

Prostate Fossa Contouring Guide

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Modified by the eContour Team

You want to contour: **Post-op Prostate**

What now?

- Find your references
 - RTOG Prostate Fossa Contouring Atlas
 - <https://www.rtog.org/CoreLab/ContouringAtlases/ProstatePostOp.aspx>
 - Consensus guideline publications
 - Michalski, IJROBP 2010
 - Wiltshire, IJROBP 2007
 - RTOG trials with contouring descriptions for IMRT described in the protocol
 - RTOG 0534 (ongoing)
 - *eContour.org aims to be your one-stop shop for high yield anatomy and contouring guidelines, including hyperlinks to each of the above!*

You want to contour: **Post-op Prostate**

Check eContour.org for guidance!

1. From HOME PAGE click CASES



2. **GU** → **Prostate** → **post-prostatectomy** (not intact)

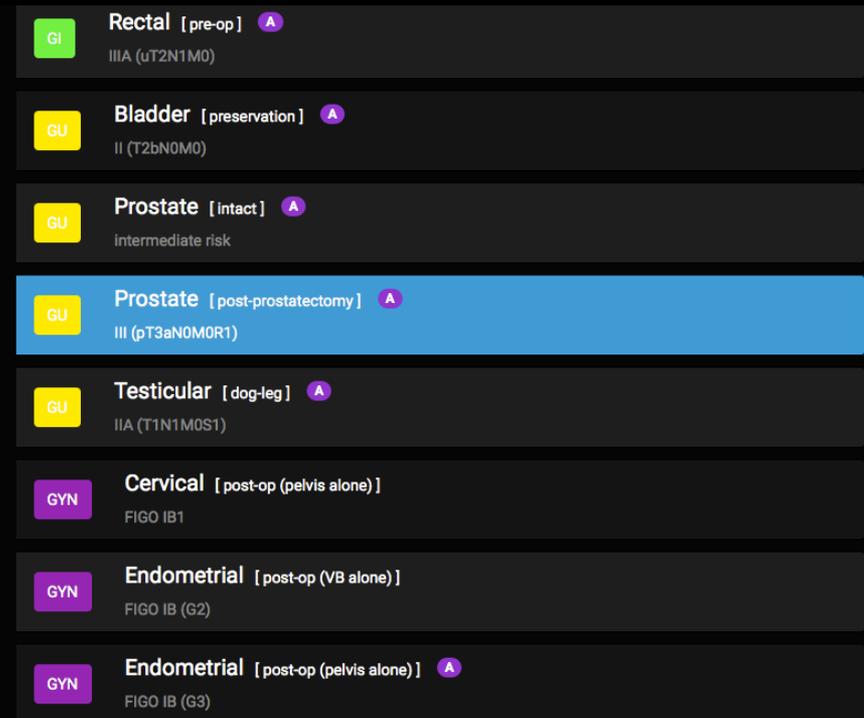


3. Review anatomy

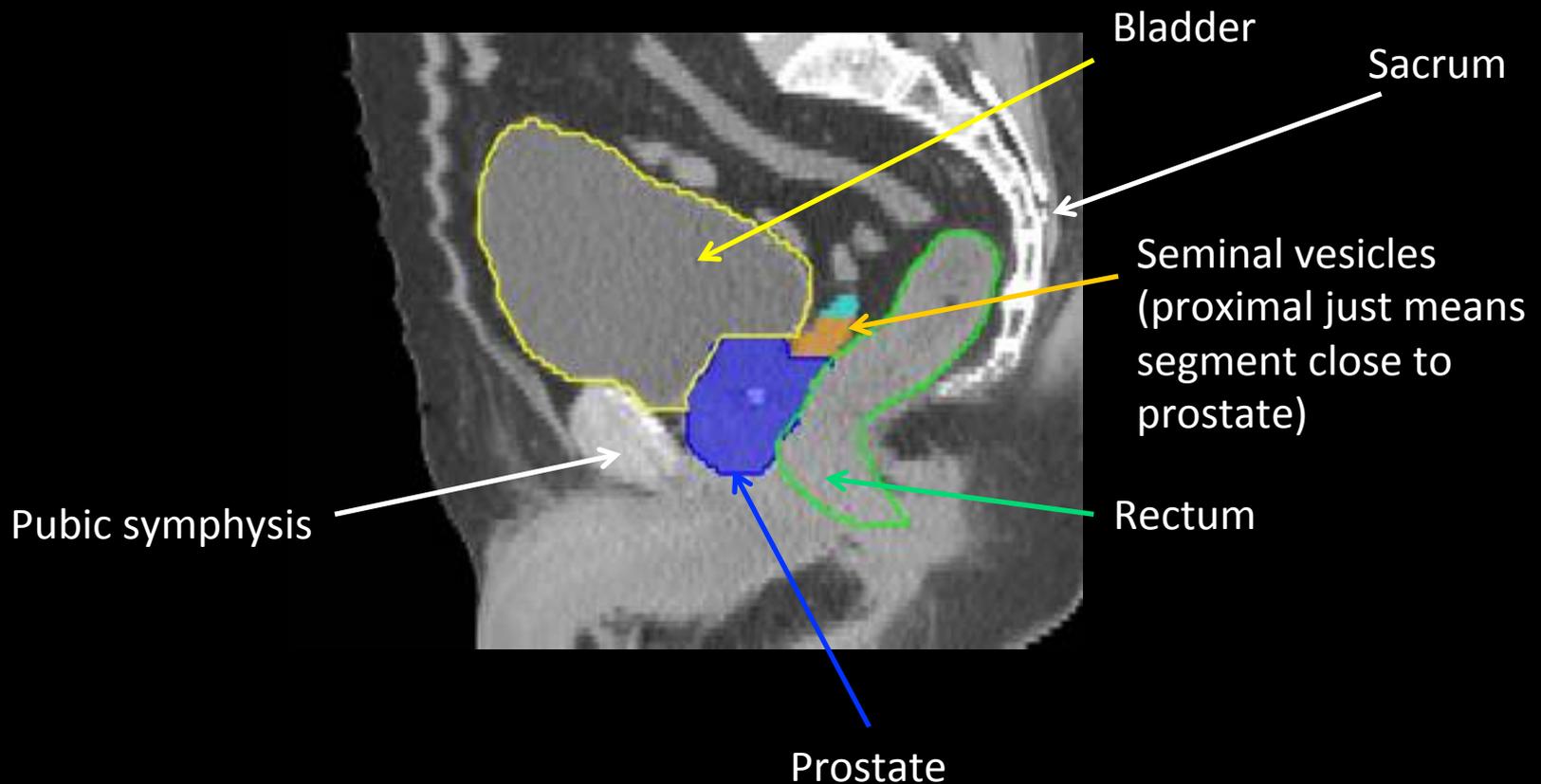
4. Draw OARs (rectum and penile bulb)

5. Draw the CTV

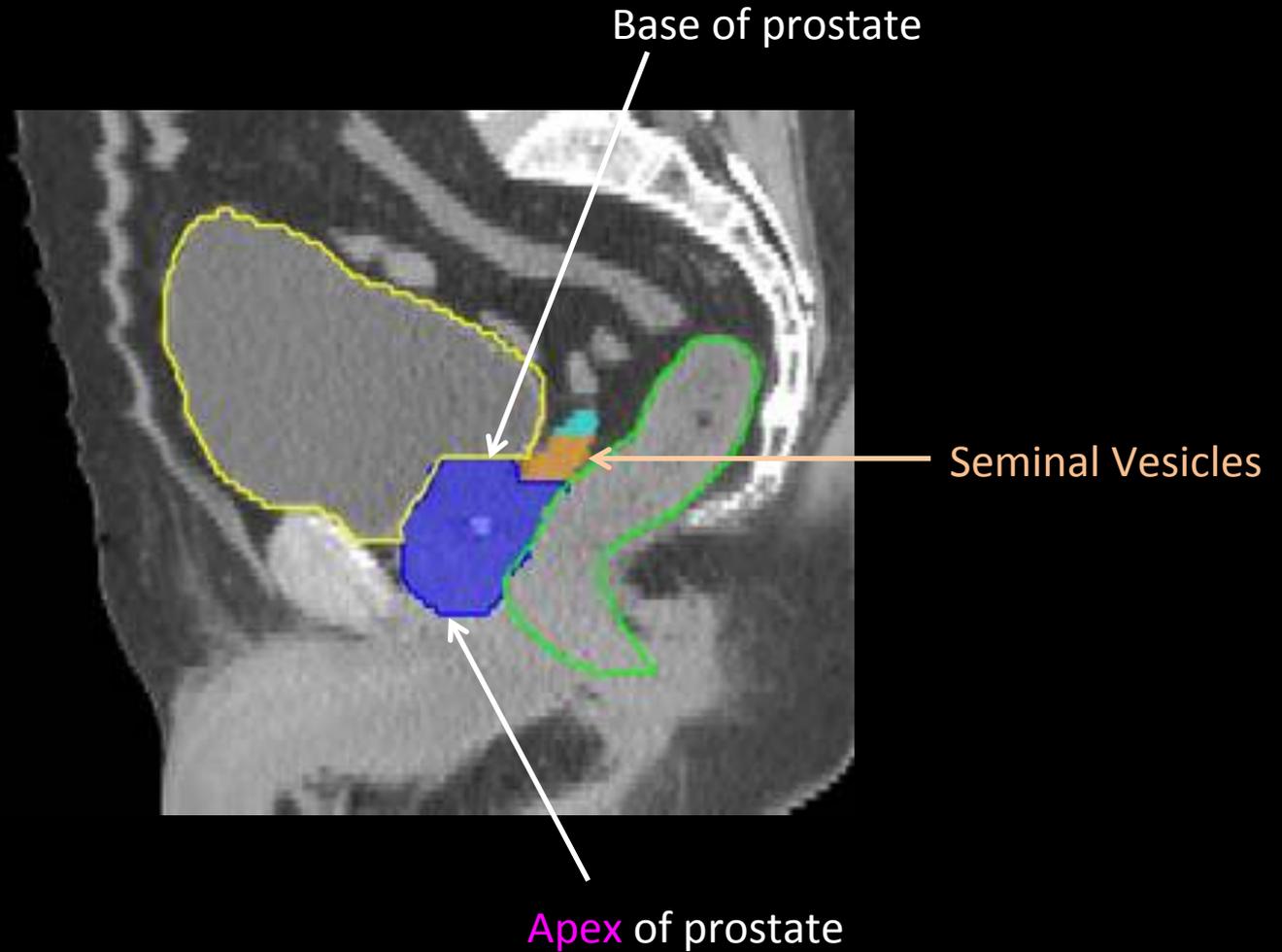
6. Add margin/expansion to create final PTV for treatment planning.



