

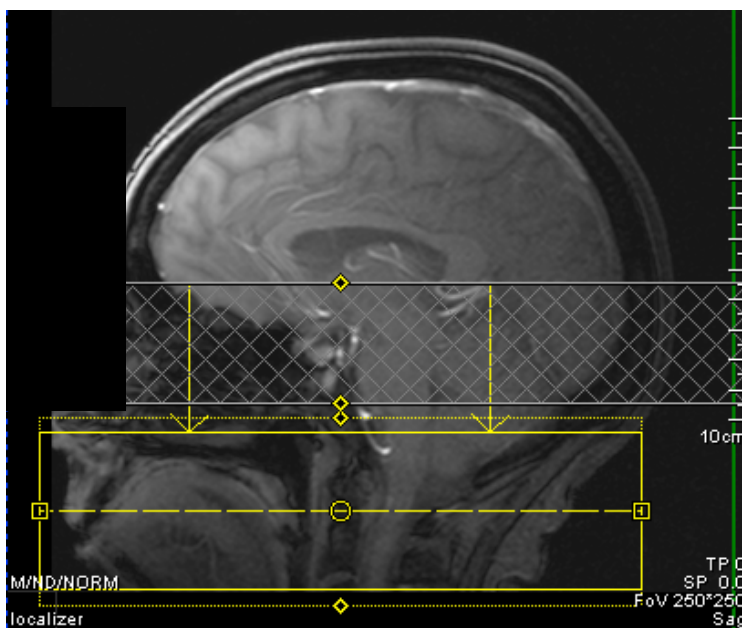
ASL Appendix

Additional details and screenshots on ASL setup and running (complementary to main scanning procedure).

TOF_3D_neck

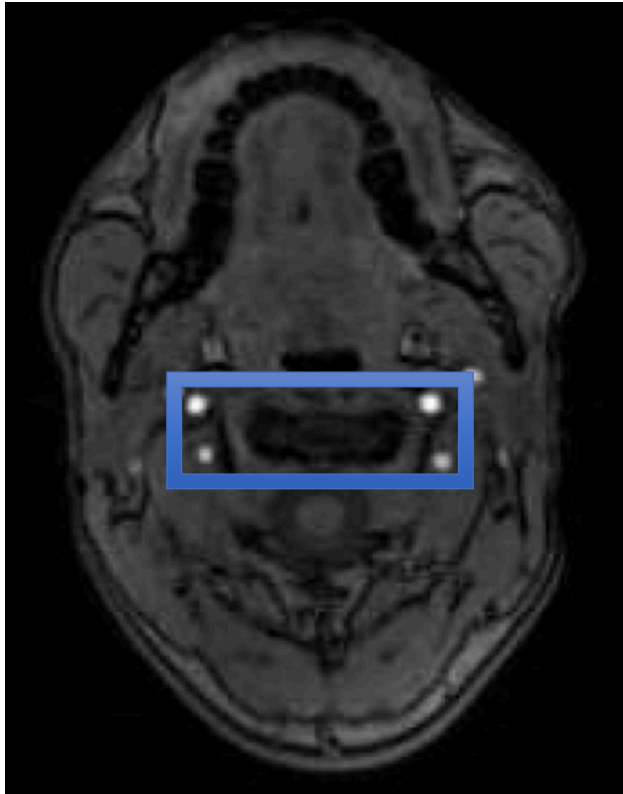
00:42

- Plan true axial covering the neck vessels. Cerebellum down.



