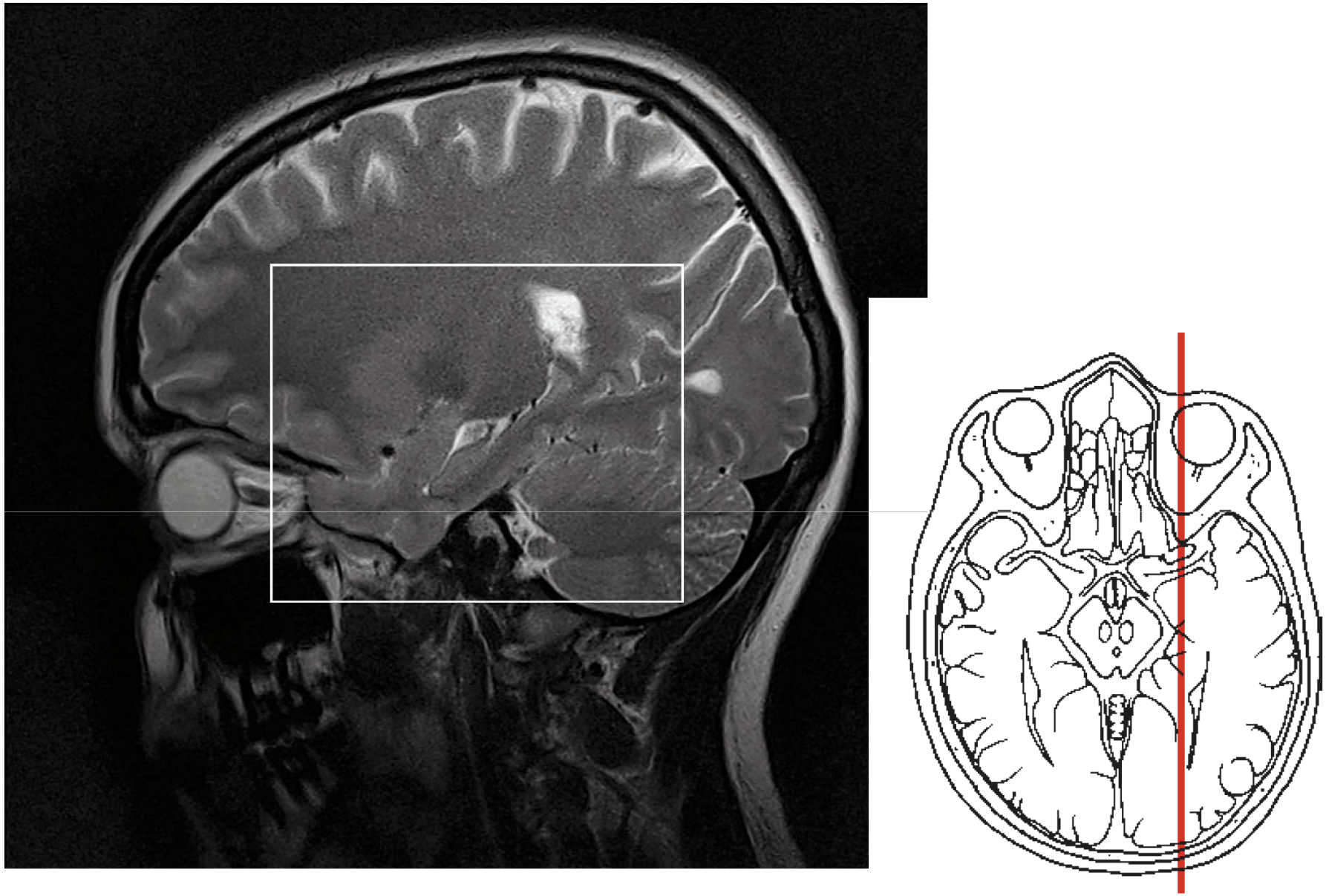
B Hippocampus viewed from above (according to *Sobotta*)



