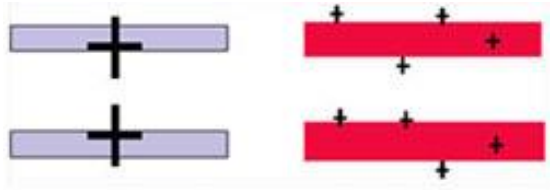
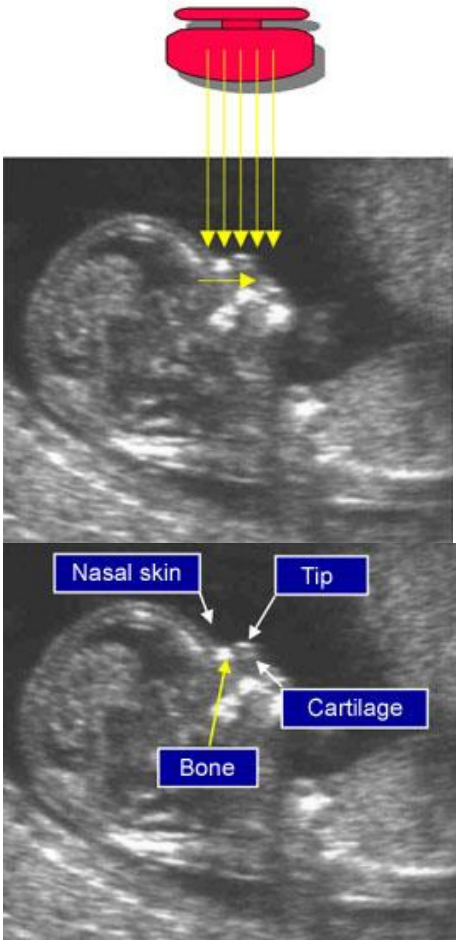
I. Nuchal translucency first trimester screening ultrasound (11-13 weeks at ICW only)

a. Image descriptors:
   i. CRL
   ii. Nuchal translucency
   iii. Nasal bone

b. Nuchal translucency
   i. CRL: 45-84mm (11+0 to 13+6 weeks gestation)
   ii. Midsagittal view (fetus may either be facing towards or away from the transducer)
   iii. Landmarks of the profile: skin over the nasal bridge and the nasal tip
   iv. Intracranial hypoechoic structures: thalamus, pons, medulla oblongata
   v. Image size: head and upper thorax occupies most of the screen, ideally only the fetal head and upper thorax should be included (measurement degree of precision – 0.1mm, such that each slight movement of the calipers produces only a 0.1mm change in the measurement)
   vi. Neutral fetal position with the head in line with the spine (avoid hyper- extension or flexion)
   vii. Skin line needs to be seen separately from the amnion
   viii. Nuchal cord (5% of the cases measure NT above and below the nuchal cord and average the measurements). Initial suspicion of nuchal cord being present is often raised when a segment of the NT cannot be clearly visualized or an indentation in the NT is noted. Commonly, faint echodense lines seen which represent walls of the tortuous umbilical vessels in cross section. Presence of nuchal fold best confirmed with color Doppler.
   ix. "On-to-on" caliper placement at NT widest point. Square calipers with inner aspect of caliper cross hatch flush with the inner aspect of the echodense lines bracketing the nuchal fluid (the crossbar of the caliper should be such that it is hardly visible as it merges with the white line of the border, not in the nuchal fluid). Ultrasound settings adjusted so that these lines are as thin and sharply delineated as possible.
   x. Tissue harmonic imaging (THI) can thicken the lines and should be avoided if possible. When tissue harmonic imaging (THI) is used, the calipers should be placed slightly inside the NT lines rather than on the lines as THI might thicken the lines.
   xi. Optimize view by keeping face of transducer parallel to the long axis of the fetus, i.e., insonation of nuchal skin at 90 degrees.
   xii. In magnifying the image (pre or post freeze zoom), important to turn the gain down to avoid the mistake of placing the caliper on the ill-defined (fuzzy) edge of the line, which can underestimate the nuchal measurement



c. Nasal bone
    i. Assess for presence or absence of nasal bone
    ii. CRL: 45-84mm (11+0 to 13+6 weeks gestation)
    iii. Midsagittal view (fetus may either be facing towards or away from the transducer)
    iv. Image size: head and upper thorax occupies most of the screen
    v. The face of the transducer is parallel to the long axis of the nasal bone and the skin over the nasal edge, i.e., 90 degree angle of insonation to the longitudinal axis of the nasal bridge and nasal bone. *** Note: The nasal bone may become sonographically invisible if there is a significant deviation from this angle.
    vi. Fetal profile must include an echogenic line representing the skin over nasal bridge and an echogenic line in front of it representing the skin over the nasal tip
    vii. Intracranial structures: hypoechoic areas representing the region of the thalamus, pons, and the medulla oblongata
    viii. If the nasal bone is present, a line that is more echogenic than the skin is seen within the nasal bridge. This line is approximately parallel to the skin over the bridge; the two lines form the “equal sign”.
    ix. Nasal bone evaluation may only be done if the fetus is facing the transducer.



Normal exam above.

Absent nasal bone to left