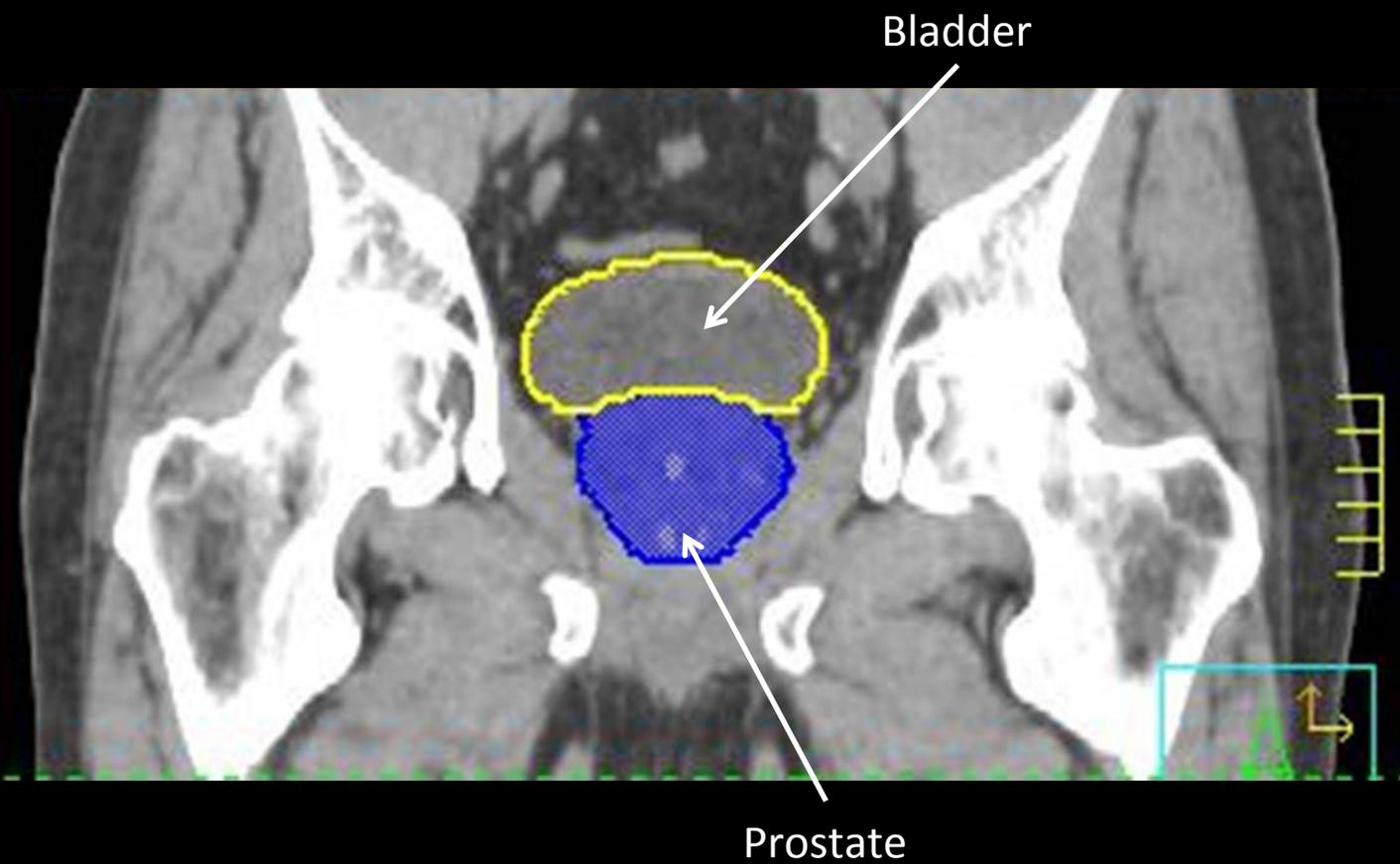
Quick review of **basic anatomy** of prostate/pelvis



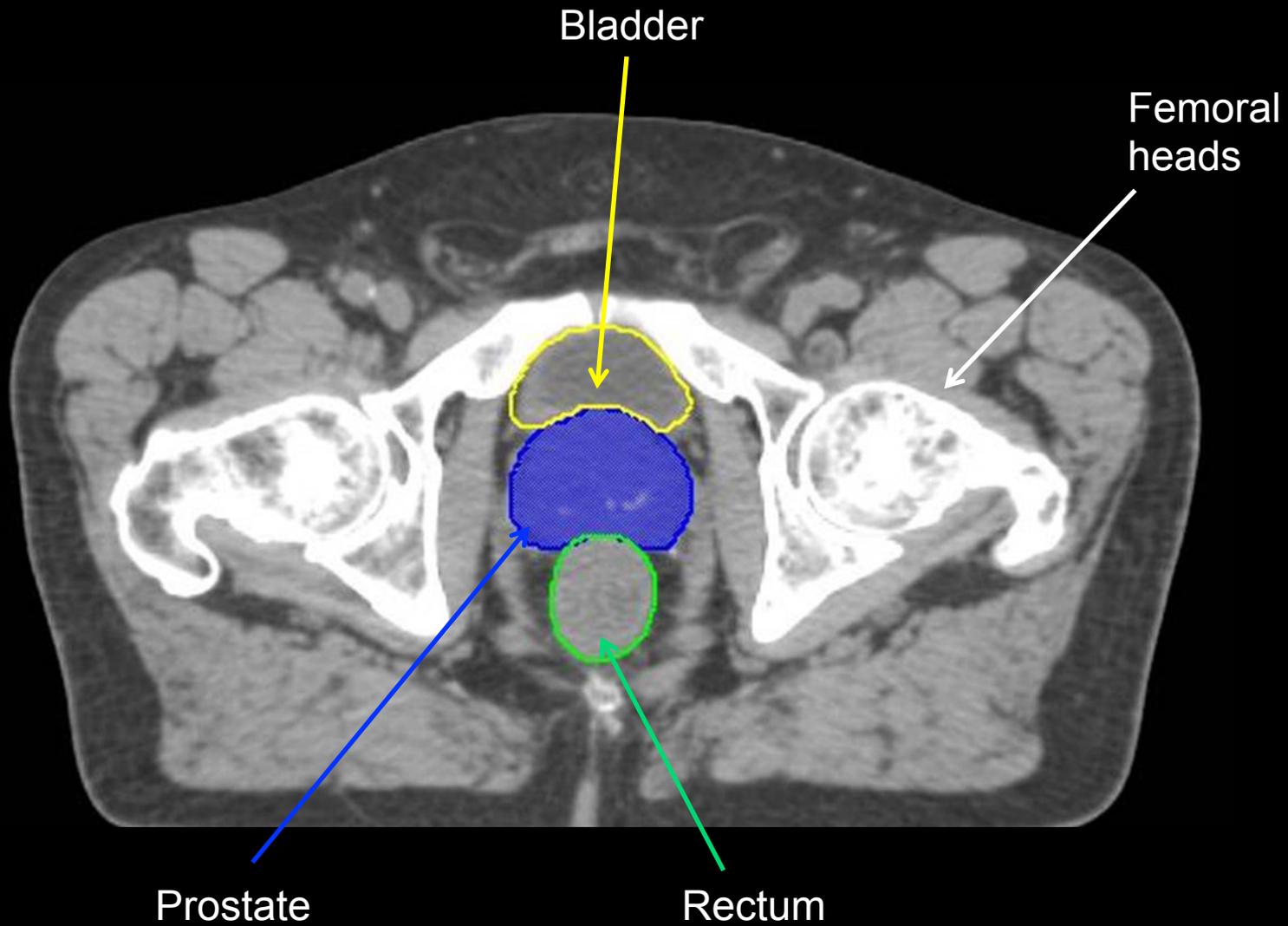
Sagittal view



Coronal view



Axial view



Anatomical Borders of Post-Op CTV for Prostate Cancer

Below the superior edge of the symphysis pubis		Comments
Anterior	Posterior edge of pubic bone	
Posterior	Anterior rectal wall	May need to be concave around lateral aspects
Inferior	8-12 mm below VUA	May include more if concern for apical margin. Can extend to slice above penile bulb if VUA not well visualized
Lateral	Levator ani muscles, obturator internus	
Above the superior edge of the symphysis pubis		
Anterior	Posterior 1-2cm of bladder wall	
Posterior	Mesorectal Fascia	
Superior	Level of cut end of vas deferens or 3-4cm above top of symphysis	Vas may retract postoperatively, Include seminal vesicle remnants if pathologically involved
Lateral	Sacrorectogenitopubic fascia	If concern about extraprostatic disease at base may extend to obturator internus