D Ammon's horn at different planes of sections



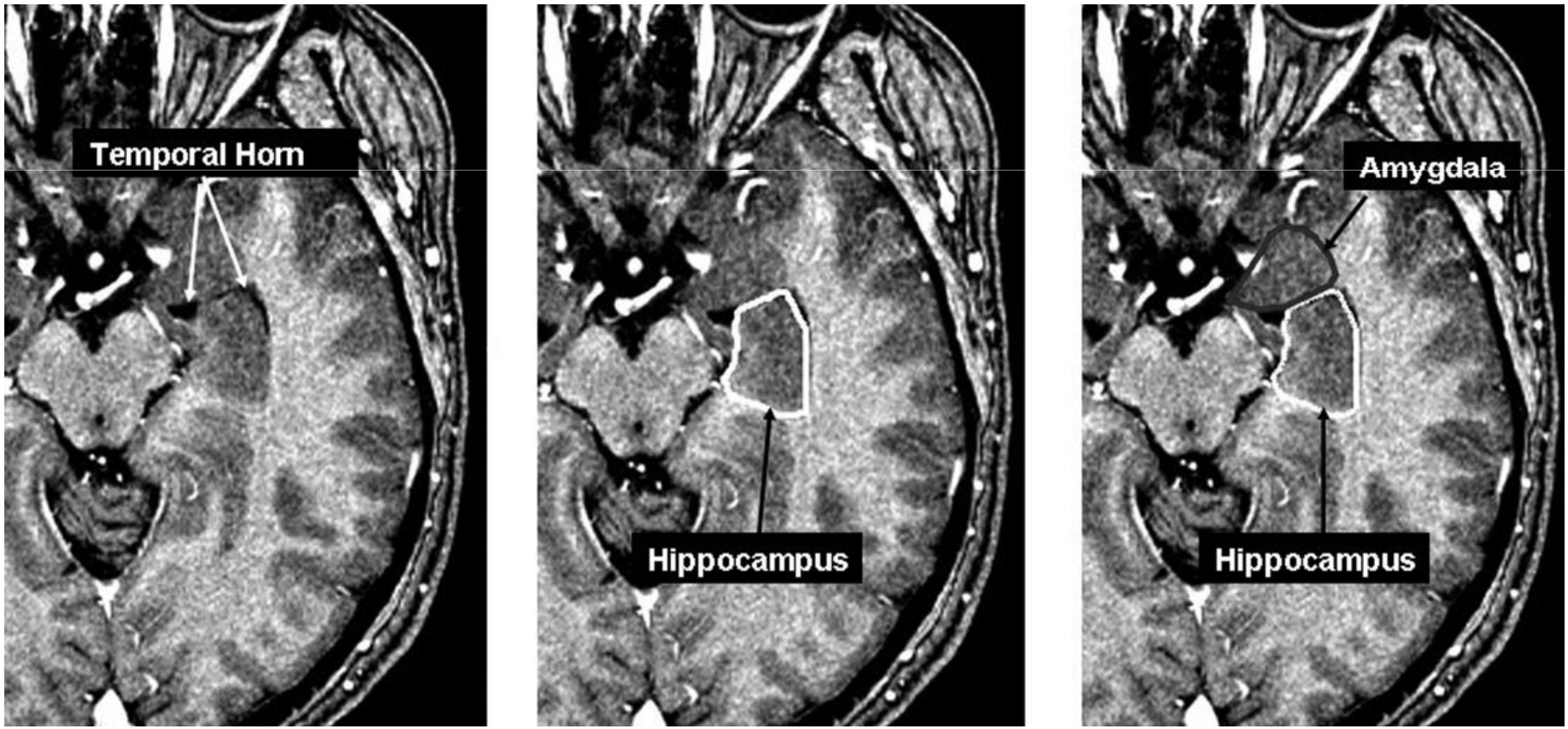


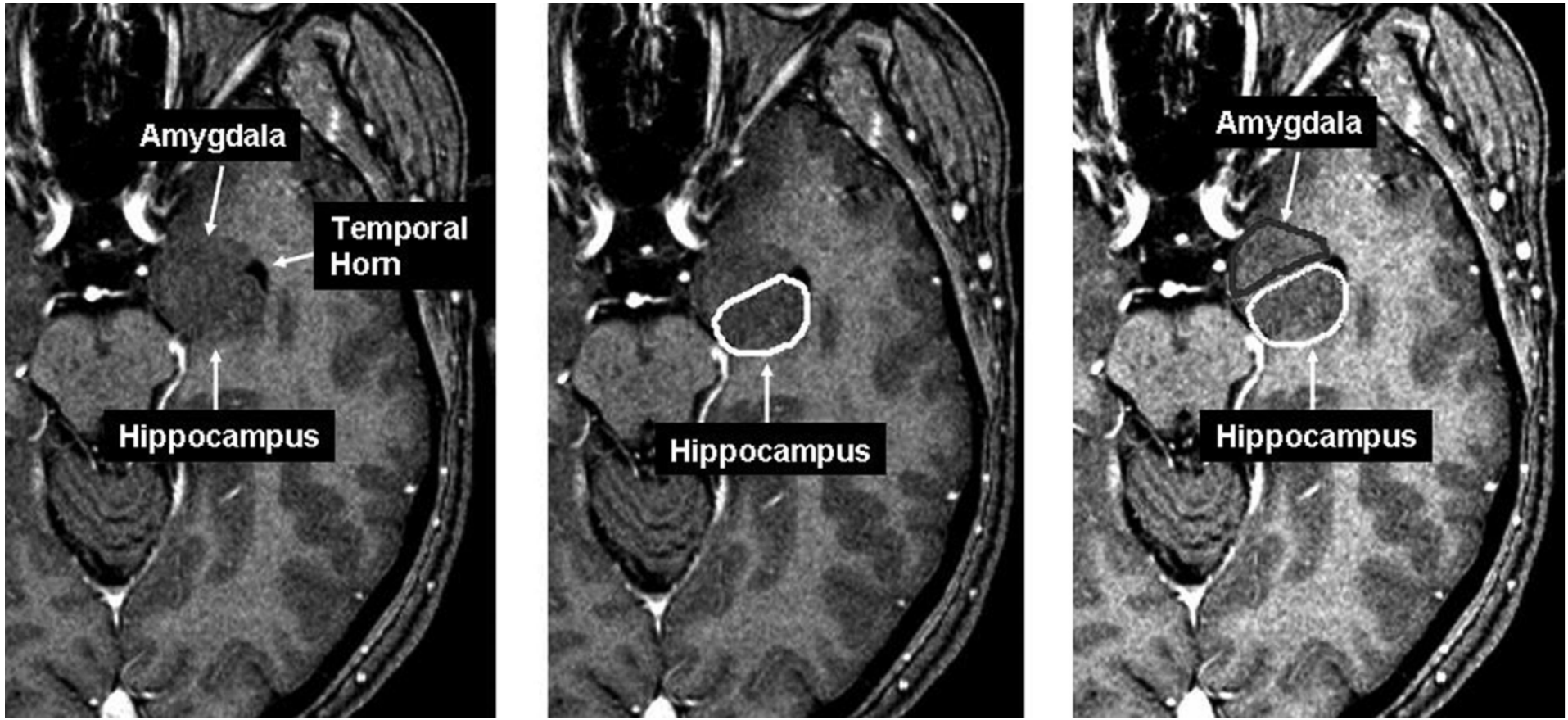


A Radiation Oncologist's Guide