Look at Thalamo-Ventricular Complex
Suspect Agenesis of Corpus Callosum (ACC) in First Trimester

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Introduction
The corpus callosum is the largest commissure connecting the cerebral hemispheres. Agenesis of the corpus callosum (ACC), which may be either complete or partial, is found in about 1 per 4,000 births and it is commonly associated with aneuploidies and genetic syndromes.

Objectives
Aim of the study was to investigate the potential for first trimester diagnosis of ACC by measuring the diameter of the Thalamo-Ventricular Complex (TVC) and its relationship to diameter of the cerebral falx.

Methods
We prospectively examined 2037 patients in their 11-13+6 wks scan. In these patients, the diameter of the TVC and the diameter of the falx was measured in the midsagittal view of brain, where we measure the NT. In the same view the sphenoid bone (S) is located as a small triangular echogenic structure and the TVC diameter is measured as the maximum distance between upper border of the sphenoid bone to the upper border of the hypoechoic TVC and the Falx diameter is measured as the maximum distance between the border of the hypoechoic TVC with the echogenic falx inferiorly and the skin of the fetal head superiorly (Fig1). Then the ratio of both the diameters was calculated. All these fetuses were followed up at 18-20 wks.

Results
The ratio of the diameter of the TVC diameter to the falx diameter was smaller in normal fetuses as compared to fetus with agenesis of corpus callosum.

In 2031 fetuses, the ratio of TVC to falx diameter was < 1. In 6 patients the ratio > 1. One of the 6 patients showed a thickened nuchal translucency and CVS done showed trisomy 21. Rest of the 5 patients were followed up by the second trimester anomaly scan, which showed features suggestive of ACC. Two of these 5 patients also had associated malformations.

Conclusions
This study confirms that midsagittal view of the fetal brain at 11–13+6 weeks shows abnormalities in the TVC and falx area of the brain in majority of fetuses with ACC. This simple measurement can be implemented in this plane while assessing the nuchal translucency, the nasal bone and intracranial translucency.