Starting Inferiorly

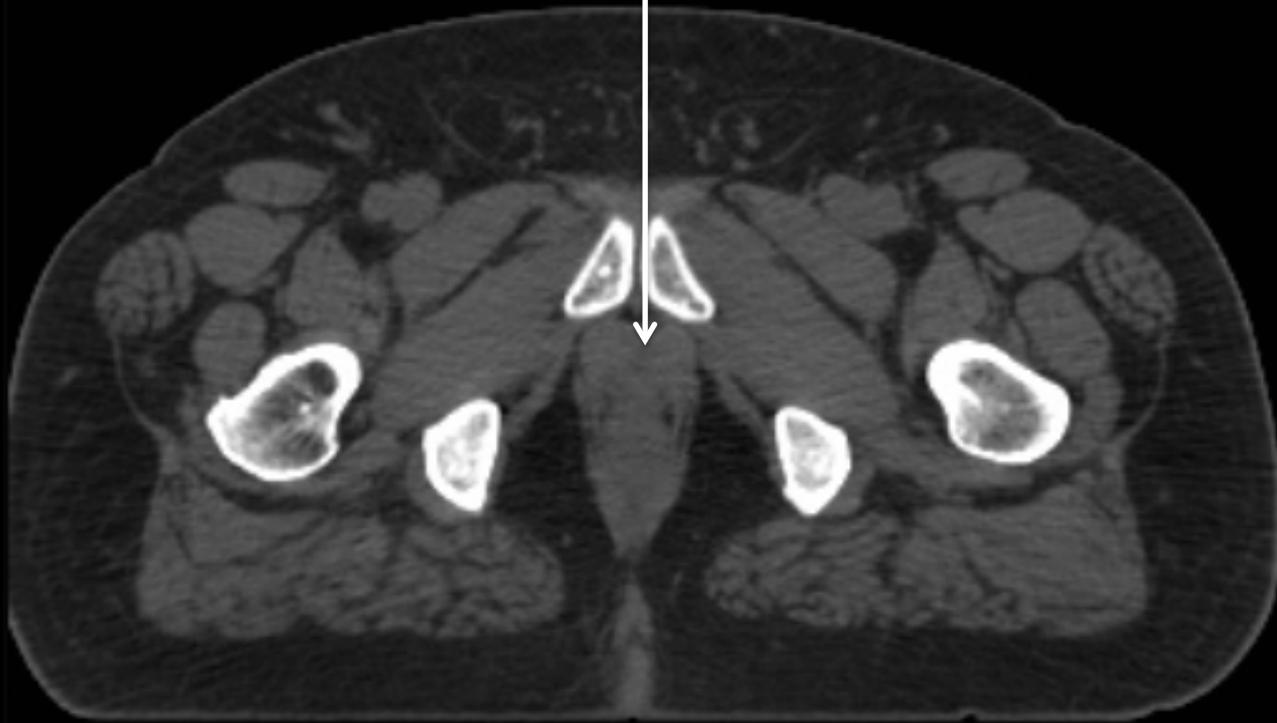
- Find the lowest slice according to your guidelines

Inferior	8-12 mm below VUA	May include more if concern for apical margin. Can extend to slice above penile bulb if VUA not well visualized
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- Locate the **vesicourethral anastomosis** (VUA) which is where the bladder was reattached to the urethra after removal of the prostate
- If difficult to locate VUA, use slice above penile bulb