to Contouring the Hippocampus

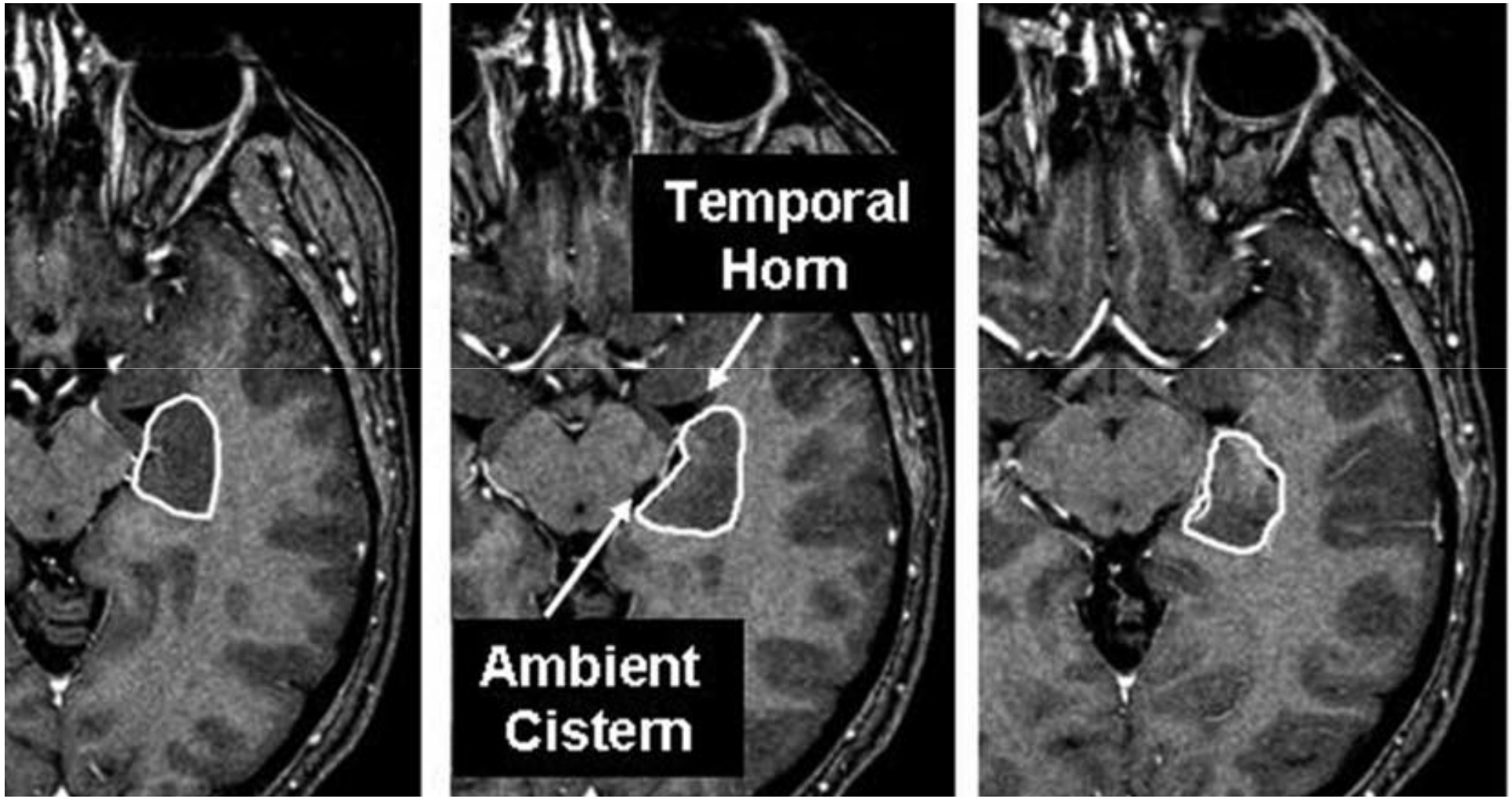
Bhishamjit S. Chera, MD, Robert J. Amdur, MD, Pretesh Patel, MD, and William M. Mendenhall, MD

