Basics of contouring and the mind flow of a physician

Sara Samiee MD FRCPC
Radiation Oncologist

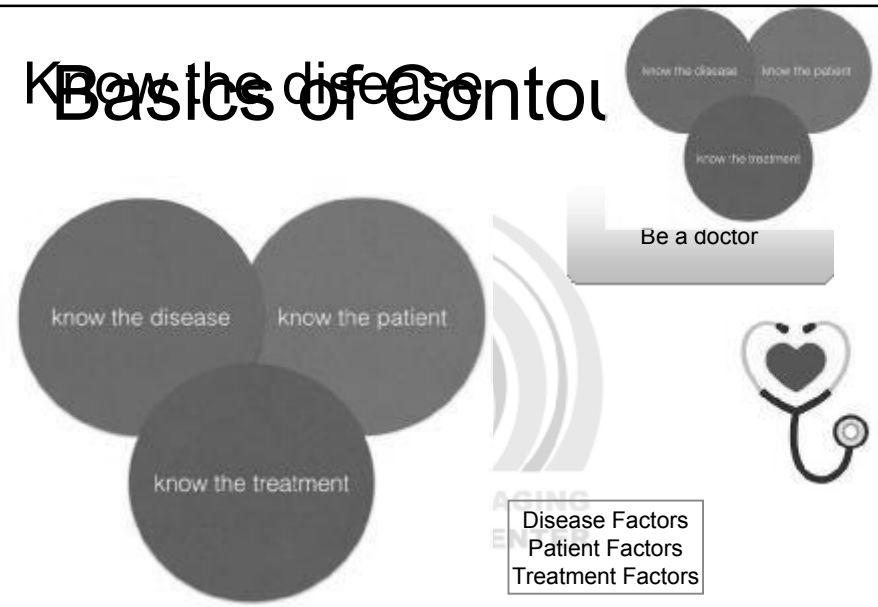
Basics of contouring

- It is never a single guideline
- Guidelines are developed based on an extensive workflow
  - Disease based
  - Anatomy based

Not individual based

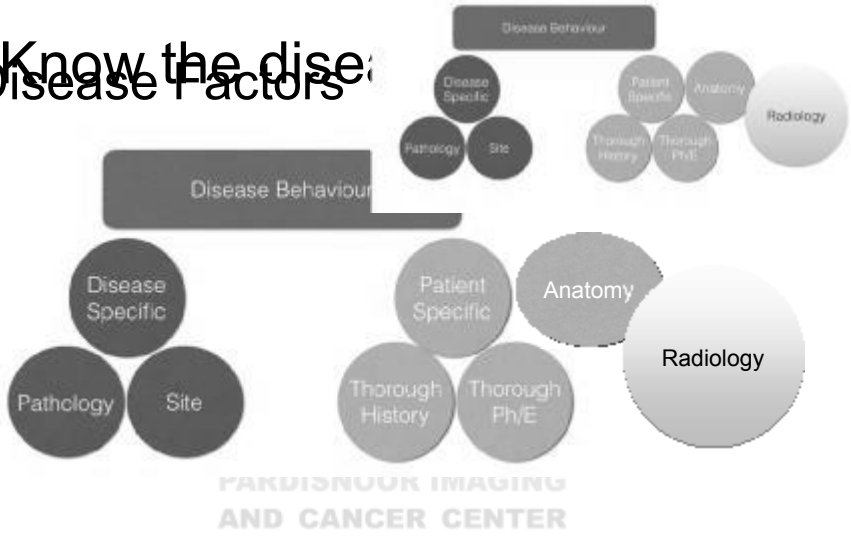
- We need to understand them so we can decide for an individual patient

Basics of Contou



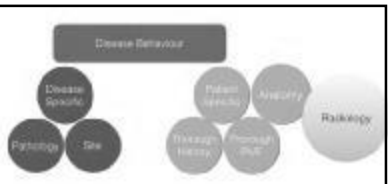
Know the disea

Disease Factors



and
how this affects your contouring

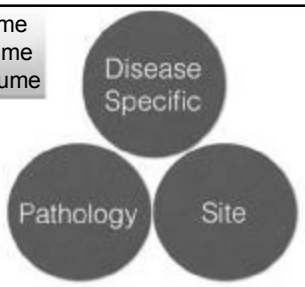
Disease Factors



- Details of disease behaviour
  - Local growth
    - Know the pathway
  - Systemic growth
    - Know the pattern