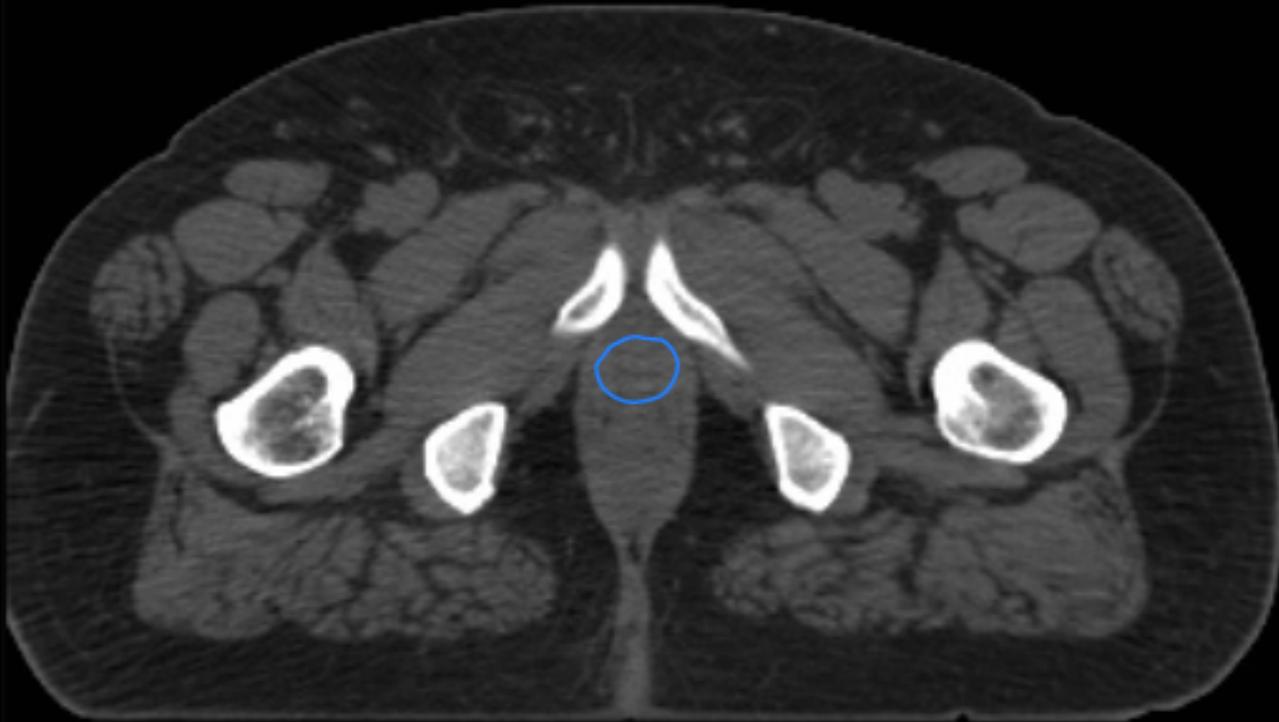
VUA

Image: 124/193



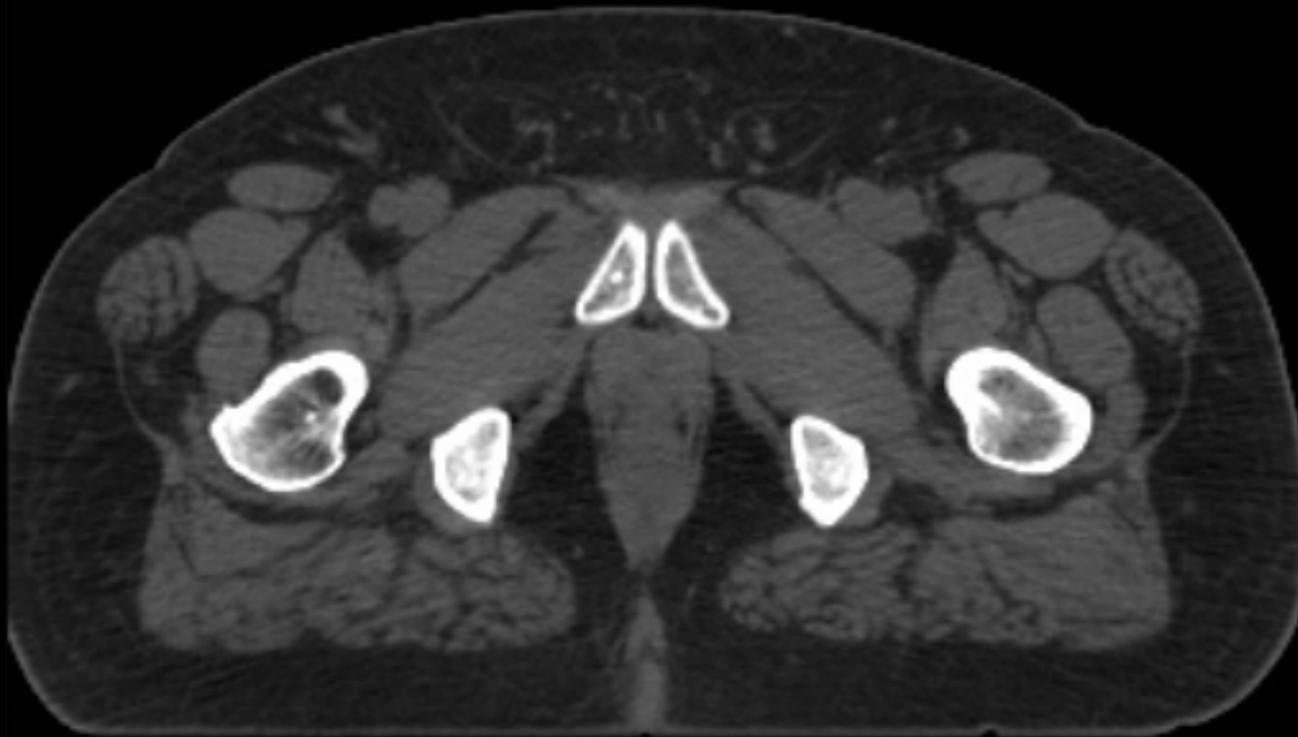
Start CTV: 4 slices below VUA

Image: 126/193



Each slice = 2.5mm, so 4 slices puts us 10mm below VUA

Image: 124/193



Scrolling through CT images, moving superiorly

Image: 122/193

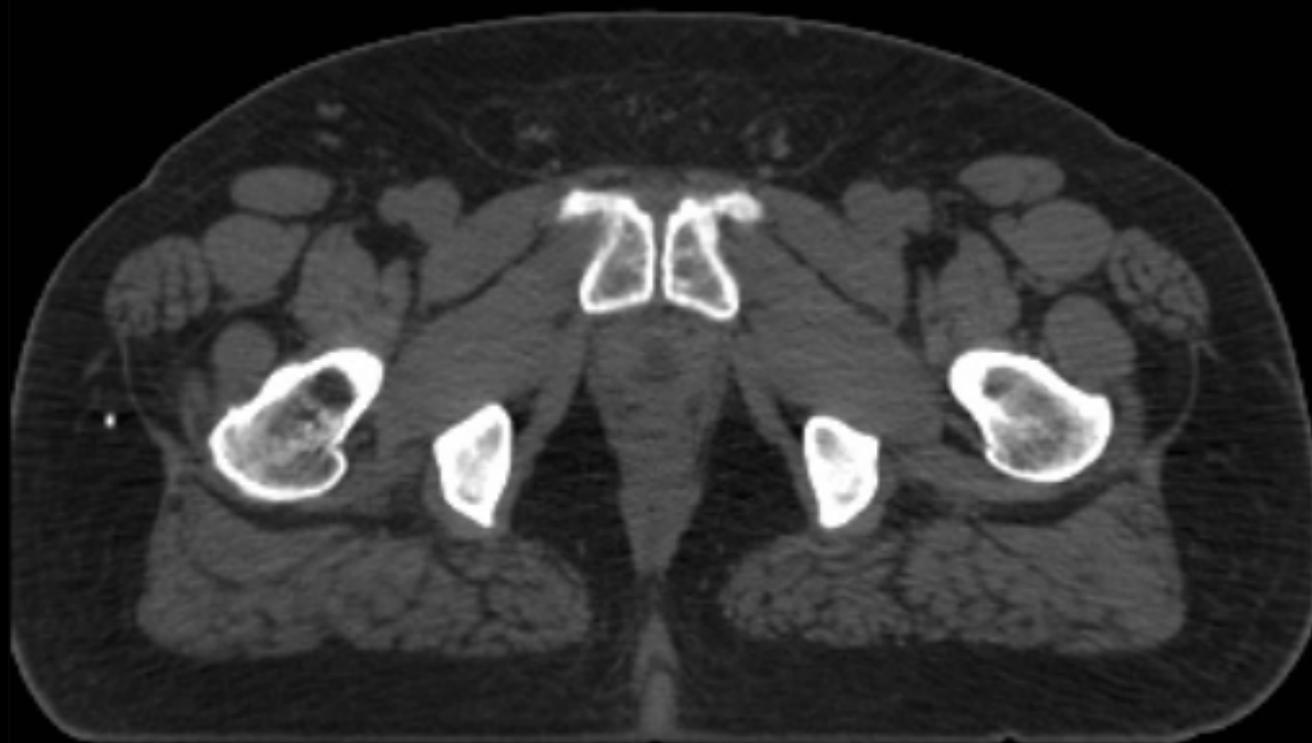
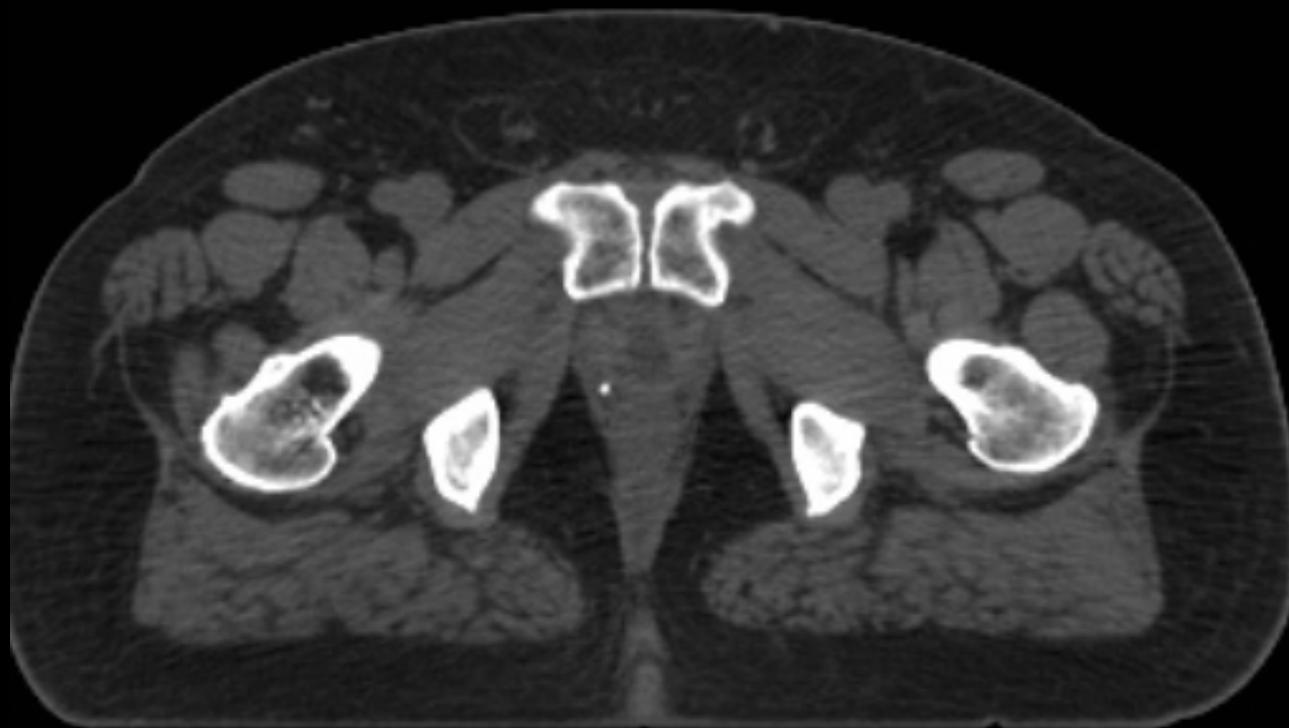


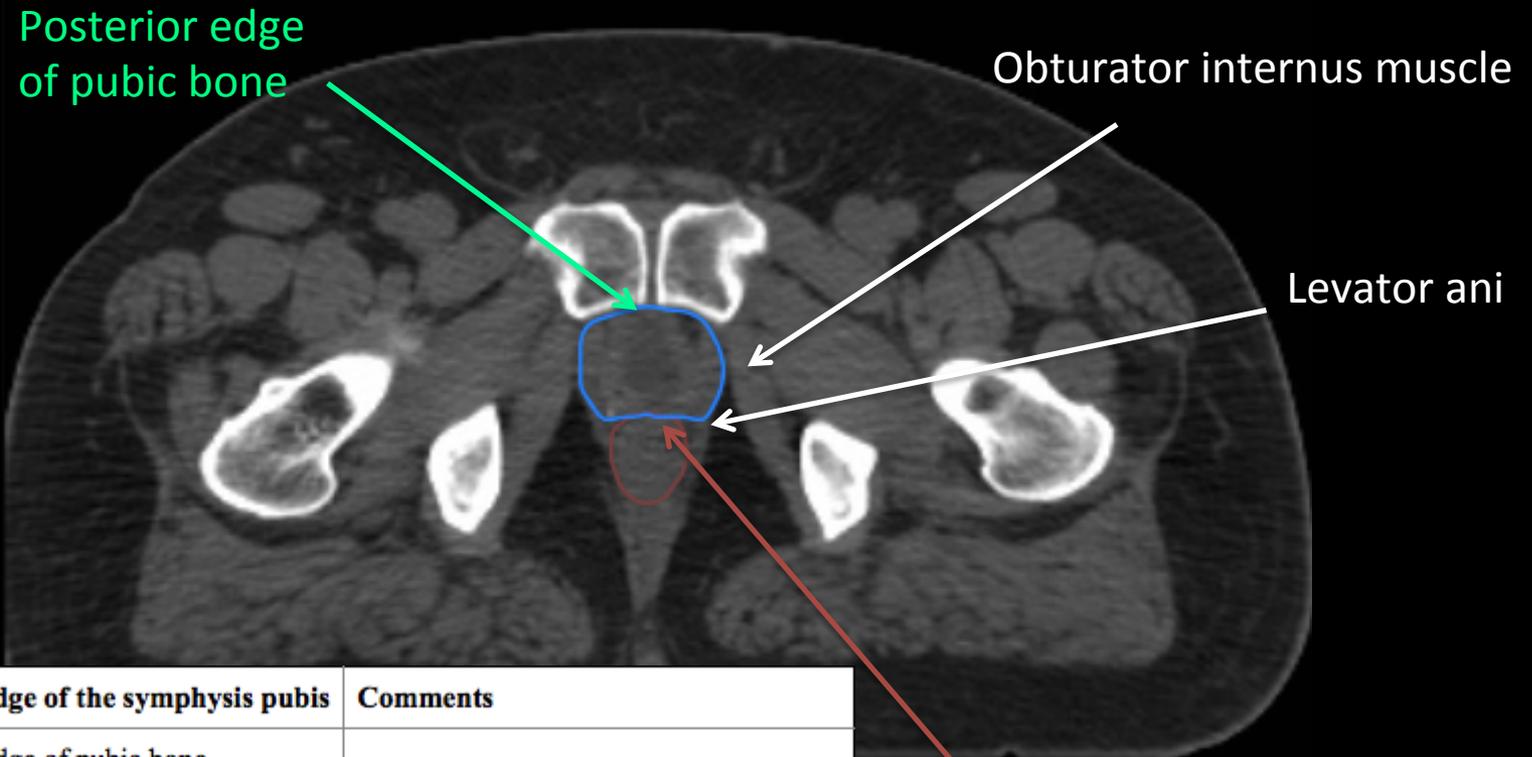
Image: 121/193



Boundaries

(inferior to pubic symphysis)