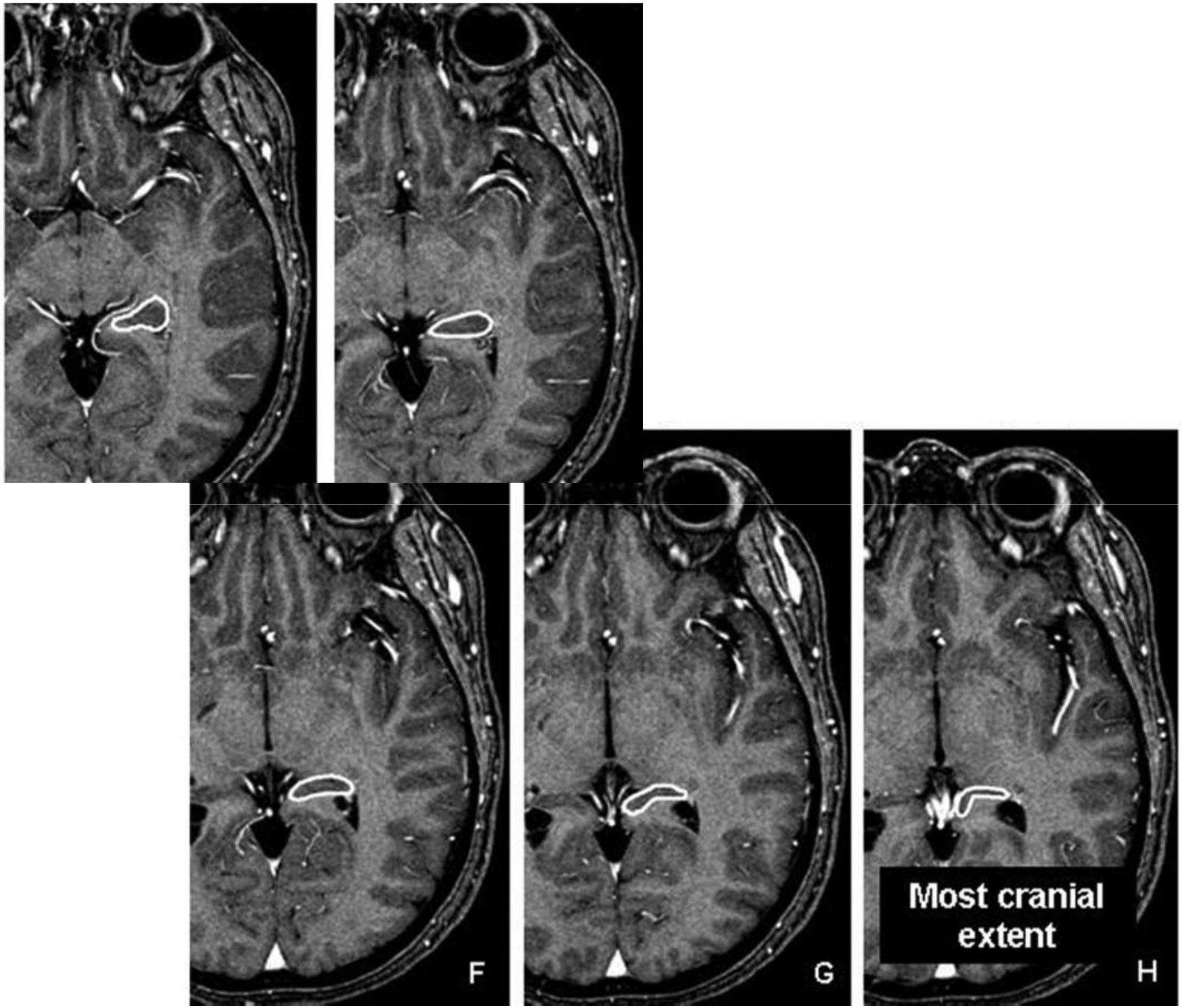
American Journal of Clinical Oncology • Volume 32, Number 1, February 2009