These affects your contouring

Gross Tumor Volume
Clinical Target Volume
Planning Target Volume



- GTV
  - What you see in images
    - US, CT, MRI, PET CT
  - What Ph/E tells you
    - Neurologic exam
    - MSK exam
    - GYN exam
  - CTV
    - Is a clinical / medical concept
      - based on understanding of the disease
    - It is NEVER a margin
      - Even though follows it
    - CTV is a function of:
      - GTV and it's margin
      - Anatomic boundaries
      - Disease behaviour and histology
- PTV
  - It is a physical concept
  - Motion
    - Organ
    - Patient
  - Physics
    - Dosimetric uncertainties
    - Calculation
    - Registraion
    - Image transfer
    - IGRT registration

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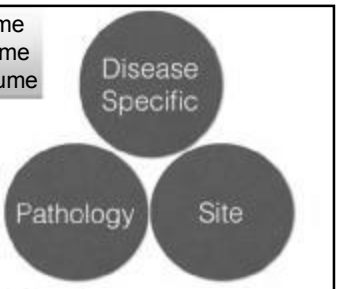
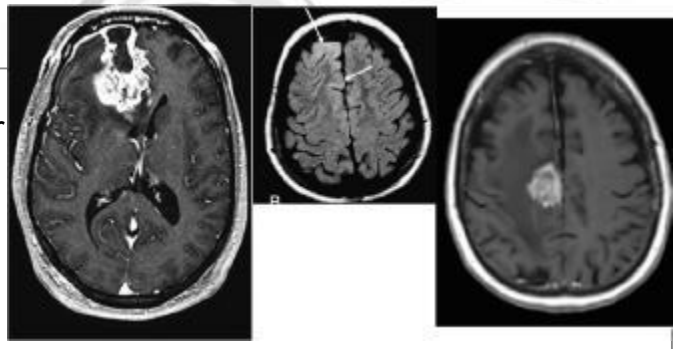


68 Year old male
Started with motor deficit (L)
On exam:
Apathetic
Somehow vulgar



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Gross Tumor Volume
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Planning Target Volume

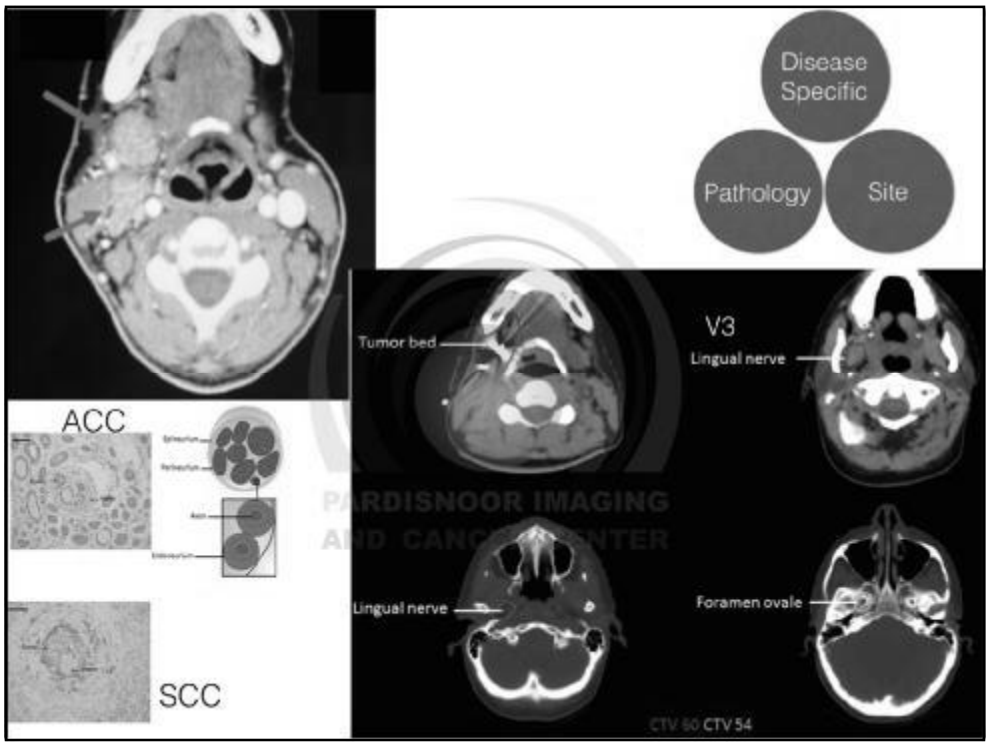
28 year old female
High risk ALL on remission
Presented two years post with diplopia
CN exam revealed: L CN VI palsy
MRI normal
CSF positive

GTV ????

Minimum L cavernous sinus around 24 Gy

CTV
CSI + / - a high dose CTV?