Image: 120/193

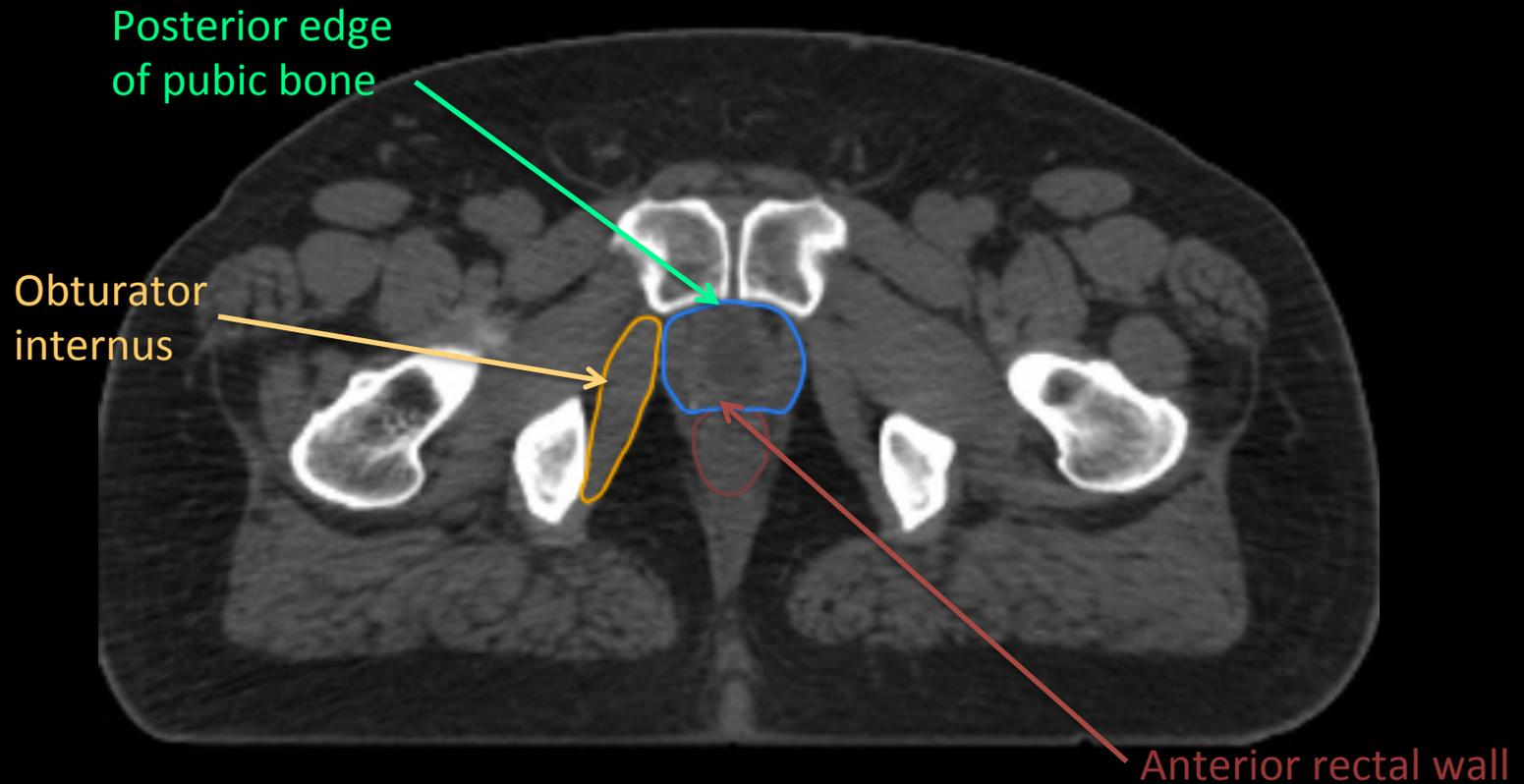


Below the superior edge of the symphysis pubis		Comments
Anterior	Posterior edge of pubic bone	
Posterior	Anterior rectal wall	May need to be concave around lateral aspects
Lateral	Levator ani muscles, obturator internus	

Boundaries

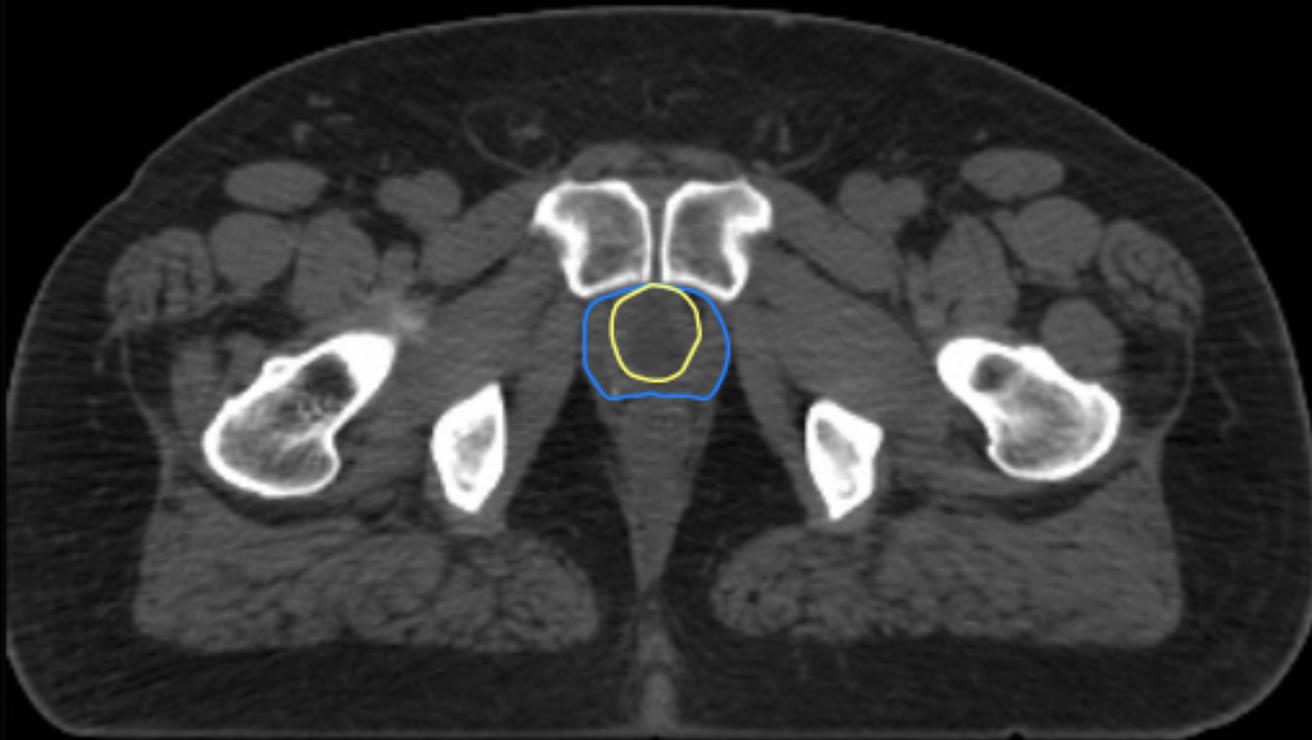
(inferior to pubic symphysis)

Image: 120/193



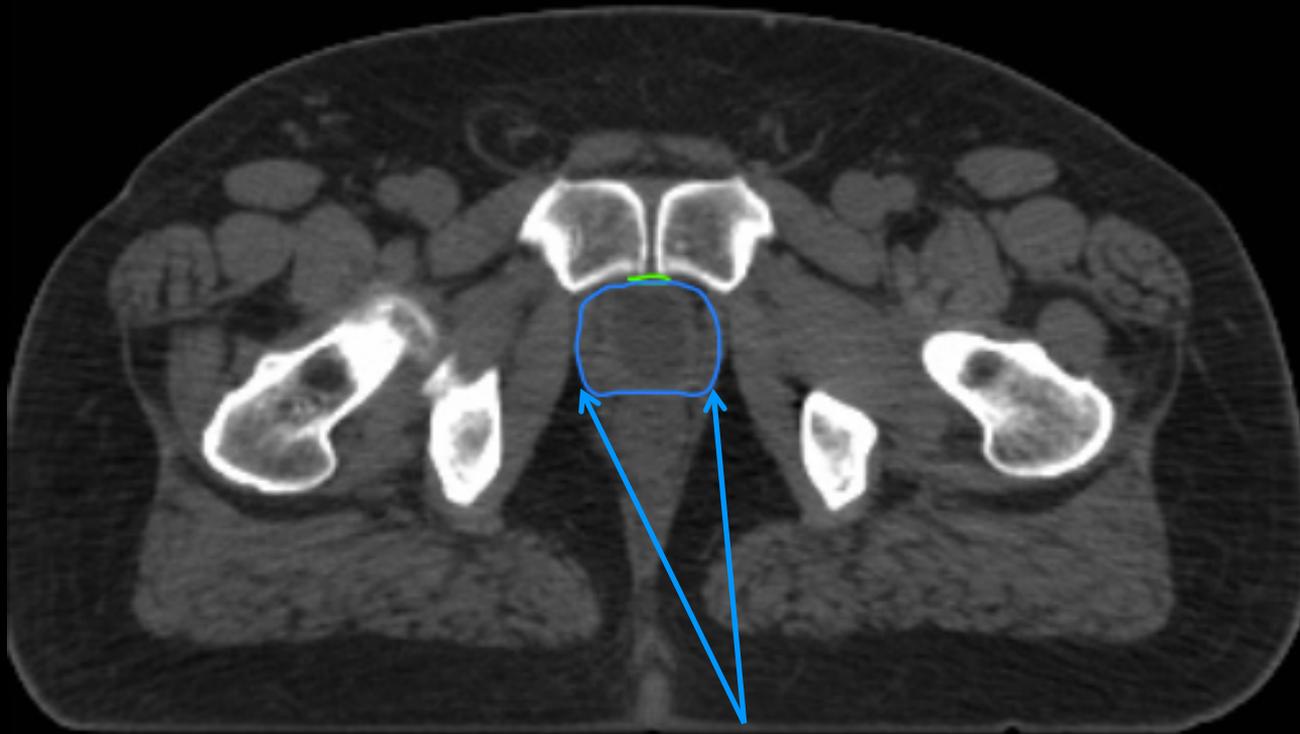
What about the bladder?

Image: 120/193



Include it! This is the previous location of the prostate

Image: 119/193



May need to be concave around lateral aspects

When do I stop?