Amygdala
Temporal Horn
Hippocampus
Hippocampus
Amygdala
Hippocampus


Hippocampus
Most caudal extent
of the hippocampus


Temporal
Horn
Ambient
Cistern


F
G
Most cranial extent
H

Hippocampus	D_{max}<6-11	*Gondi, R&O 2010*
	D_{max}<15-20	*Marsh, IJROBP2010*

Brainstem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LE TERAPIE INTEGRATE
NEI TUMORI DEL SISTEMA
NERVOSO NELL'ADULTO
E NEL BAMBINO
DAL MANAGEMENT
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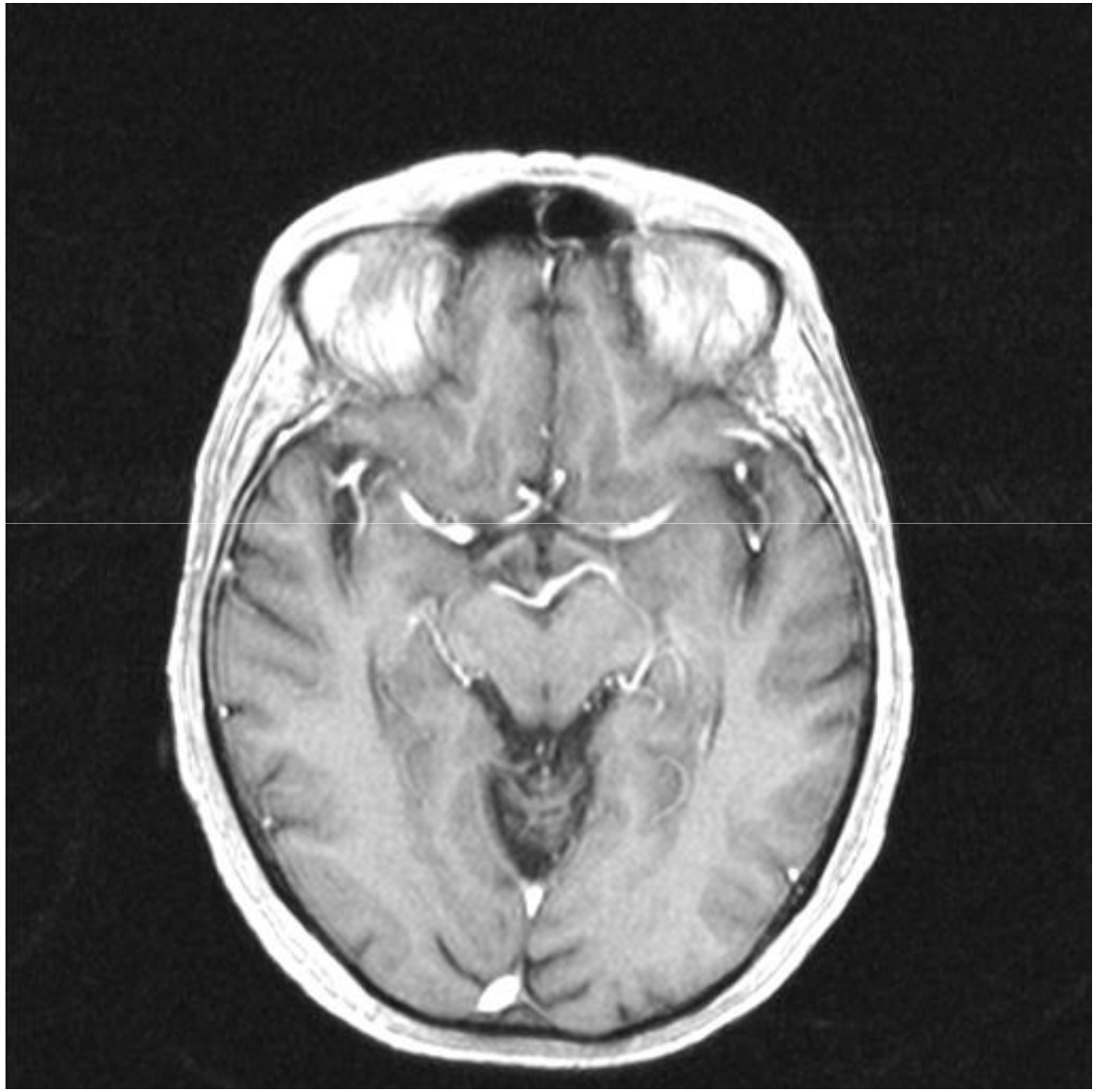
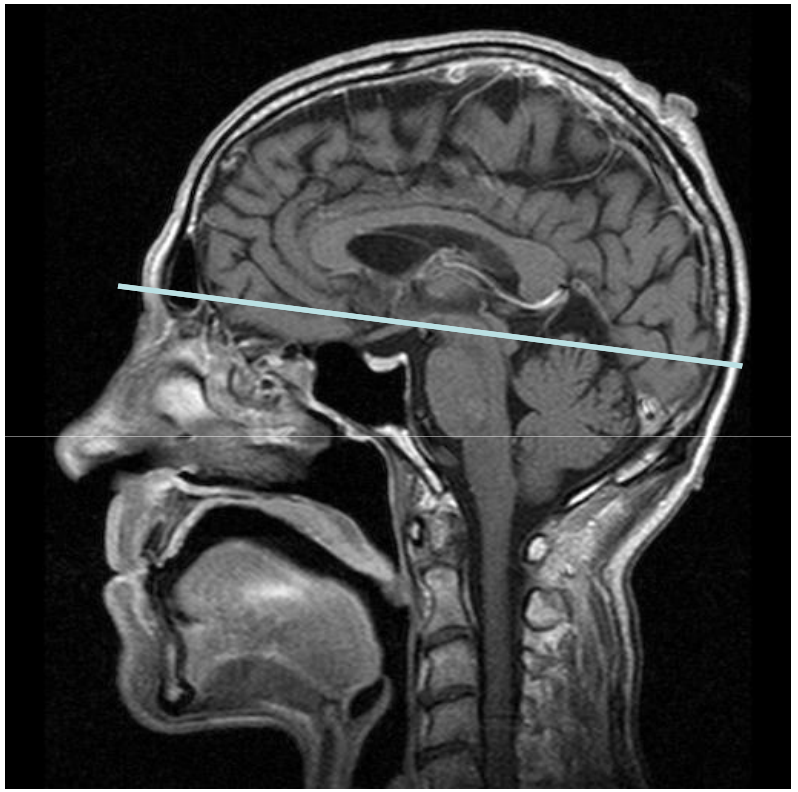
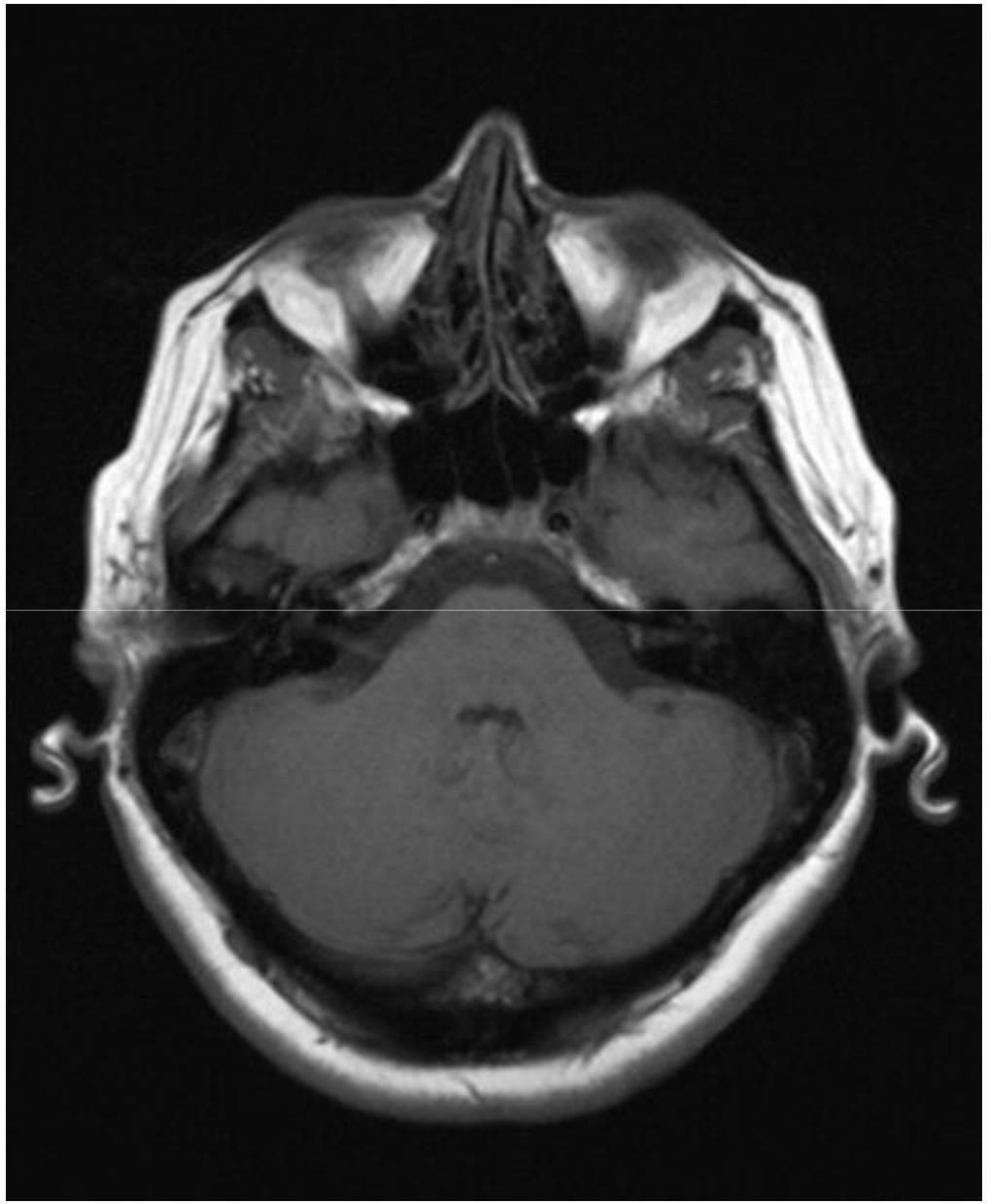
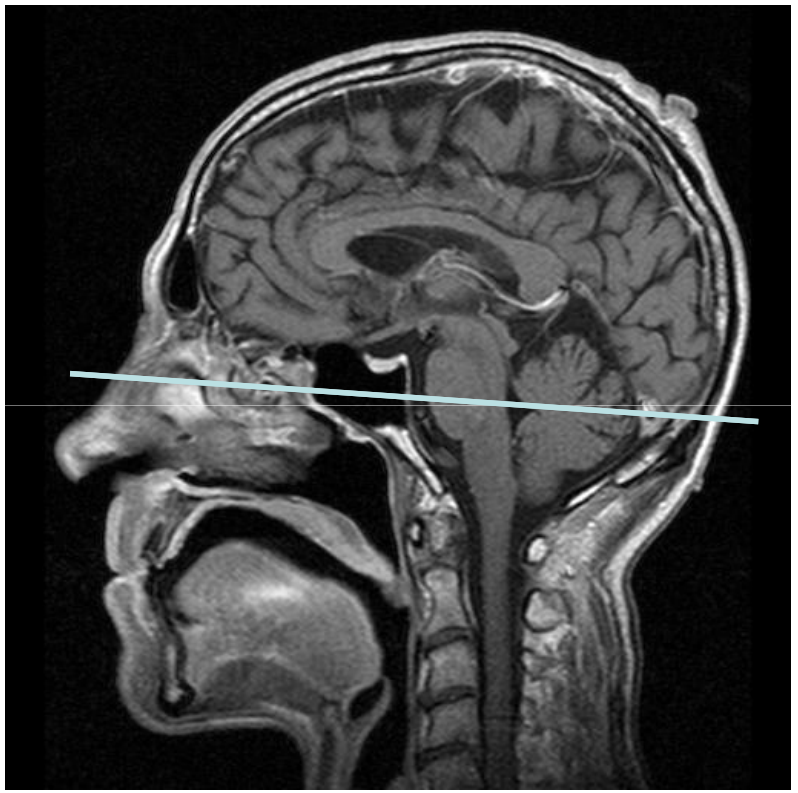
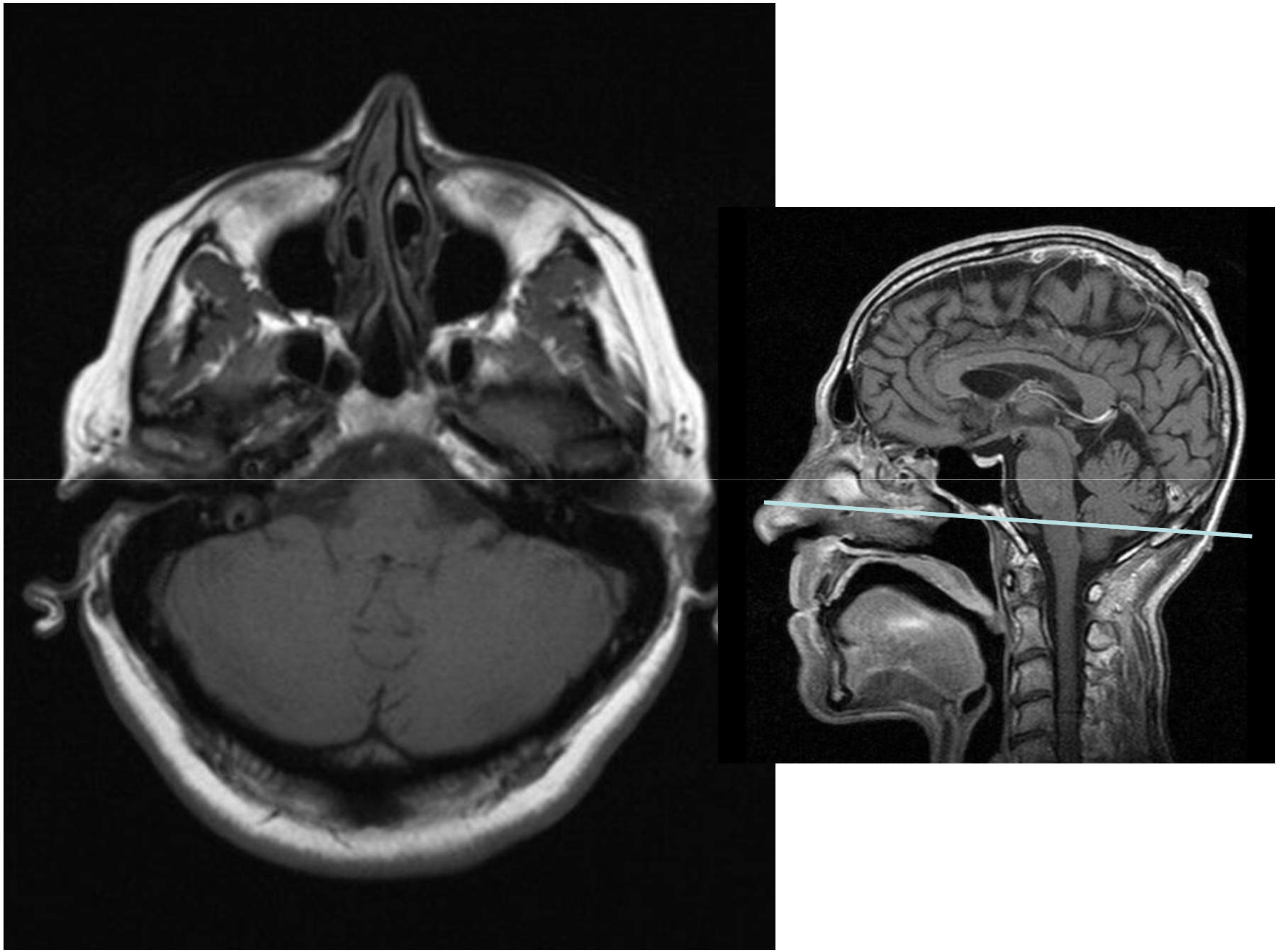