CSI
Cranium and skull base(18-24Gy)
CSI: 18Gy



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Gross Tumor Volume
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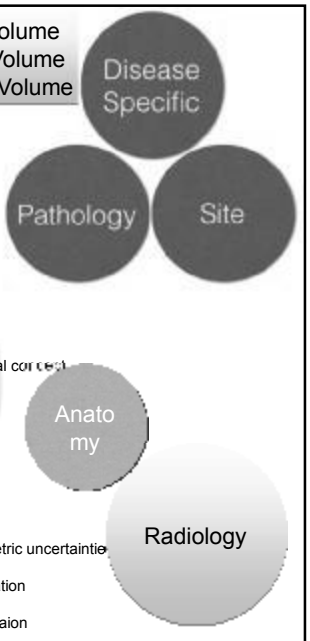

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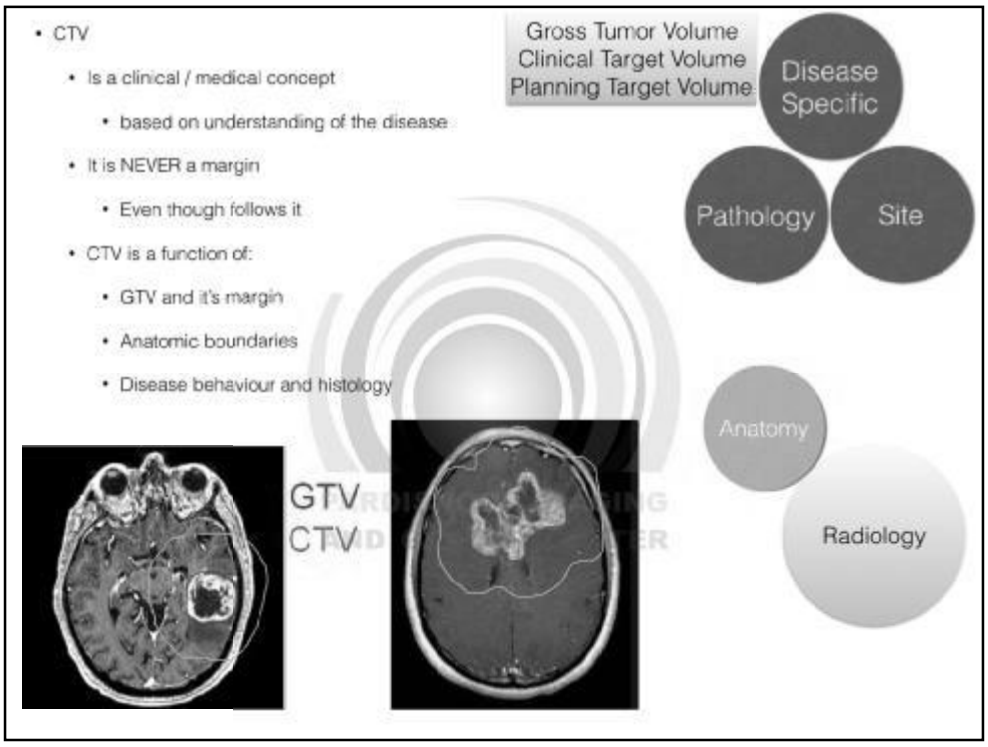
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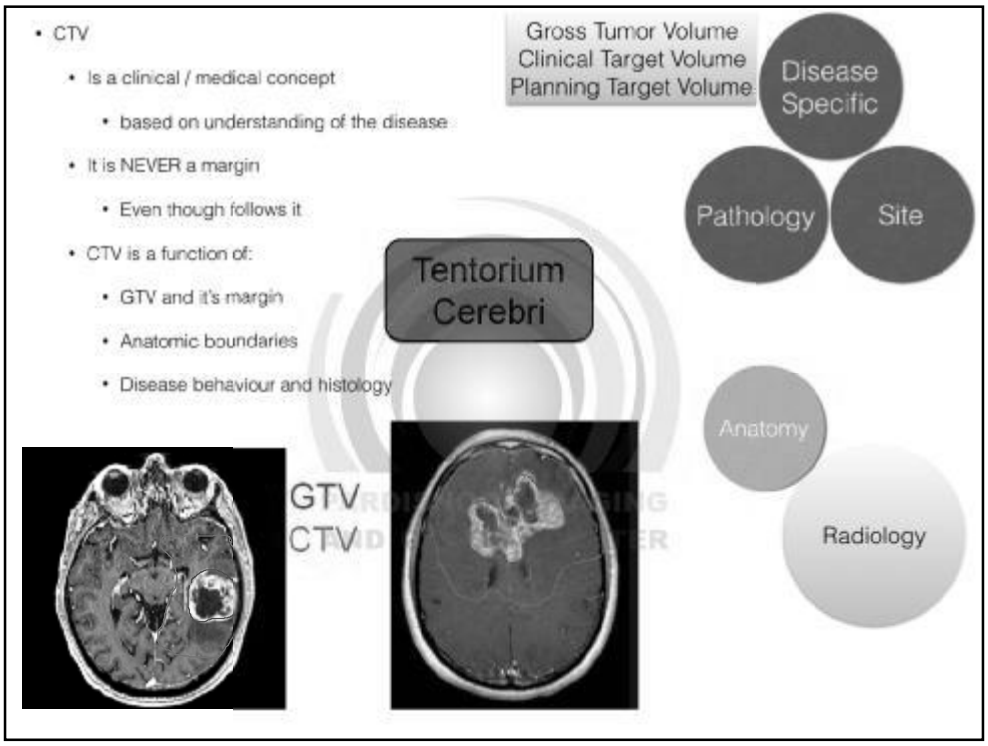
Clinical Target Volume
Planning Target Volume
Disease Specific
Pathology
Site
Anatomy
Radiology
GTV
CTV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Gross Tumor Volume
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Pathology
Site
Tentorium Cerebri
Anatomy
Radiology
GTV
CTV