Image: 119/193



Below the superior edge of the symphysis pubis		Comments
Anterior	Posterior edge of pubic bone	
Posterior	Anterior rectal wall	May need to be concave around lateral aspects
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These boundaries apply only to *below* (inferior) the superior edge of pubic symphysis

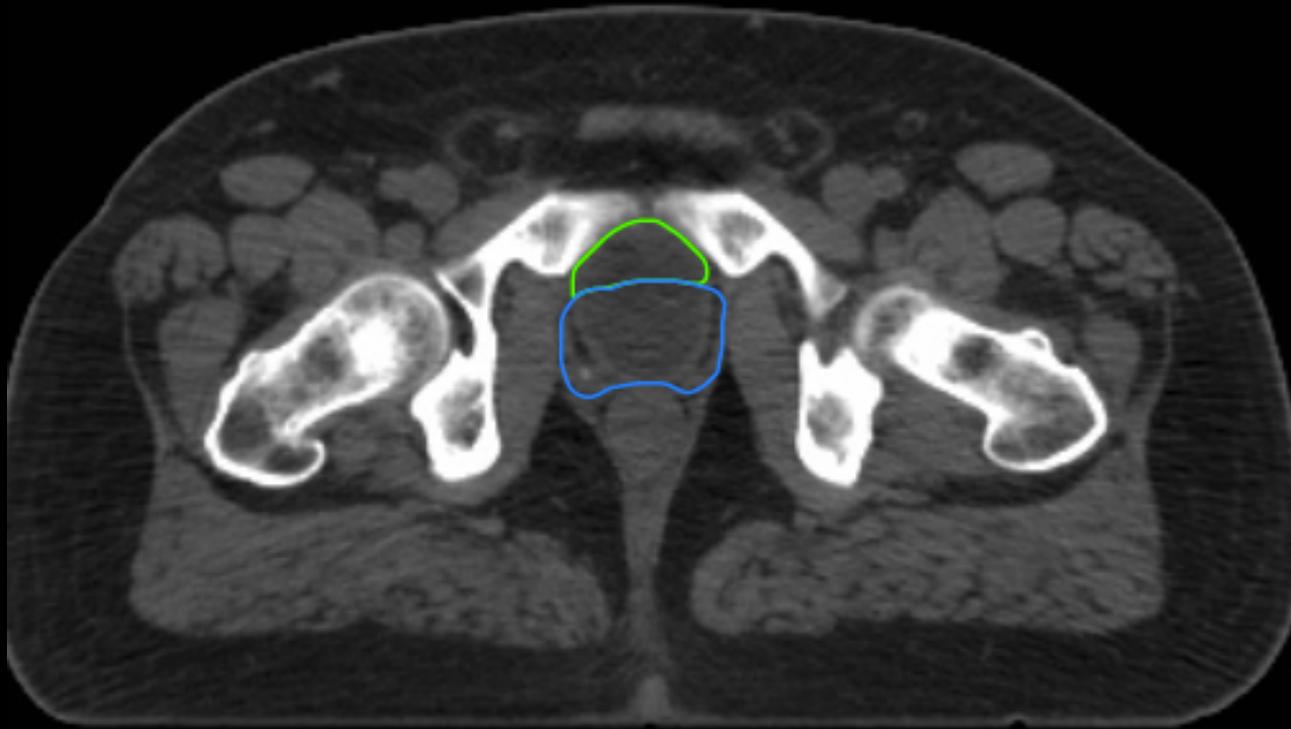
So *above* symphysis we need new boundaries



Need to transition down to including only 1-2cm posterior bladder wall

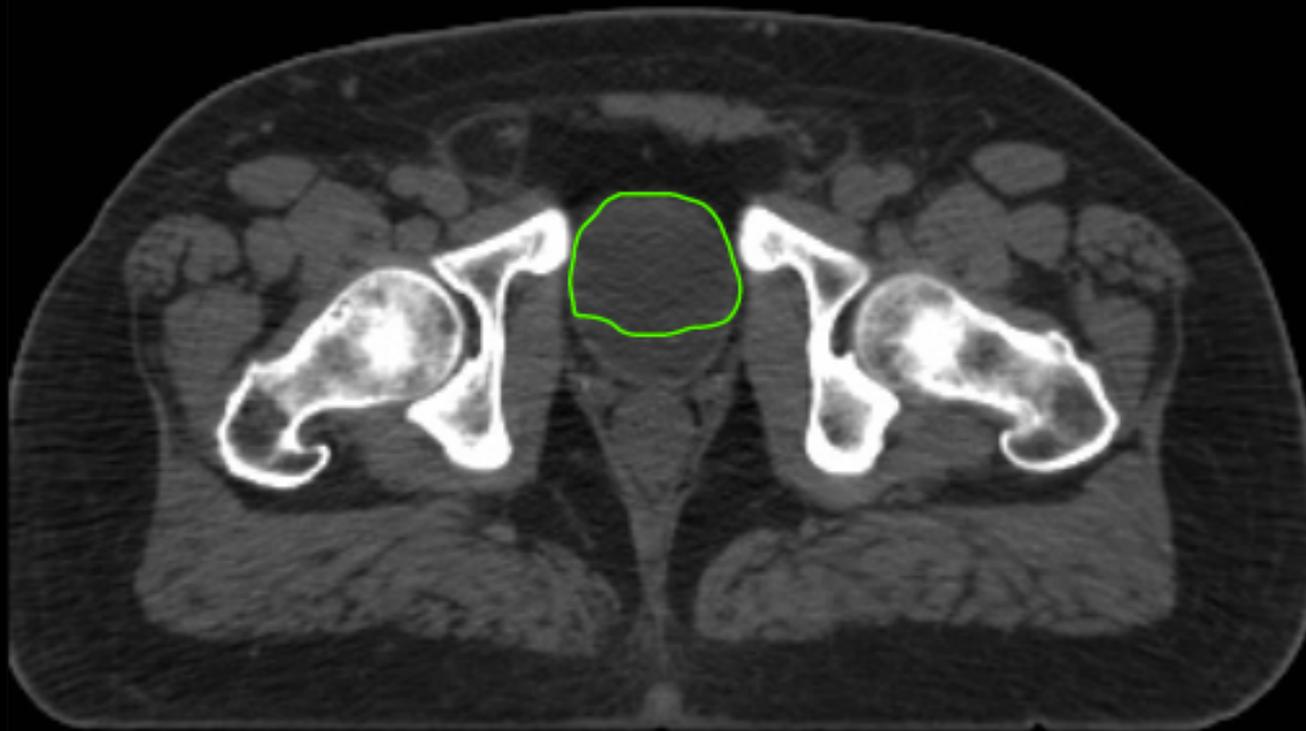
Start pulling back posteriorly

Image: 116/193



Continue pulling back posteriorly over
a few slices until...