OARs	Primary criteria		Secondary criteria	
Brain stem	D_{max}<50	*Habener, 2010*	.	
	D_{max}<54	*Lee, R&O 2008* *Wagner, IJROBP 2009*	D_{max}<60	*Lee, R&O 2008*
	D_{max}<55-60	*Mc Donald, IJROBP 2007*	.	

QUANTEC: ORGAN-SPECIFIC PAPER **Central Nervous System: Brain Sten**

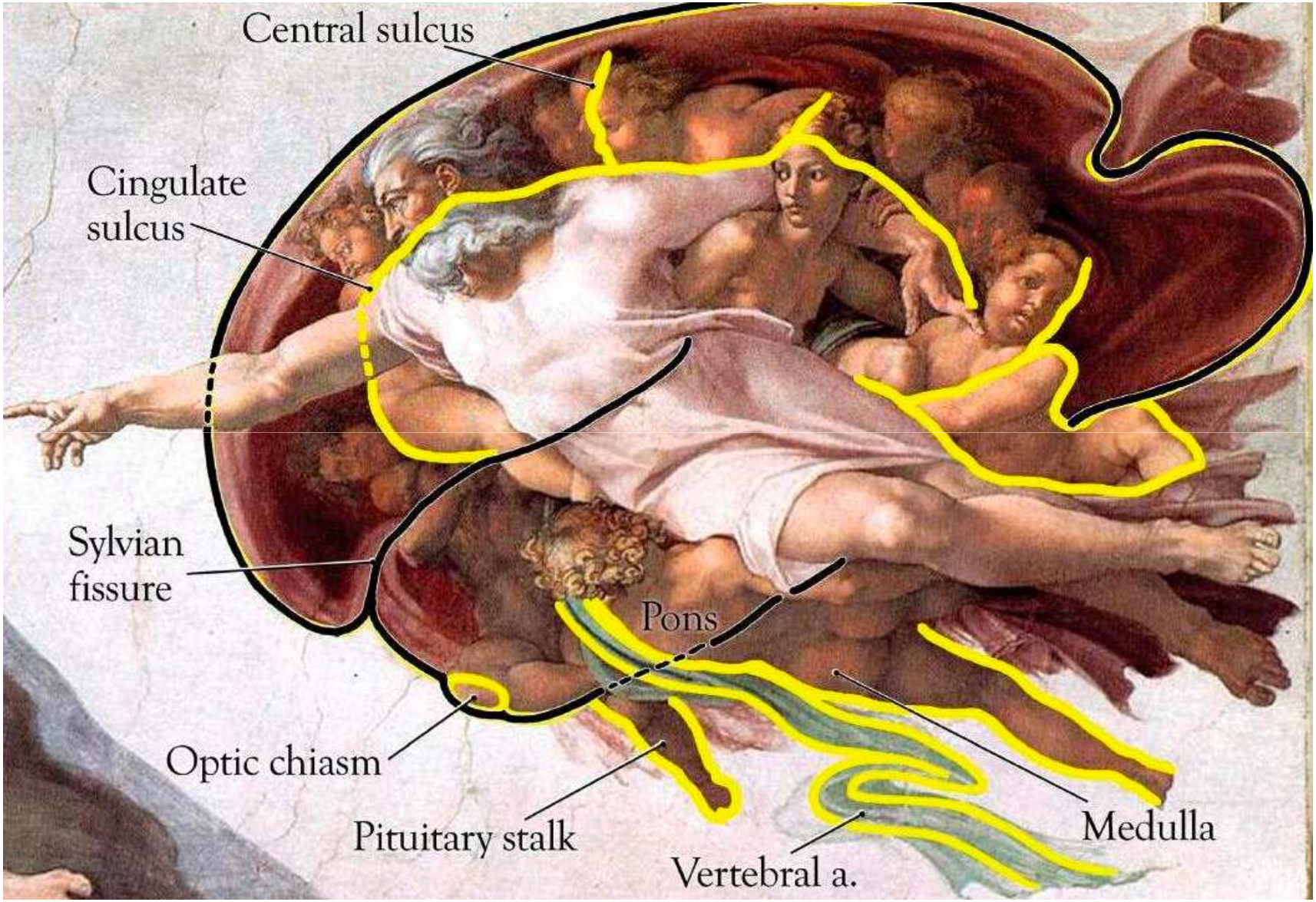
RADIATION ASSOCIATED BRAINSTEM INJURY

CHARLES MAYO, PH.D.,* ELLEN YORKE, PH.D.,† AND THOMAS E. MERCHANT, D.O., PH.D.‡

*Department of Radiation Oncology, University of Massachusetts Medical School, Worcester, MA, †Department of Medical Physics, Memorial Sloan Kettering Hospital, New York, NY, and ‡Division of Radiation Oncology, St. Jude Children's Research Hospital, Memphis, TN

Publications relating brainstem radiation toxicity to quantitative dose and dose–volume measures derived from three-dimensional treatment planning were reviewed. Despite the clinical importance of brainstem toxicity, most studies reporting brainstem effects after irradiation have fewer than 100 patients. There is limited evidence relating toxicity to small volumes receiving doses above 60–64 Gy using conventional fractionation and no definitive criteria regarding more subtle dose–volume effects or effects after hypofractionated treatment. On the basis of the available data, the entire brainstem may be treated to 54 Gy using conventional fractionation using photons with limited risk of severe or permanent neurological effects. Smaller volumes of the brainstem (1–10 mL) may be irradiated to maximum doses of 59 Gy for dose fractions ≤2 Gy; however, the risk appears to increase markedly at doses >64 Gy.

Brainstem, Radiation, Tolerance, NTCP.


Central sulcus
Cingulate sulcus
Sylvian fissure
Pons
Optic chiasm
Pituitary stalk
Vertebral a.
Medulla

Brain	V_{45}<33%	*Suzuki, Jpn J ClinOncol 2003*	V_{40}<66%	*Suzuki, Jpn J ClinOncol 2003*