CTV in Brain

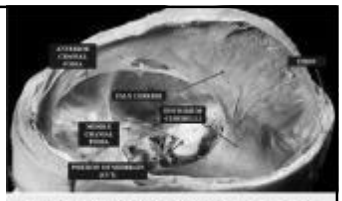
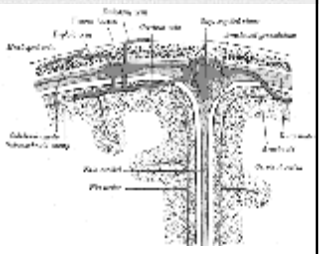
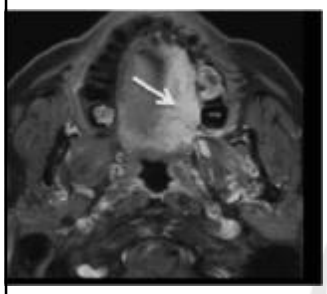


FIGURE 2: The figure shows the tentorium cerebelli, the falx cerebri and other portions of the skull. The tentorium cerebelli



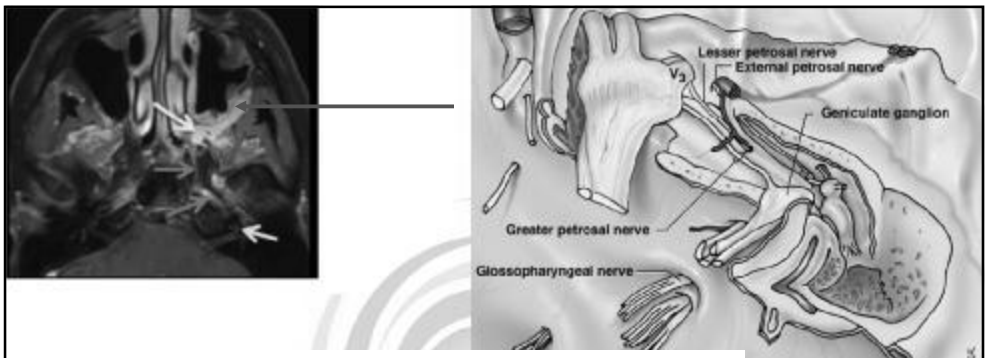
- **The tentorium cerebelli**
  - An invagination of the meningeal layer of the dura mater
  - Separates the occipital and temporal lobes from the cerebellum and brainstem.
  - Extends in the axial plane over the posterior cranial fossa
    - ➔ Divides the cranial cavity into the supratentorial and infratentorial spaces



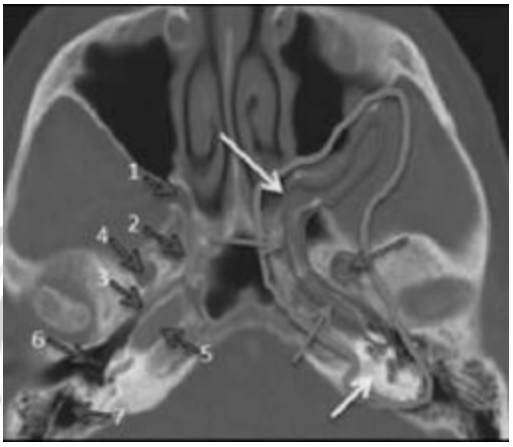
Anato my

Radiology

- Elderly with hard palate high grade salivary gland tumour (MRI T1 fat sat)



- Involvment of Ptrygopalatine fossa (V2)
- **Pterygomaxillary fissure into the retromaxillary masticator space**
- Interconnecting pathways (V2/VII)
  - Vidian canal & Greater petrosal nerve
- **Foramen Ovale (V3)**
- Cochlea



- 1) Petrygopalatine Fossa
- 2) Vidian Canal
- 3) Petrosal n.
- 4)Foramen Ovale
- 5)Carotid a.
- 6) Inner Ear
- 7) Mastoid