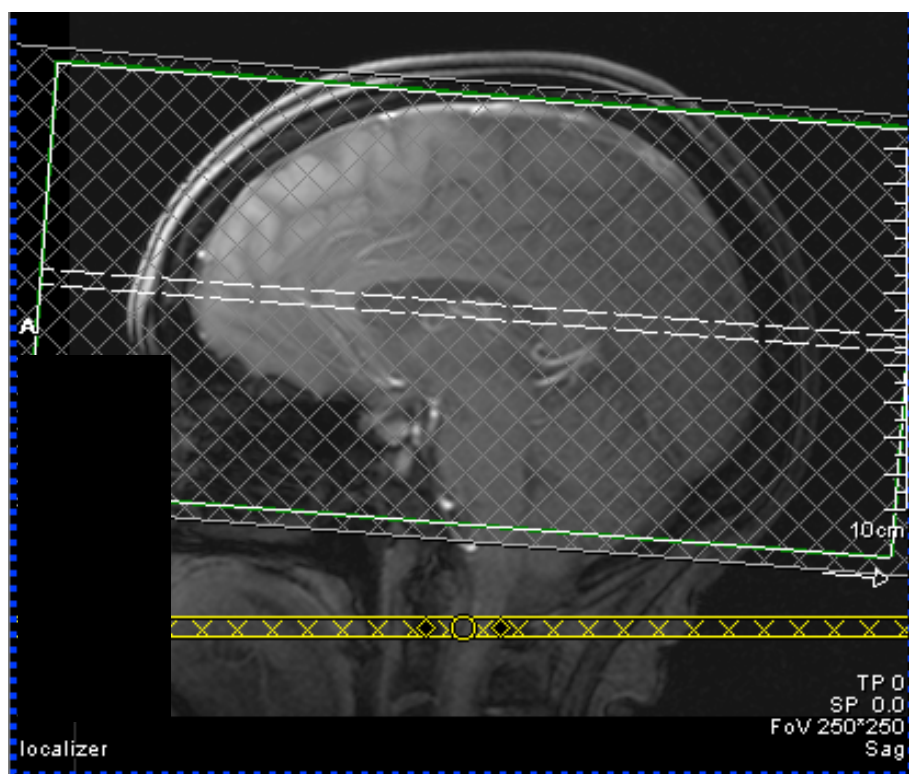
WHILST RUNNING THE DIFFUSION PLAN THE PCASL AND LOCATE THE MIDPOINT BETWEEN THE TWO LOOPS IN THE VERTEBRAL ARTERIES IN THE HEAD-FOOT (INFERIOR-SUPERIOR) DIRECTION

- To be certain of the labelling plane choice the axial (transverse) TOF slices can also be examined in the viewing tab, particularly if the MIPs are not clear
- Scroll through the slices, identifying the slices containing the twists in the vertebral arteries
- NB. Between these two twists the internal carotid and vertebral arteries usually form an approximately rectangular arrangement in the axial (transverse) view, like overleaf:



- Note down the slice locations in the head-foot (inferior-superior) direction of these vertebral twists (shown in the bottom right of the image), e.g. F52 and F64
- Choose the labelling plane location as approximately halfway between the two vertebral twists and make a note of it, e.g. $(F52+F64)/2 = F58$
- Go back to the “Exam” tab
- Open the PCASL sequence
- Position the imaging slices AC-PC covering the entire brain
- Select the “Geometry tab” then “Saturation” tab
- Select Sat. Region 1 from the drop-down menu
NB. This is used for background suppression
- Angle this sat region to match the imaging slices and increase its thickness if necessary so that it covers the whole imaging volume
- Select Sat. Region 2 from the drop-down menu
NB. This is the PCASL labelling plane. Note that the sequence only uses the centre of the sat region to establish where to run the PCASL labelling – the thickness of sat region 2 does not affect the sequence at all.

- Ensure the orientation is set to “transverse” If not, click on the three dots next to the orientation and reset it to “transverse”
- Click on the three dots next to “Position”
- Enter the labelling plane location (determined above)
 - This may display in “shift” mode, in which case just enter your labelling plane location, adding a minus sign if it is inferior of isocentre (e.g. for F52 enter - 52) If it is in “L-P-H” mode enter the labelling plane location in the third box. If the current setting is superior of isocentre (e.g. H12) and you want it to be inferior (e.g. F52) then enter a minus sign first (e.g. -52) and you should see the H change to an F.
 - NB. When you’ve entered the value you should see the second sat region shift to the location you’ve asked for. As a sanity check you can drag the TOF coronal and/or sagittal MIPs into the boxes at the top of the exam window to make sure that the labelling plane location looks correct.
- The result should look a bit like this:



If Saturation 1 encroaches on Saturation 2 (the labelling plane) adjust the position of Saturation 1 so they don't overlap.

9. to_ep2d_PCASL

07:17

- Position imaging region parallel to the AC-PC line (axial oblique)
- Cover entire brain
- Copy adjust volume from diff_PA_MPopt_MB3_3b0_lowflip

- manually position Saturation Band 1 over the entire scan volume at the same angulation
- select Saturation Band 2 in Geometry – Saturation and input the midpoint between the loops in the vertebral arteries identified above as the head-foot position identified from TOF_3D_neck
- see instructions earlier for further details
- ensure prescan normalise and unfiltered images boxes are checked in Resolution – Filter Image

- Resting state instructions: “[Look at the cross for the next scan, blink normally and try not to fall asleep.](#)”