Image: 114/193

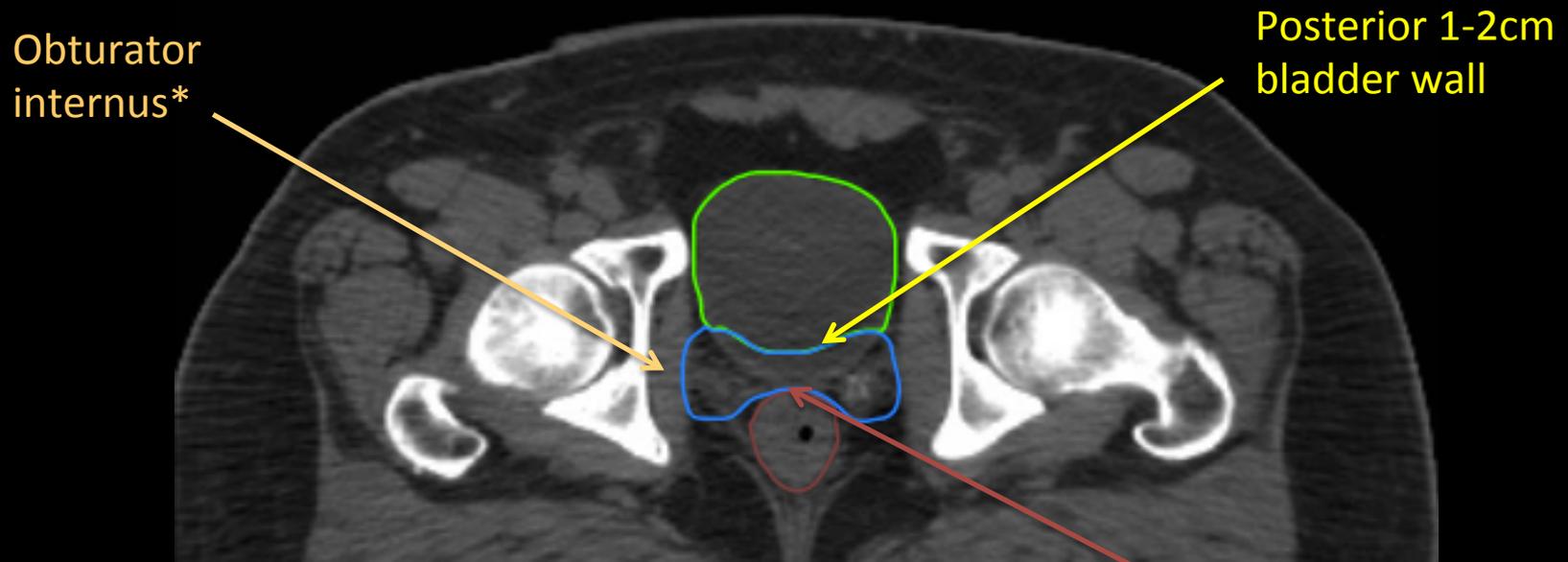


Green =
Bladder
minus CTV

Continue this stepwise reduction in volume over several CT slices

Include 1-2cm posterior bladder wall

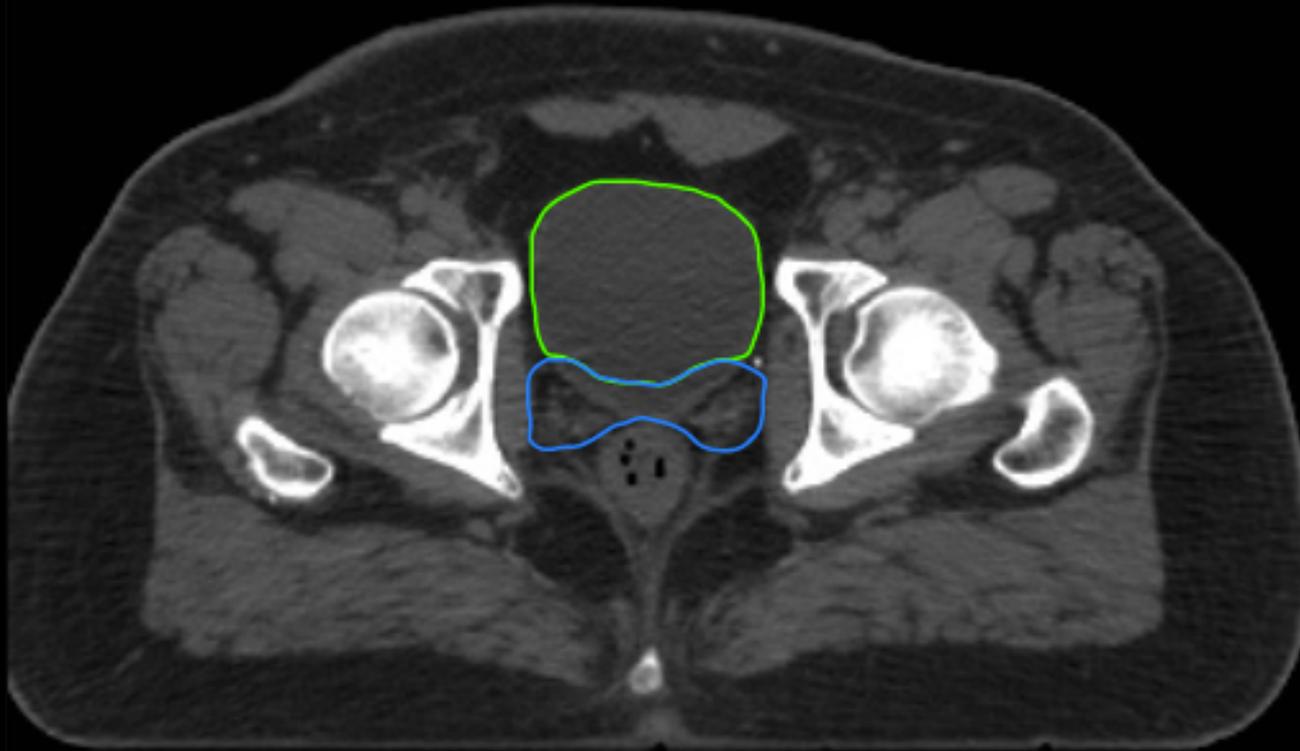
Image: 111/193



Above the superior edge of the symphysis pubis		
Anterior	Posterior 1-2cm of bladder wall	
Posterior	Mesorectal Fascia	
Lateral	Sacrorectogenitopubic fascia	If concern about extraprostatic disease at base may extend to obturator internus

Vas deferens may retract post-op;
include SV remnants if
pathologically involved

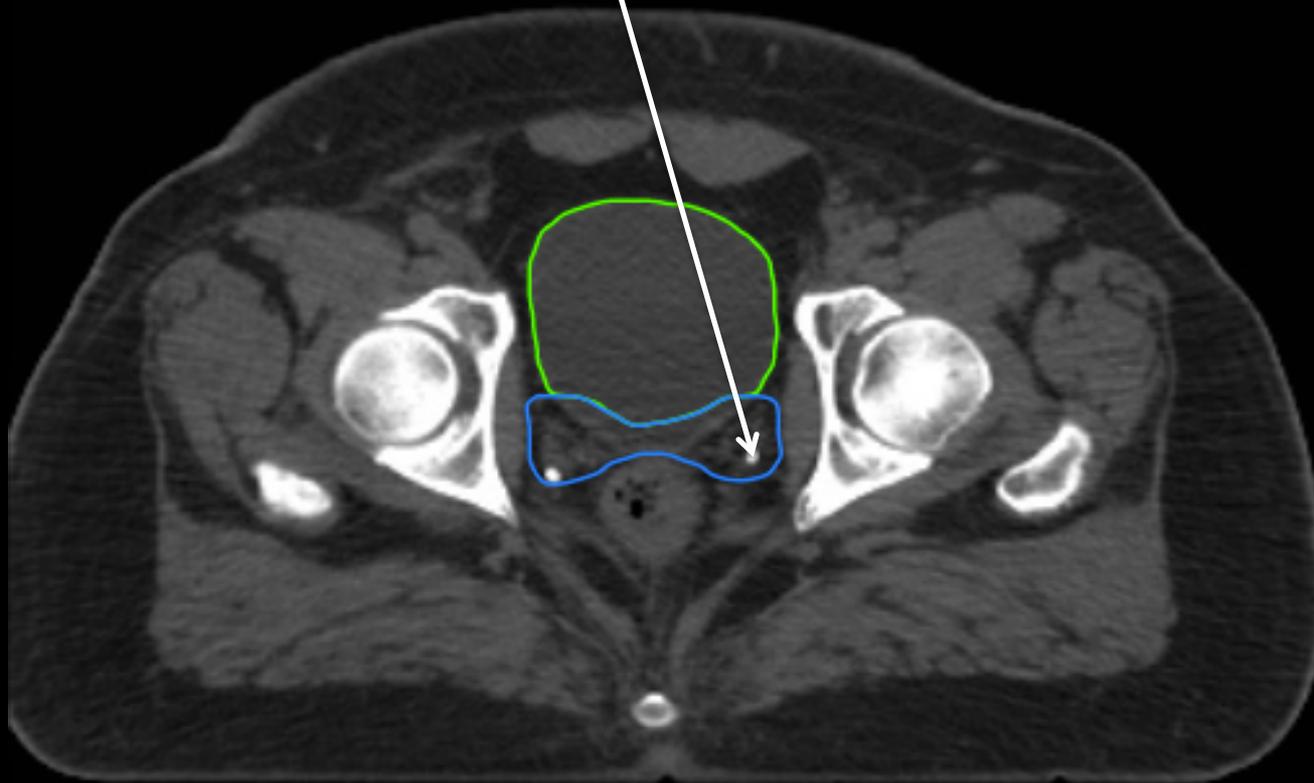
Image: 109/193



Include all surgical clips that are felt to be in the prostate bed

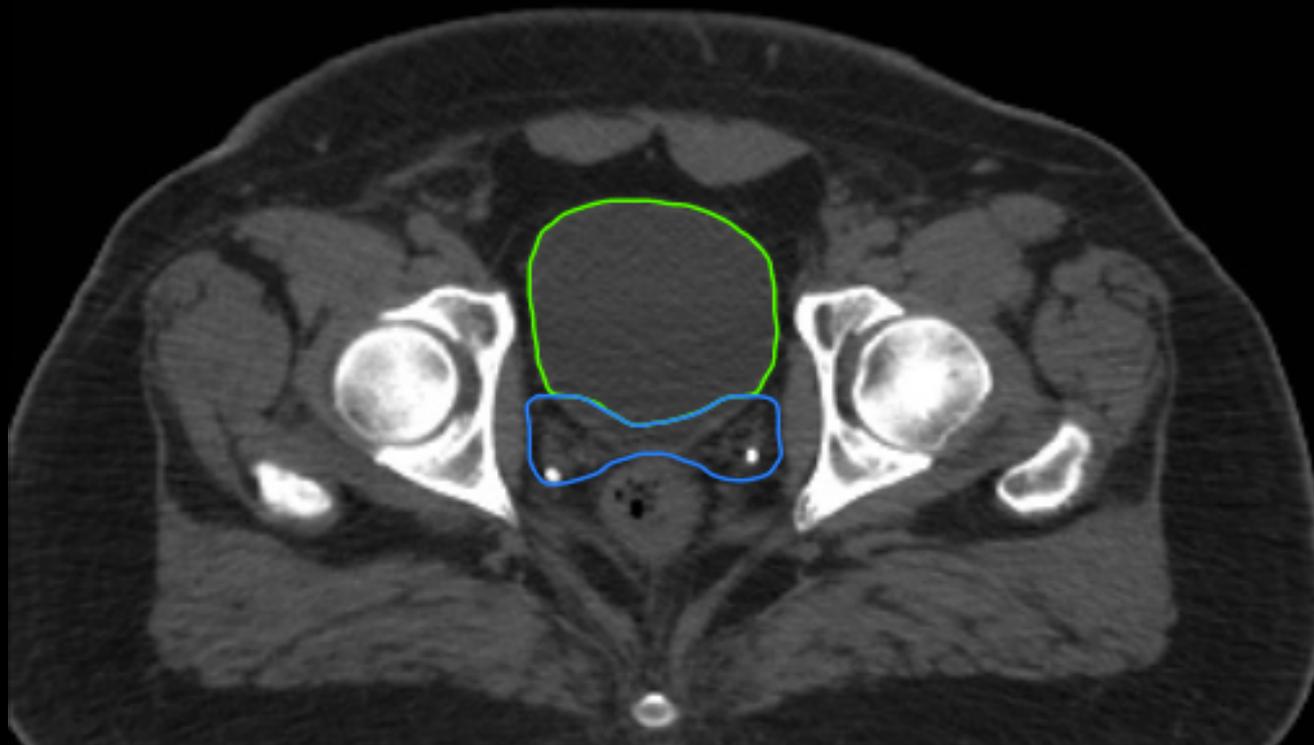
(can have clips from nodal dissection)

Image: 107/193



When do I stop?

