FIRST TRIMESTER DETAILED ANATOMY CHALLENGE #1

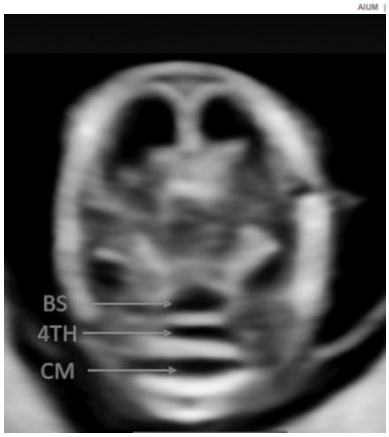
As promised, I am following up with more info on the First Trimester Detailed Anatomy exam. This is a challenging exam that will take us all a while to feel comfortable with, and it is likely we will need to start doing them sometime next year. Many institutions have been doing these already, and our MFMs have been pushing for us to be as well. Our plan is to work on taking one or two specific images from the AIUM protocol list at a time, gradually gaining confidence in the requirements. Please don't spend more than a couple of minutes trying to get these images though. If you cant get it with a little tweaking, move on and try it on your next patient. It is just practice for now. We will rotate through the more challenging images for two weeks or so and then try a new set.

For patients that do not scan well, or are at the beginning of the GA window, it has not been determined when a transvaginal would be necessary to see the anatomy better. This is still being discussed. It is thought that once there is a billing code made for these exams that it will become more clear when it is expected to move on to transvaginal approach***. We will only be attempting these images from a transabdominal view for now though!*** Of course, and as always, if you suspect an abnormality do a transvaginal to see it better, but do not do one just because you weren't able to get the images we are practicing. Most of the patients we will be able to practice getting these images on will be here for NT exams, but the official window for the Detailed First Trimester exam is GA between 12w0d and 13w6d.

One of the first images we will practice is one that you kind of already get with your NT image, but I want you to look closer at the brain anatomy. Observe the 3 lines and 3 spaces made by the brainstem, 4th vent, and cisterna magna. If they are not somewhat equal in size, or there are less spaces seen, it suggests a neural tube defect or cerebellar or cisterna magna malformity could be present. There is also a BS to BSOB ratio and charts to go with it once we get into measuring the spaces, we aren't going there yet though.

For now your challenge is to find this cranial anatomy in a sagittal *and coronal view*. Measurements not needed yet! See examples of normal and abnormal below.

Sagittal: thalami-midbrain, brainstem, 4th ventricle (intracranial lucency), and cisterna magna



Coronal: Brain stem, 4th ventricle and cisterna magna

10/5/2023

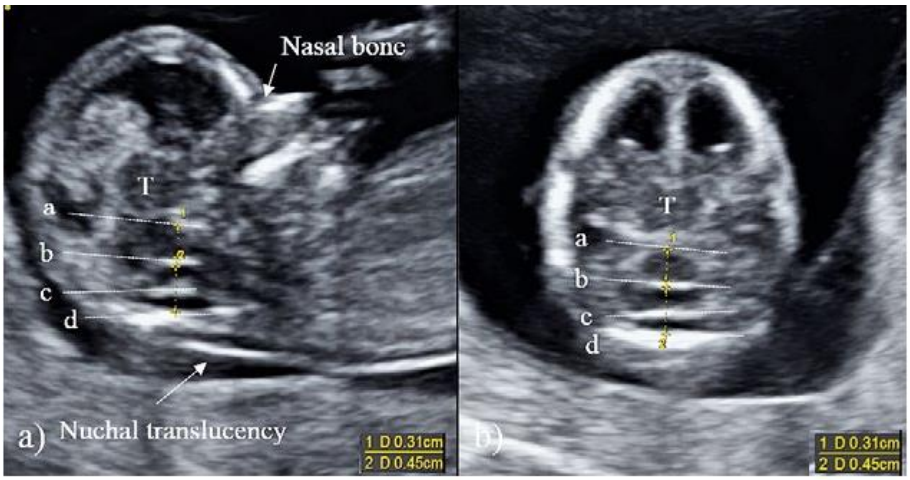
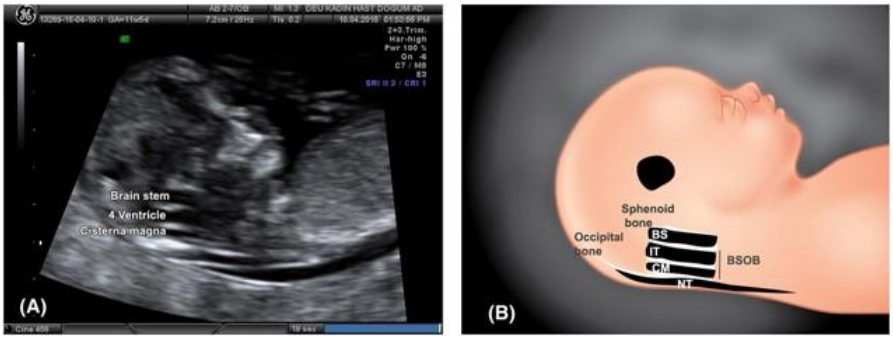
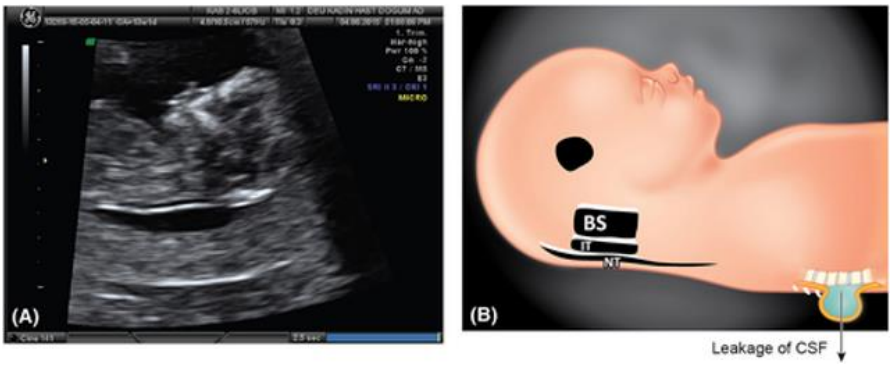


Fig 1. The fetal posterior brain showing the thalamus (T), brain

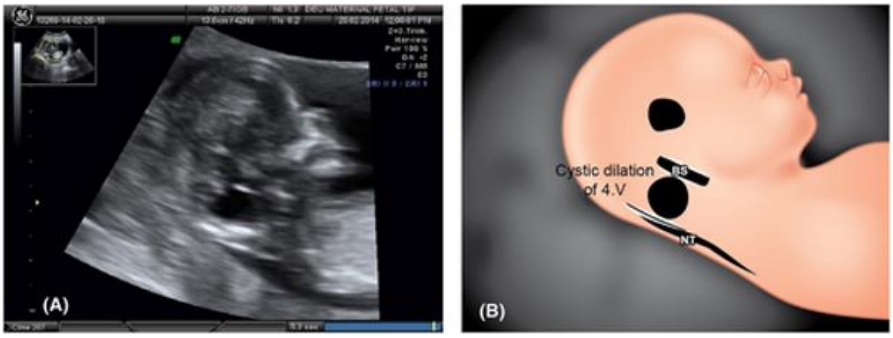
NORMAL AT 11WKS

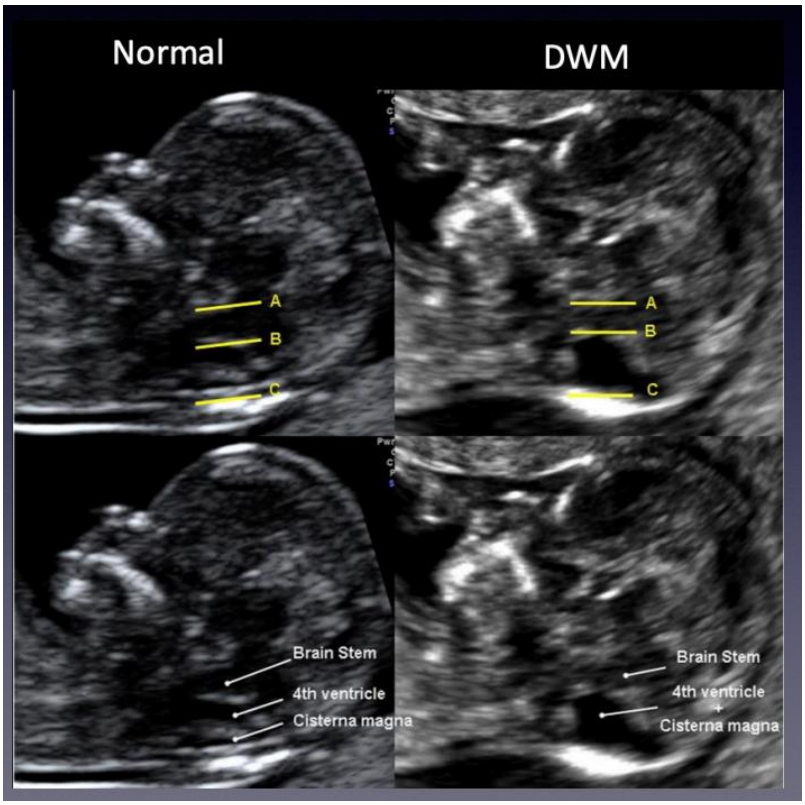


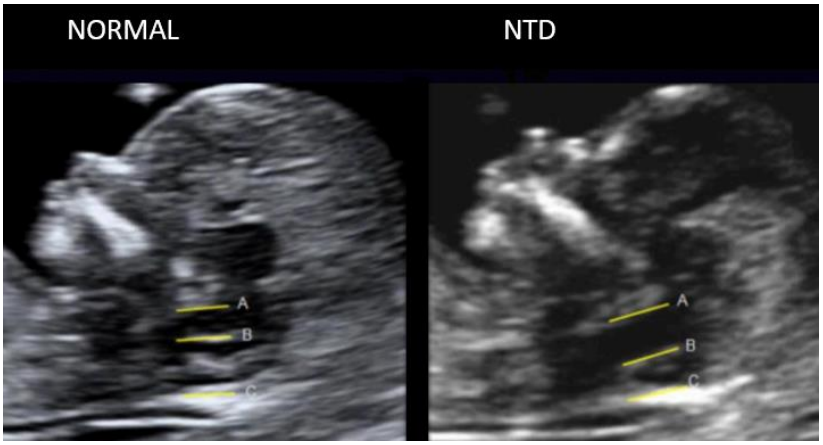
OPEN NEURAL TUBE EXAMPLE AT 13WKS



DANDY WALKER EXAMPLE AT 13 WKS




Normal
DWM
A
B
C
A
B
C
Brain Stem
4th ventricle
Cisterna magna
Brain Stem
4th ventricle
+
Cisterna magna


NORMAL
NTD
A
B
C
A
B
C