Image: 107/193

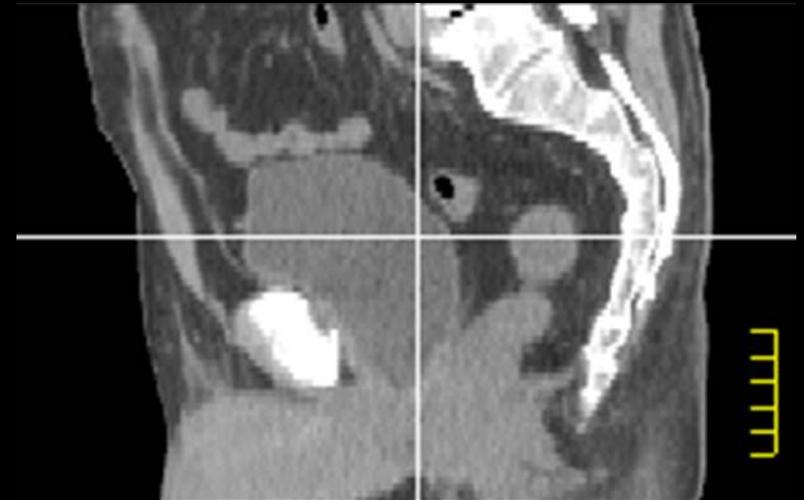
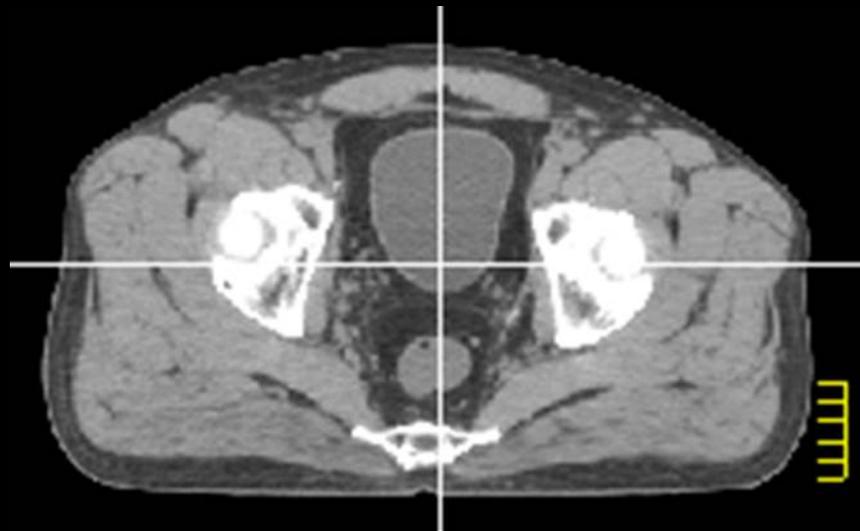


Superior

Level of cut end of vas deferens or 3-4cm above top of symphysis

Vas may retract postoperatively, Include seminal vesicle remnants if pathologically involved

When do I stop?



Superior

Level of cut end of vas deferens or 3-4cm above top of symphysis

Vas may retract postoperatively, Include seminal vesicle remnants if pathologically involved

Sagittal view

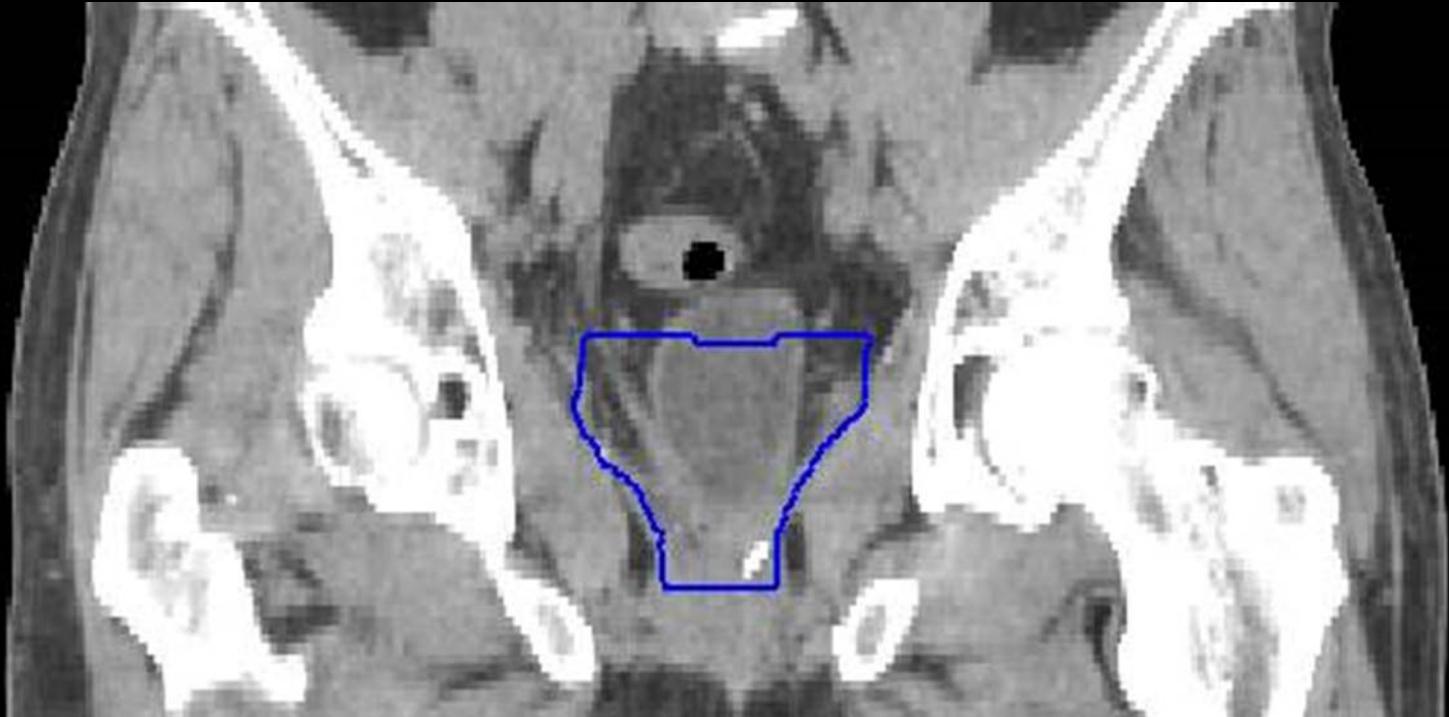
3-4cm above pubic symphysis



8-12 mm below vesico-urethral anastomosis (just above penile bulb)

Inferior	8-12 mm below VUA
Superior	Level of cut end of vas deferens or 3-4cm above top of symphysis

Coronal view



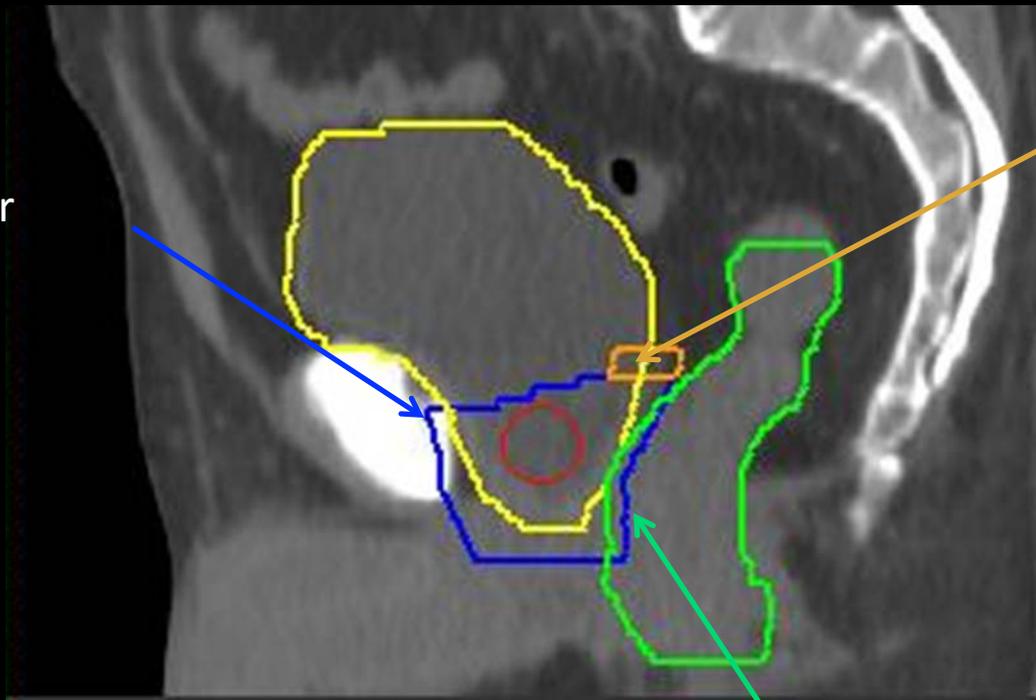
Always check coronal and sagittal views to make sure your volume makes sense

Guidelines are guidelines

- Consider what is correct for each patient
- Where was his initial disease?
- Was there extraprostatic extension?
 - Where?
- Were the seminal vesicles involved?
- Was there a positive margin? If so, where?

- *That said, using consensus guidelines or treated per protocol is usually a safe approach!*

Some add more margin to guidelines with consideration of specific patient risk factors



Extend into pubic symphysis (ex. Patient with anterior lesion with anterior EPE)

SV fossa contoured separately

Extended into anterior rectal wall (ex. Patient has clips sitting along rectal wall)

References

- RTOG contouring atlas
<http://www.rtog.org/CoreLab/ContouringAtlases/ProstatePostOp.aspx>
- Wiltshire, K. L., et al. (2007). "Anatomic boundaries of the clinical target volume (prostate bed) after radical prostatectomy." *Int J Radiat Oncol Biol Phys* 69(4): 1090-1099.
- Michalski, J. M., et al. (2010). "Development of RTOG consensus guidelines for the definition of the clinical target volume for postoperative conformal radiation therapy for prostate cancer." *Int J Radiat Oncol Biol Phys* 76(2): 361-368.